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# THE BIRDS

OF

NORTH AND MIDDLE AMERICA:

A DESCRIPTIVE CATALOGUE

OF THE

HIGHER GROUPS, GENERA, SPECIES, AND SUBSPECIES OF BIRDS  
KNOWN TO OCCUR IN NORTH AMERICA, FROM THE  
ARCTIC LANDS TO THE ISTHMUS OF PANAMA  
THE WEST INDIES AND OTHER ISLANDS  
OF THE CARIBBEAN SEA, AND THE  
GALAPAGOS ARCHIPELAGO

BY

ROBERT RIDGWAY,  
CURATOR, DIVISION OF BIRDS.

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## PART VII.

Family CUCULIDÆ.

Family PSITTACIDÆ.

Family COLUMBIDÆ.

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WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1916.



## PREFACE.

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The Families of birds included in the present and preceding volumes of this work are as follows:

Part I, issued October 24, 1901, included the Fringillidæ (Finches) alone.

Part II, issued October 16, 1902, included the Tanagridæ (Tanagers), Icteridæ (Troupials), Cœrebidæ (Honey Creepers), and Mniotiltidæ (Wood Warblers).

Part III, issued December 31, 1904, included the Motacillidæ (Wagtails and Pipits), Hirundinidæ (Swallows), Ampelidæ (Waxwings), Ptilogonatidæ (Silky Flycatchers), Dulidæ (Palm Chats), Virconidæ (Vireos), Laniidæ (Shrikes), Corvidæ (Crows and Jays), Paridæ (Titmice), Sittidæ (Nuthatches), Certhiidæ (Creepers), Troglodytidæ (Wrens), Cinclidæ (Dippers), Chamæidæ (Wren-Tits), and Sylviidæ (Warblers).

Part IV, issued July 1, 1907, contained the remaining groups of Oscines, namely, the Turdidæ (Thrushes), Zeledoniidæ (Wren-Thrushes), Mimidæ (Mockingbirds), Sturnidæ (Starlings), Ploceidæ (Weaverbirds), and Alaudidæ (Larks), together with the Haplophone or Oligomyodian Mesomyodi, comprising Oxyruncidæ (Sharpbills), Tyrannidæ (Tyrant Flycatchers), Pipridæ (Manakins), and Cotingidæ (Chatterers).

Part V, issued November 29, 1911, includes the Tracheophone Mesomyodi, represented by the Pteroptochidæ (Tapaculos), Formicariidæ (Antbirds), Furnariidæ (Ovenbirds), and Dendrocolaptidæ (Woodhewers); the Macrochires, containing the Trochilidæ (Humming Birds) and Micropodidæ (Swifts), and the Heterodactylæ represented only by the Trogonidæ (Trogons).

Part VI, issued April 8, 1914, contains the Picariæ, comprising the families Picidæ (Woodpeckers), Capitonidæ (Barbets), Ramphastidæ (Toucans), Bucconidæ (Puff Birds), and Galbulidæ (Jacamars); the Anisodactylæ, with families Alcedinidæ (Kingfishers), Todidæ (Todies), and Momotidæ (Motmots); the Nycticoraciæ, with families Caprimulgidæ (Goatsuckers) and Nyctibiidæ (Potoos), and the Striges, consisting of families Tytonidæ (Barn Owls) and Bubonidæ (Eared Owls).

Part VII (the present volume) contains the Coccygiformes (Cuckoo-like Birds), Psittaciformes (Parrots), and Columbiformes (Pigeons).

Part VIII (now in course of preparation) will contain the Charadriiformes, which include the Shore Birds (*Limicolæ*), Gulls (*Lari*), and Auks (*Alcæ*), together with their nearer allies.

In the seven volumes thus far published are treated in detail (that is, with full descriptions and synonymies), besides the Families above mentioned and the higher groups to which they belong, 564 genera and 2,319 species and subspecies, besides 191 extralimital genera and 561 extralimital species and subspecies whose diagnostic characters are given in the "Keys" and their principal synonymy (full synonymy in case of the genera) given in footnotes.

Acknowledgments are due to the same individuals and institutions as those mentioned in previous volumes for the loan of specimens needed in the preparation of the present one; also to the State University of Iowa (through Prof. C. C. Nutting) for the privilege of examining a series of 16 specimens of the Louisiana Parroquet from the Indian Territory.<sup>1</sup>

To Dr. Charles W. Richmond, Acting Curator of the Division of Birds, U. S. National Museum, the author is indebted for the privilege of free access to his unique and extremely valuable card-catalogue collection of references to the first publication of generic, specific, and subspecific names, for information concerning puzzling questions of nomenclature, and invaluable help in reading proof sheets; and to Mr. J. H. Riley, Aid in the Division of Birds, for assistance in various ways.

Measurements of specimens for use in the preparation of the present volume were made by Miss Celestine B. Hodges, and the original drawings of the outline figures illustrating generic details (Pls. I-XXIV), except those previously published, were made by Miss Helen E. Lewis, both of Washington, D. C.

ROBERT RIDGWAY.

JANUARY 24, 1916.

<sup>1</sup> Specimens borrowed for use in the preparation of this volume are as follows:

American Museum of Natural History .....	1,169
Museum of Comparative Zoology (chiefly the Bangs Collection).....	1,174
Field Museum of Natural History .....	599
Carnegie Museum .....	555
Academy of Natural Sciences, Philadelphia.....	191
William Brewster.....	52
State University of Iowa.....	16
Total.....	3,756
Cuculidæ.....	1,276
Psittacidæ.....	989
Columbidæ.....	1,491

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<sup>1</sup> This becomes *Geococyx velox* (A. Wagner). See Addenda, p. 502.



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# THE BIRDS

OF

## NORTH AND MIDDLE AMERICA.

By ROBERT RIDGWAY,  
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### Part VII.

#### Order COCCYGIFORMES.

##### CUCKOO-LIKE BIRDS.

- = *Coccyges* SCLATER, *Ibis*, 1880, 400, in text (restricted to Cuculidæ+Musophagidæ).—FÜRBRINGER, *Unters. Morph. Syst. Vög.*, ii, 1888, 1567 ("Gens" of Suborder Coccygiformes).—SEEBOHM, *Classif. Birds*, 1900, pp. vii, xi, 10.—SHARPE, *Rev. Rec. At. Classif. Birds*, 1891, 82; *Hand-list*, ii, 1900, 152.
- = *Cuculoidæ* STEJNEGER, *Sci. Rec.*, ii, May 15, 1884, 155; *Stand. Nat. Hist.*, iv, 1885, 371 (Superfamily of "Picariæ").
- > *Coccygiformes* FÜRBRINGER, *Unters. Morph. Syst. Vög.*, ii, 1888, 1567 (Suborder of Coracornithes; includes Bucconidæ and Galbulidæ).
- > *Cuculiformes* GADOW, *Bronn's Thier-Reich, Vög.*, ii, 1893, 212, 300; *Classif. Vertebr.*, 1898, pp. xv, 36 (includes Psittaciformes).—KNOWLTON, *Birds of the World*, 1909, 50 (includes Psittaciformes).
- = *Cuculiformes* PYCRAFT, *Proc. Zool. Soc. Lond.*, 1903, pt. 1, 258.
- = *Cuculi* GADOW, *Bronn's Thier-Reich, Vög.*, ii, 1893, 213, 300; *Classif. Vertebr.*, 1898, pp. xv, 36 (Suborder).

Homalognatous, desmopelmous, desmognathous zygodactyle birds, with dorsal vertebræ heterocœlous, rostrum fixed (not movably articulated with skull), bill not hooked nor furnished with cere, feet not prehensile, tarsal envelope scutellate, expansor secundariorum muscle present, secondaries quinto-cubital, rectrices 8-10, down on apteria only, and young gymnopædic.

In the general scheme of classification presented in Part I (p. 11) of this work, the "Order Cuculiformes" includes the Parrots as well as the Cuckoo-like birds (Cuculidæ and Musophagidæ), this being in accordance with the views of Gadow and Garrod. The Parrots are, however, so distinct and sharply circumscribed as a group that it seems better to consider them as a separate order, Psittaciformes (immediately following the present group), and segregate the other two

groups of the "Cuculiformes" under the name Coccygiformes, as has been done by many authorities, among them such excellent ones as Fürbringer, Stejneger, and Pycraft. Characters in which the two orders agree and wherein they differ are as follows:—

CHARACTERS POSSESSED IN COMMON BY COCCYGIFORMES AND PSITTACIFORMES.

Homalognatous, desmopelmous, zygodactyle birds with palate desmognathous; nares holorrhinal, usually impervious; basipterygoid processes absent; cervical vertebræ 13–15; metasternum fenestrated or indented; procoracoid process large; ectepicondyloid process of humerus present; hypotarsus complex; rhamphotheca simple; toes zygodactylous or the outer (fourth) reversible, the deep plantar tendons of Type I (Galline); myological formula AXY or ABXY (except in Psittaciformes, part); both carotids present (except in Psittaciformes, part); syrinx bronchial, tracheo-bronchial, or pseudo-bronchial; primaries 10; young gymnopædic or (in Psittaciformes part, at least), semi-ptilopædic; nidification nidicolous.

DIFFERENTIAL CHARACTERS OF COCCYGIFORMES AND PSITTACIFORMES.

- a. Dorsal vertebræ heterocœlous; rostrum fixed (immovably articulated with skull), the bill not hooked nor furnished with cere; tarsal envelope scutellate; feet not prehensile; expansor secundariorum muscle present; rectrices 8–10; secondaries quinto-cubital; down on apteria only; young gymnopædic. . . . . **Coccygiformes.**
- aa. Dorsal vertebræ opisthocœlous; rostrum separately movable, the bill hooked and furnished with a cere (this sometimes feathered, however); feet prehensile; expansor secundariorum muscle absent; rectrices 12–14; secondaries aquinto-cubital; down on both pteryla and apteria; young ptilopædic or semiptilopædic. . . . . **Psittaciformes** (p. 103).

KEY TO THE SUPERFAMILIES OF COCCYGIFORMES.

- a. Cæca present; contour feathers without aftershafts; oil-gland nude; outer (fourth) toe permanently reversed; furcula Y-shaped; planta tarsi scutellate; tomia smooth; bill variable but never short and thick. . . . . **Cuculi** (p. 3).
- aa. Cæca absent; contour feathers with aftershaft; oil-gland tufted; outer (fourth) toe reversible (capable of being directed backward or forward); furcula U-shaped; planta tarsi granulated; tomia more or less distinctly serrated; bill short and thick, with culmen strongly arched, the maxilla sometimes developed basally into a broad "casque" or frontal shield. . . . . **Musophagi** (extralimital).<sup>a</sup>

<sup>a</sup> = [*Zygodactyl*] *frugivori* Vieillot, Analyse, 1816, 28. = *Musophagi* Sharpe, Review Recent At. Classif. Birds, 1891, 82; Hand-list, ii, 1900, 152.

The Superfamily Musophagi contains a single Family, Musophagidæ (Bonaparte, Saggio distr. An. Vert., 1831, 39; Prodr. Syst. Orn., 1840, 18; Consp. Av., i, 1850, 87; Fürbringer, Unters. Morph. Syst. Vög., ii, 1888, 1315, 1567), represented by the Touracos or Plantain-eaters, a group of frugivorous arboreal birds peculiar to Africa south of the Sahara. They vary in size from about the dimensions of a domestic dove to those of a crow, and in external form are characterized by a relatively very small head, with short, stout bill, rather long neck, and long, broad tail. A majority of the species are very beautifully colored, rich hues of purple or green predominating.



## Superfamily CUCULI.

## THE CUCKOOS.

=*Cuculi* SHARPE, Review Recent At. Classif. Birds, 1891, 82; Hand-list, ii, 1900, pp. xiii, 155.

> [*Zygodactyli imberbi* VIEILLOT, Analyse, 1816, 27 (includes Leptosomatidæ and Indicatoridæ).

> *Cuculidæ* BONAPARTE, Consp. Av., i, 1850, 96 (includes Indicatoridæ).

> *Coccyges* SHELLEY, Cat. Birds Br. Mus., xix, 1891, 209 (includes Musophagidæ).

Cuculine birds with the outer (fourth) toe permanently reversed, cæca present, oil-gland nude, and contour feathers without aftershafts.

Other anatomical characters may be found mentioned under Order Coccygiformes; but as an amplification of those pertaining to the structure of the foot it may be mentioned that the hallux is connected with the *flexor longus hallucis* and not with the *flexor perforans digitorum*, which leads to the second, third, and fourth toes.

## Family CUCULIDÆ.

## THE CUCKOOS.

=*Cuculinæ* NITZSCH, Obs. Av. Art. Carot. Com., 1829, 15.

=*Cuculidæ* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 71.—LILLJEBORG, Proc. Zool. Soc. Lond., 1866, 16.—COUES, Key N. Am. Birds, 1872, 188; 2d ed., 1884, 470.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 470.—STEJNEGER, Stand. Nat. Hist., iv, 1885, 373.—FÜRBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1321, 1567.—SHARPE, Hand-list, ii, 1900, 155.

> *Cuculidæ* BONAPARTE, Prodr. Syst. Orn., 1840, 17 (includes Indicatoridæ); Consp. Av., i, 1850, 96 (includes Indicatoridæ).—CABANIS and HEINE, Mus. Hein., iv, Heft 2, 1862, 1 (includes Indicatoridæ and Leptosomatidæ).

< *Cuculidæ* REICHENOW, Vög. Zool. Gart., ii, 1882, vii, (excludes Crotophaginæ).

=*Cuculi* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, 206.—SEEBOHM, Classif. Birds, 1890, vii, xi, 12.—SHARPE, Rev. Rec. At. Classif. Birds, 1891, 82; Hand-list, ii, 1900, 155.—BEDDARD, Classif. Birds, 1898, 272.

The Cuculidæ being the only Family contained in the Superfamily Cuculi, it follows that the characters are precisely the same.

The Cuckoos are long-tailed, mostly arboreal, but sometimes terrestrial and rasorial, zygodactylous birds having the fourth toe permanently reversed or directed backward, the tarsi broadly scutellate, the rectrices eight to (usually) ten, the nostrils exposed, the rectal bristles inconspicuous or obsolete. The bill is extremely variable as to size and shape, but is always compressed and more or less decurved at the tip. The young are nidicolous (altricial) and gymnopædic. The nest (if any) is of very rude construction, and the eggs extremely variable as to coloration and number. Many species are parasitic in their reproduction, laying their eggs in the nests of other birds, and allowing their young to be reared by the foster parents, often at the sacrifice of the latter's progeny, who are frequently unceremoniously crowded or thrown from the nest by the interloper.

The Cuculidæ are a very extensive group of nearly world-wide distribution, only the colder regions, where their insect food is want-

ing, being without representatives of the family. The group is much more numerously represented in the Eastern than in the Western Hemisphere, only eleven of the forty-six genera and forty-three of the two hundred and two species enumerated in Sharpe's "Hand-list of the Genera and Species of Birds" (ii, 1891, 155-175) being American. All the American forms are peculiar, however, none of the genera being represented elsewhere.

As a rule the Cuckoos are birds of dull plumage, a more or less plain grayish, brown, or partly rufous coloration prevailing; but there are exceptions in some of the Old World genera, notably *Chrysococcyx* and *Metallococcyx*, of Africa, in which the upper parts are a beautiful metallic green and the under parts satiny yellow, recalling and rivaling, the brilliant coloring of the Trogons. No American species of the group is remarkable for showy coloration, the nearest approach being the South American *Crotophaga major*, in which the general color is glossy blue-black verging in parts to semi-metallic violet-blue, varied with edgings of greenish bronze or bronze-green.

The classification of the Cuculidæ has not yet been placed on even an approximately satisfactory basis, and therefore the present work will deal with the American forms exclusively, except when necessary to refer to an Old World form for sake of comparison.

KEY TO THE AMERICAN GENERA OF CUCULIDÆ.

- a. Rectrices 10; loreal region mostly (usually wholly) feathered; plumage of head and neck soft (normal). (*Cuculina*.)
- b. Tarsus with upper portion feathered; wing-tip much longer and more pointed, the distance from tip of longest primaries to tip of distal secondaries equal to about half the length of wing, the tenth (outermost) primary equal to fourth, the ninth equal to or longer than seventh; nostril roundish, with raised margin; tail much shorter than wing.....*Cuculus* (p. 6).
- bb. Tarsus wholly naked; wing-tip much shorter and more rounded, the distance from tip of longest primaries to tip of distal secondaries much less than half the length of wing, the tenth (outermost) primary not longer (usually much shorter) than second, the ninth not longer (usually much shorter) than sixth; nostril variable, but never as in *Cuculus*; tail very nearly as long as to much longer than wing.
- c. Depth of bill at anterior end of nostrils not less (usually greater) than at base of gony, the latter not prominent; bill much stouter, more strongly decurved terminally; upper tail-coverts not unusually developed, or else (genus *Tapera*) the rectrices relatively much narrower and bill, from rictus, shorter than middle toe without claw, deep, and with culmen very strongly decurved.
- d. Tarsus not more than one-fourth as long as wing.
- e. Wing more pointed, the ninth primary equal to or longer than fourth (sometimes much longer than sixth); tail much less than one and a half times as long as wing.
- f. Wing-tip much longer and more pointed, the longest primaries exceeding distal secondaries by nearly to much more than one-third the length of wing, the ninth primary equal to or longer than fifth, the tenth (outermost) little if any shorter (usually longer) than distal secondaries; tail much longer than wing, graduated for at least one-third its length.....*Coccyzus* (p. 10).

- ff.* Wing-tip much shorter and more rounded, the longest primaries exceeding distal secondaries by only one-fourth the length of wing, the ninth primary shorter than fourth, the tenth (outermost) very much shorter than distal secondaries; tail very little longer (sometimes shorter) than wing, slightly rounded.....*Micrococcyx* (extralimital).<sup>a</sup>
- ee.* Wing more rounded, the ninth primary shorter than first; tail nearly one and a half times to twice as long as wing.
- f.* Bill relatively much shorter, deeper, and more strongly decurved, its depth at anterior end of nostrils about equal to half the distance from nostril to tip of maxilla, the exposed culmen not longer (usually shorter) than tarsus and decurved from near base.
- g.* Tail only one and a half times as long as wing, or slightly less; tenth (outermost) primary decidedly less than half as long as the longest; small (wing less than 110 mm.).....*Coccyzinae* (p. 42).
- gg.* Tail more than one and a half times as long as wing; tenth primary not less than half as long as the longest; large (wing 134-197 mm.).
- h.* Tail much more than one and a half times as long as wing, graduated for much more than one-third (sometimes for one-half) its length; bill and feet relatively smaller; upper parts rufescent (the pileum sometimes gray), throat rufescent or vinaceous, under parts of body gray or dusky.....*Piaya* (p. 45).
- hh.* Tail little more than one and a half times as long as wing, graduated for not more than one-third its length; bill and feet relatively larger; upper parts olive or slaty, the tail blackish; under parts chestnut (one species with throat white shading into gray on chest).....*Hyetornis* (p. 53).
- ff.* Bill relatively much longer, more slender, and straighter, its depth at anterior end of nostrils equal to less than one-third (sometimes only one-fourth) the distance from nostril to tip of maxilla, the exposed culmen decidedly longer than tarsus and nearly straight to near tip of maxilla where rather abruptly decurved.....*Saurothera* (p. 57).
- dd.* Tarsus more than one-fourth as long as wing.
- e.* Tarsus less than one-third as long as wing; upper tail-coverts very long, covering more than basal two-thirds of tail; bill very short, its length from anterior end of nostril not greater than distance from same point to anterior angle of eye; wing-tip rather long, the longest primaries exceeding distal secondaries by more than one-fifth the length of wing; seventh primary longest, the ninth much longer than third.  
*Tapera* (p. 66).
- ee.* Tarsus more than one-third as long as wing; upper tail-coverts short or only moderately developed, covering not more (usually much less) than basal half of tail; bill longer, its length from anterior end of nostril much greater than distance from same point to anterior angle of eye; wing-tip very short, the longest primaries very little if any longer than distal secondaries; seventh primary shorter than the longest, the ninth shorter than first.
- f.* Third to sixth primaries longest and longer than longest secondaries; nostril open, not distinctly operculate; mesorhinium broadly rounded or flattened; depth of bill at anterior end of nostril equal to less than half the distance from nostril to tip of maxilla.

<sup>a</sup> *Micrococcyx* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 99. (Type, *Coccyzus pumilus* Strickland.) (*Μικρός*, small; *Κόκκυξ*, a cuckoo.)  
South America. (Two species.)

*g.* Culmen (from base) much shorter than tarsus, decurved from near base; depth of bill at anterior end of nostril equal to slightly less than half the distance from nostril to tip of maxilla; gonys decidedly longer than mandibular rami; rectrices wider distally; pileum not crested; coloration plain; small (wing less than 112 mm.).

**Morococcyx** (p. 70).

*gg.* Culmen (from base) equal to tarsus, nearly straight for basal half or more, strongly and rather abruptly decurved terminally; depth of bill at anterior end of nostril equal to only one-third the distance from nostril to tip of maxilla; gonys decidedly shorter than mandibular rami; rectrices narrower distally; pileum crested; coloration conspicuously streaked; large (wing more than 136 mm.).

**Geococcyx** (p. 74).

*ff.* First to fifth primaries longest and not longer than longest secondaries; nostril narrow, nearly closed by the broad, convex operculum; mesorhinium narrow, sharply ridged; depth of bill at anterior end of nostril equal to more than half the distance from nostril to tip of maxilla.

**Neomorphus** (p. 83).

*cc.* Depth of bill at anterior end of nostril less than at angle of gonys, the latter prominent by contraction of mandibular rami; bill slender, not strongly decurved terminally; upper tail-coverts greatly developed, covering whole of tail. . . . . **Dromococcyx** (p. 85).

*aa.* Rectrices 8; loreal region wholly naked; plumage of head and neck harsh, stiffened. (*Crotophaga*ix.)

*b.* Culmen not elevated, very broadly rounded; gonys shorter than mandibular rami, rounded; nostril very narrow, slit-like; rump and under parts plain white or pale buff; pileum, back, etc., conspicuously streaked; tail with a buff basal and a white terminal zone. . . . . **Guira** (extralimital).<sup>a</sup>

*bb.* Culmen elevated (sometimes strongly arched), compressed into a knife-like ridge; gonys equal to or longer than mandibular rami, more or less distinctly ridged; nostril oval; coloration wholly blackish (more or less metallic in parts).

**Crotophaga** (p. 90)

### Genus CUCULUS Linnæus.

*Cuculus* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 110. (Type, *C. canorus* Linnæus.)

*Nicoclarus* BONAPARTE, Ateneo Italiano, ii, 1854, 121 (Consp. Vol. Zygod., 1854, 6). (Type, *Cuculus optatus* Gould = *C. intermedius* Vahl.)

*Penthoceryx* CABANIS, Mus. Hein., iv, 1862, 16. (Type, *Cuculus sonnerati* Latham.)

*Heteroscenes* CABANIS, Mus. Hein., iv, 1862, 26. (Type, *Columba pallida* Latham.)

Medium-sized Cuculinæ (length, in typical species, about 300–345 mm.) with wing long and pointed (the seventh and ninth primaries next to longest, the tenth equal to fourth), tarsi with upper third, or more, feathered, and tail much shorter than wing.

Bill small (about half as long as head), gently but decidedly decurved from base; culmen narrowly rounded, the exposed portion slightly shorter than middle toe without claw; gonys slightly more

<sup>a</sup> *Guira* Lesson, Traité d'Orn., 1831, 149. (Type, *Cuculus guira* Gmelin.)—*Octo- pteryx* Kaup, Das Thierreich ("Die Vögel, System. beschr."), Bd. 11, Th. 1, 1836, 25. (Type, *Cuculus guira* Gmelin.)—*Ptiloleptus* Swainson, Classif. Birds, ii, 1837, 323. (Type, *P. cristatus* Swainson = *Cuculus guira* Gmelin.)

Brazil to Paraguay and Argentina. (Monotypic.)

than twice as long as the very short mandibular rami, faintly concave; mandibular tomia faintly notched subterminally. Nostril roundish or broadly oval, with raised margin or rim. Wing long and pointed, the longest primaries exceeding secondaries by half the length of wing; eighth primary longest, the seventh and ninth about equal, the tenth (outermost) nearly as long as fourth. Tail shorter than wing (but more than three-fourths as long), graduated for about one-fourth its length, the rectrices becoming slightly narrower distally. Tarsus shorter than middle toe with claw, the upper portion clothed with rather long, soft feathers.

*Plumage and coloration.*—Plumage compact, that of the rump very dense and matted; tail-coverts long, covering more than basal half of tail (both above and below); head completely and densely feathered (except a narrow space around eye), without any bristles about base of bill; no obvious eyelashes. Adults plain gray above and on throat, the under parts of body whitish, more or less barred with blackish; inner webs of primaries transversely spotted with white; tail blackish, narrowly tipped with white; young barred with dusky and rusty.

*Range.*—Eastern Hemisphere (one species accidental in Alaska). (About eleven species.)<sup>a</sup>

#### CUCULUS CANORUS TELEPHONUS (Heine).

##### KAMCHATKAN CUCKOO.

Similar to *C. c. canorus*<sup>b</sup> but adults with under parts much more narrowly barred.<sup>c</sup>

*Adult male.*—Above plain gray (nearest neutral gray, but slightly more bluish), slightly lighter and clearer on pileum, hindneck, rump, and upper tail-coverts, decidedly darker (dark neutral gray or dark purplish gray) on alulae and primary coverts; tail deep neutral gray shading into slate-blackish distally (the color very faintly glossed with bronze-greenish), all the rectrices tipped with white (sometimes very narrowly, however, on middle pair); lateral rectrices with a series of small, more or less cordate, spots of white along shaft (sometimes extending across outer web), the other rectrices (including sometimes middle pair) with indications of these markings in the form of short longitudinal streaks, the edge of inner web of all (except middle pair) more or less distinctly spotted or irregularly edged with white; chin, throat, and chest plain pale gray (nearest pale neutral gray);

<sup>a</sup> The number given in Sharpe's "Hand-list" (ii, 1900, 158, 159). Of these only *C. canorus*, type of the genus, and its close allies, has been examined in the present connection.

<sup>b</sup> [*Cuculus*] *canorus* Linnaeus, Syst. Nat., ed. 10, i, 1758, 110 (Europe); ed. 12, i, 1766, 168.—*Cuculus canorus* Naumann, Vög. Deutschl., v, 1826, 196, pls. 127, 128, 129; Gould, Birds Europe, iii, 1836, pl. 240 and text; Birds Great Brit., iii, 1873, pls. 67, 68, and text; Dresser, Birds Europe, v, 1878, 199, pl. 299; Shelley, Cat. Birds Brit. Mus., xix, 1891, 245, part only.

<sup>c</sup> Owing to lack of sufficient material I am unable to give a more satisfactory statement of the differential characters of this and allied forms.

rest of under parts white, narrowly and rather irregularly barred with blackish slate or dull slate-blackish, the bars narrower and more sparse (sometimes nearly obsolete) on abdomen; under wing-coverts and axillars white, the former narrowly and irregularly barred with deep gray, the latter more regularly barred with darker gray; under surface of remiges deep brownish gray (between deep neutral gray and mouse gray), the subbasal portion of inner web of outermost primary and greater part of inner web of other primaries with broad bars or transverse spots of white—the proximal portion of second and third (from outside), however, immaculate deep gray for a considerable distance; bill horny black, the mandible bluish in middle, yellowish basally; rictus, bare orbital space, and iris yellow; inside of mouth orange-yellow; legs and feet deep yellow;<sup>a</sup> length (skins), 320–343 (329); wing, 207–240 (224.1); tail, 154.5–182 (173.7); exposed culmen, 22.5–24.5 (23.7); tarsus, 20–23 (21.8); outer anterior toe, 20–22.5 (21.2).<sup>b</sup>

*Adult female*.—Similar to the adult male and perhaps not always distinguishable, but usually(?)<sup>c</sup> with chest (especially lower portion) suffused, more or less, with pale brownish buffy and showing faint bars of darker; length (skins), 299–300 (299.7); wing, 202–205.5 (203.7); tail, 157–161 (159.3); exposed culmen, 20–22 (20.7); tarsus, 20.5–22 (21); middle toe, 18.5–19 (18.8).<sup>d</sup>

<sup>a</sup> According to Stejneger.

<sup>b</sup> Eight specimens.

<sup>c</sup> In the series examined there are only three specimens determined by their collectors as females. Two of these are as described above, the third lacking the buffy suffusion but showing faint grayish bars on the lower chest, the plain pale gray of the throat being thus much less abruptly contrasted with the barred under parts than in adult males. A single male (probably immature) has even a stronger suffusion of brownish buffy on the lower chest than either of the females mentioned.

<sup>d</sup> Three specimens, from Wa Shan (West Szechuan) and Peking, China. These may not be *C. c. telephonus*. They are evidently the same form of which measurements of the males are given below, which seem too small to represent this identical form of the species.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Kamchatka (Petropaulski and Bering I.).	228	175.5	24	22.7	21.7
Three adult males from northeastern Siberia.....	218.3	168.5	23.3	21.5	21.2
One adult male from southern Korea (Fusan).....	218.5	182	23.5	22.5	20.5
One adult male from Vale of Kashmir.....	240	178.5	23.5	22	22
One adult male from St. Paul Island, Pribilof group.....	223	173	23	21	21
Seven adult males ( <i>C. c. telephonus</i> ??) from China.....	207.3	157.2	21.7	20.7	20.1
One adult male from Hakodate, Japan ( <i>C. c. telephonus</i> ??).....	208	161.5	23	21	21
One adult male from Sapporo, Hokkaido, Japan ( <i>C. c. telephonus</i> ?).....	220	162.5	22	20	20.5
FEMALES.					
Two adult females from China (Peking and Wa Shan) ( <i>C. c. telephonus</i> ??).....	203.7	159.3	20.7	21	18.8
One adult female of <i>C. peninsulæ</i> from Copper I., Kamchatka. (Type.).....	206	164	23	20.5	20.5

*Young*.—Above everywhere (including remiges and rectrices) barred and transversely spotted with dusky grayish brown and pale rusty, many of the feathers, especially wing-coverts and remiges, tipped with whitish; under parts, including chin, throat, and chest, buffy white everywhere barred with dusky.

Northern Asia, from western Siberia to Kamchatka, Korea, Manchuria, and Japan, southward to the Himalayas; in winter, migrating to southern China, India, Malay Archipelago, and Moluccas; occasional in southeastern Europe; <sup>a</sup> accidental on St. Paul Island, Pribilof group, Alaska.

(?) *Cuculus borealis* PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 442, part.

*Cuculus striatus* (not of Drapiez, 1823?) SWINHOE, Ibis, 1861, 259, part (Talien Bay, n. China).—BLANFORD, Proc. Zool. Soc. Lond., 1893, 316, 317.

(?) *C[uculus] swinhoei* CABANIS and HEINE, Mus. Hein., iv, Heft i, Nov., 1862, 37, in text, part (n. China; *nomen nudum!*).

*Cuculus telephonus* HEINE, Journ. für Orn., xi, Sept., 1863, 352 (Japan).

*Cuculus canorus telephonus* STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 224 (Bering I. and Petropaulski, Kamchatka; crit.; habits; measurements); Proc. U. S. Nat. Mus., x, 1887, 141 (accidental on Bering I.); xxi, 1898, 286 (Kuril Islands).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1887, 607 (Séoul, Korea, April); 1888, 466 (Korea).—PALMER (W.), Auk, xi, 1894, 325 (St. Paul I., Pribilof group, Alaska; 1 spec., July 4, 1890); Avif. Pribilof Is., 1899, 413 (descr.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xii, 1895, 164; Check List, 2d ed., 1895, no. 388.1; 3d ed., 1910, 182.—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 32.—HARTERT, Ibis, 1904, 429 (Ust-kutsk and Yakutsk, Lena R., Siberia); Vögel paläarktischen Fauna, Heft vii, Bd. ii, i, 1912, 948.—ALLEN, Bull. Am. Mus. N. H., xxi, 1905, 245 (Lake Kauka, Marcova, and Gichiga, n. e. Siberia; notes).—BLACKWELDER, Pub. 54, Carnegie Inst. (Res. in China, ii, pt. ii), 1907, 490 (s. Shen-si, n. China).—CLARK (A. H.), Proc. U. S. Nat. Mus., xxxviii, 1910, 59 (Petropaulski, Kamchatka), 160 (Fusan, Korea).

*C[uculus] canorus telephonus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 596.

*Cuculus canorus* (not of Linnaeus) SWINHOE, Proc. Zool. Soc. Lond., 1871, 395, part (Talien Bay, n. China).—BLAKISTON and PRYER, Ibis, 1878, 227 (Fujisan, Japan); Trans. Asiat. Soc. Japan, viii, 1880, 205 (Fujisan and Yezo in summer); x, 1882, 130 (Fujisan; Yezo in summer; crit.).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 245, part.

(?) *Cuculus canorooides* MÜLLER (S.), Nat. Gesch. Ned., etc., 1839-44, 235 (*nomen nudum!*; Java; Sumatra; Borneo; Timor).

(?) *Cuculus canorinus* (ex *C. canorooides* Müller, emendation) CABANIS, Journ. für Orn., 1872, 236 (Baikal).—TACZANOWSKI, Bull. Soc. Zool. France, 1876, 237.

*Cuculus canorinus* SWINHOE, Ibis, 1875, 451 (Hakodadi, Japan).—STEJNEGER, Naturen, 1882, 182 (Bering I.); Proc. U. S. Nat. Mus., vi, 1883, 71, part (Bering I.).—TACZANOWSKI, Bull. Soc. Zool. France, 1882, 395.—DYBOWSKI, Bull. Soc. Zool. France, 1883, 368.

*Cuculus canorus johanseni* TSCHUSI, Orn. Jahrb., xiv, 1903, 165 (Tomsk, w. Siberia; coll. Von Tschusi).

<sup>a</sup> Statement of general range adapted from Hartert, Die Vögel der paläarktischen Fauna, Heft vii, Bd. ii, 1, p. 948. (1912.)

## Genus COCCYZUS Vieillot.

- Coccyzus* VIEILLOT, Analyse, 1816, 28. (Type, *Coucou de la Caroline* Buffon=  
*Cuculus americanus* Linnæus.)
- Coccygus* (emendation) BOIE, Isis, 1826, 977.
- Coccyzon* (emendation) GLOGER, in Froriep's Notizen, xvi, 1827, 277.
- Coccygon* (emendation) BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 264 (in  
synonymy of *Coccygus*).
- Coccyssus* (emendation?) SAVI, Orn. Toscana, i, 1827, 153.
- Coccygius* (emendation) NITZSCH, Pterylographia, 1840, 130.
- Coccyx*<sup>a</sup> MORRIS, in N. Wood's Naturalist, ii, no. 9, June, 1837, 136. (Types,  
*Cuculus americanus* Linnæus and *C. canorus* Linnæus.)
- Cureus* BOIE, Isis, 1831, 541. (Type, *Cuculus americanus* Linnæus.)
- Erythrophrys* SWAINSON, Classif. Birds, ii, 1837, 322. (Type, *Cuculus carolinensis*  
Wilson=*C. americanus* Linnæus.)
- Nesococcyx*<sup>b</sup> CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1862, 79, footnote.  
(Type, *Coccyzus ferrugineus* Gould.)

Medium-sized or rather small Cuculinae (length about 240-390 mm.) with bill decidedly shorter than head, compressed and decurved terminally; tarsus about as long as culmen (from base), naked; wing rather long and pointed, the longest primaries exceeding secondaries by nearly to much more than one-fourth the length of wing, the tenth (outermost) primary little if any shorter (usually longer) than distal secondaries; tail much longer than wing, graduated for at least one-third its length, and plumage without spots or streaks (mostly plain olive or grayish above, whitish or buffy beneath), the rectrices (usually black) more or less broadly tipped with white.

Bill decidedly shorter than head, about as wide as deep (sometimes slightly wider) basally, rather abruptly compressed toward the distinctly decurved tip; culmen (from base) about as long as tarsus, decurved from base, rounded (more narrowly so in *C. erythrophthalmus*), the mesorhinium broader, sometimes slightly flattened; gonys nearly to quite twice as long as mandibular rami, more or less distinctly concave except near the slightly prominent base, indistinctly ridged; maxillary tomium without trace of subterminal notch. Nostril open, longitudinally oval or elliptical-oval, its upper-posterior edge sometimes slightly produced. Wing moderate, rather pointed, the longest primaries exceeding distal secondaries by nearly to much more than one-third the length of wing; seventh to eighth primaries longest, ninth equal to or longer than fifth, tenth (outermost) little if any shorter (usually longer) than distal secondaries. Tail much longer than wing (nearly to slightly more than one and one-fourth times as long), graduated for at least one-third its length, the rectrices rather narrow. Tarsus equal to middle toe with claw (*C. erythrophthalmus*, *C. melacoryphus*) or longer (other species), only a small part of the extreme upper portion feathered.

<sup>a</sup> κόκκυξ, a cuckoo.

<sup>b</sup> Von νήσος, Insel und κόκκυξ Kuckuk. (Cabanis and Heine.)



*Plumage and coloration.*—Plumage in general compact but soft and blended; pileum not crested; upper tail-coverts moderate, covering not more than basal half of tail; a naked crescentic space beneath lower eyelid; eyelashes obsolete or very minute; no trace of bristles about base of bill. Above plain brownish gray or olive (sometimes clear gray on pileum), the remiges sometimes with more or less of cinnamon-rufous, the tail (except middle rectrices) usually black broadly tipped with white; in some species a blackish orbital and auricular area; under parts plain whitish or buffy; sexes alike, and young not materially different. (In *C. lansbergi*, the plumage mostly rufescent above, with gray pileum.)

*Range.*—Temperate and tropical North and South America, including West Indies and Galapagos Islands. (About seven species, with additional subspecies.)

## KEY TO THE SPECIES AND SUBSPECIES OF COCCYZUS.

- a. Hindneck, back, and scapulars grayish brown, not very, if at all, different from color of head; under parts not darker than light ochraceous-buff.
- b. Lateral rectrices black (in adults) broadly tipped with white.
- c. Auricular region concolor with pileum, or very slightly darker; under parts white, without buffy tinge. (*Coccyzus americanus*.)
- d. Inner webs of primaries largely cinnamon-rufous, their outer webs more or less strongly tinged with the same; color of upper parts slightly lighter; larger (wing averaging more than 140, tail averaging more than 140 mm.).
- e. Smaller (wing averaging 143.6 in male, 146.4 in female; tail 140.7 in male, 145.7 in female; exposed culmen 26.4 in male, 27 in female). (Eastern United States, south in winter through West Indies and through eastern Mexico and Central America to northern South America.)  
*Coccyzus americanus americanus* (p. 12).
- ee. Larger (wing averaging 149.6 in male, 150 in female; tail 147.1 in male 147.2 in female; exposed culmen 27.7 in male and female). (Western United States, north to British Columbia; south in winter to Costa Rica.)  
*Coccyzus americanus occidentalis* (p. 17).
- dd. Inner webs of primaries pale buffy or dull buffy whitish proximally, without cinnamon-rufous, their outer webs not at all tinged with cinnamon-rufous; color of upper parts slightly darker; smaller (wing averaging 135.2, tail 138.3). (Island of Sombbrero, Lesser Antilles;<sup>a</sup> eastern South America, from Guiana to southern Brazil and Argentina.)  
*Coccyzus americanus julieni* (p. 19).
- cc. Auricular region blackish, in strong contrast with color of pileum; under parts more or less buffy.
- d. Mandible yellow, tipped with black.
- e. Wings without rufescent color. (*Coccyzus minor*.)
- f. Suborbital and subauricular regions and sides of neck and chest not tinged with gray.
- g. Darker, with pileum concolor with back, and smaller (wing averaging 128.7 in male, 132.8 in female). (Atlantic coast, from lower Amazon Valley to Tamaulipas, Mexico.) . . . *Coccyzus minor minor* (p. 21).
- gg. Paler (the palest of all forms of the species, except *C. m. maynardi*), with pileum distinctly grayer than back, and larger (wing averaging 140.4 in male, 141.6 in female). (Pacific coast from Costa Rica to Sinaloa, Mexico.) . . . . . *Coccyzus minor palloris* (p. 23).

<sup>a</sup> Possibly this is the breeding bird on other islands in the West Indies.

- ff.* Suborbital and subauricular regions and sides of neck and chest more or less tinged with pale gray (at least in part).
- g.* Smaller, especially the bill (wing averaging less than 134 in male, less than 135 in female; exposed culmen averaging less than 28 mm.).
- h.* Under parts much paler, strongly buffy only posteriorly. (Bahamas, Florida Keys, and Gulf Coast of southern Florida; occasional in Cuba and Haiti; Grand Cayman?).  
*Coccyzus minor maynardi* (p. 25).
- hh.* Under parts much more deeply colored, distinctly buffy throughout. (Cuba?; Haiti; Jamaica; Porto Rico and adjacent islands; St. Thomas; St. Johns; Virgin Gorda; Tortola; St. Croix; Grand Cayman?; Abaco I., Bahamas; Florida Keys and Gulf coast of southern Florida?).....*Coccyzus minor nesiotæ* (p. 26).
- gg.* Larger (wing averaging more—usually much more—than 134, exposed culmen averaging 29 or more).
- h.* Color of under parts much deeper than in *C. nesiotæ*. (Dominica; Martinique; Guadeloupe.)...*Coccyzus minor dominicæ* (p. 31.)
- hh.* Color of under parts not deeper (sometimes paler) than in *C. nesiotæ*.
- i.* Averaging not paler than in *C. m. nesiotæ*.
- j.* Smaller (wing averaging 134.7 in male, 140.7 in female; exposed culmen 29.1 in male, 28.7 in female). (Antigua; Barbuda; Swan Island.).....*Coccyzus minor rileyi* (p. 29.)
- jj.* Larger (wing averaging 146.2 in male, 143.3 in female; exposed culmen averaging 30.8 in male, 30.1 in female). (St. Vincent; Santa Lucia.)...*Coccyzus minor vincentis* (p. 30.)
- ii.* Averaging paler than *C. m. nesiotæ*.
- j.* Slightly paler; bill larger (exposed culmen averaging 30.9 in male, 30.4 in female). (Grenada and Grenadines.)  
*Coccyzus minor grenadensis* (p. 33).
- jj.* Decidedly paler; bill smaller (exposed culmen averaging 29 in male, 29.1 in female). (Islands of St. Andrews and Old Providence, Caribbean Sea; Aruba?)  
*Coccyzus minor abbotti* (p. 34.)
- ee.* Wings extensively rufescent. (Cocos Island, off Panama.)  
*Coccyzus ferrugineus* (p. 34).
- dd.* Mandible black, like maxilla. (Colombia to Peru, Guiana, Argentina, etc.; Galapagos Islands.).....*Coccyzus melacoryphus* (p. 35).
- bb.* Lateral rectrices brownish gray narrowly tipped with dull white and (in adults) with a subterminal spot or bar of dusky. (Eastern North America, south in winter to West Indies and through Mexico and Central America to Amazon Valley.).....*Coccyzus erythrophthalmus* (p. 38).
- aa.* Hindneck, back, and scapulars rusty brown, in conspicuous contrast with gray of head; under parts ochraceous-tawny. (Panama to Venezuela and Ecuador.)  
*Coccyzus lansbergi* (p. 41).

### COCCYZUS AMERICANUS AMERICANUS (Linnæus).

#### YELLOW-BILLED CUCKOO.

*Adults (sexes alike).*—Above plain grayish brown (nearest hair brown), faintly glossed with bronzy, usually becoming more grayish (sometimes distinctly gray) on forehead, the outer webs of primaries (especially the proximal ones) usually more or less suffused with rufescent brown, sometimes nearly uniform dull cinnamon-rufous; middle pair of rectrices usually becoming more dusky (sometimes

distinctly blackish) terminally, the remaining rectrices black, faintly-glossed with bluish or greenish, passing into grayish brown basally, each rectrix very broadly tipped with white, this decreasing in extent from the outermost, on which the white extends much farther on the outer web than on the inner; rectrix next to middle pair with white tip very narrow (rarely obsolete) and usually with the black duller or replaced by dusky grayish brown, rarely almost wholly grayish brown; auricular region grayish brown, sometimes concolor with pileum and hindneck, sometimes much darker; suborbital and malar regions, lower portion of auricular region, and entire under parts dull white, faintly shaded with pale bluish gray, except on under parts of body and under tail-coverts, which are sometimes very faintly tinged with pale buffy; under wing-coverts buffy white to pale pinkish buff; inner webs of remiges (except distally) light cinnamon-rufous passing into cinnamon-buff on edge; mandible (except tip) and basal half, more or less, of maxillary tomia yellow, the rest of bill slate-black; iris dark brown; naked skin of orbital region grayish (in life); legs and feet pale bluish gray.

*Young*.—Similar to adults, but lateral rectrices much duller blackish or dull dusky grayish brown, with white terminal areas much less sharply defined, outer webs of primaries usually more rufescent, primary coverts rufescent, and naked skin of orbital region pale yellow.

*Adult male*.—Length (skins), 264–305 (275); wing, 135–154 (143.6); tail, 133.5–150 (140.7); exposed culmen, 24–29 (26.4); tarsus, 23–27 (25.2); outer anterior toe, 17–20 (18.2).<sup>a</sup>

*Adult female*.—Length (skins), 265–295 (282); wing, 138.5–151 (146.4); tail, 139–151 (145.7); exposed culmen, 25–29.5 (27); tarsus, 24–27 (25.4); outer anterior toe, 17.5–19.5 (18.5).<sup>b</sup>

<sup>a</sup> Twenty-seven specimens.

<sup>b</sup> Eighteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from New York (Syracuse).....	141	145	24.5	24.5	17
One adult male from Pennsylvania (Carlisle).....	144.5	136	25	25	18
Five adult males from Maryland (1), District of Columbia (2), and Virginia (2).....	141.4	139.8	27.2	25.2	18.4
One adult male from North Carolina.....	145	138	27	25	18
Three adult males from South Carolina (May).....	146.5	141.8	27.3	25.8	19.2
Five adult males from Florida (May).....	145.9	143.6	26.8	25.7	18.3
Two adult males from eastern Texas (May, June).....	141.5	138.2	25.5	25.5	17.5
Two adult males from southern Illinois.....	142	142.7	25	24.7	18
One adult male from Minnesota.....	142.5	133	24	25	18
Three adult males from Cuba (April, May, September).....	143.3	138.5	26.2	24.2	18.2
Two adult males from Jamaica (May).....	137.5	137.5	26	25	17.5
One adult male from Porto Rico (August).....	141.5	142	28	25.5	18.5
Eleven adult males of <i>C. a. occidentalis</i> .....	149.6	147.1	27.7	26.7	19.1

Eastern North America, in Lower and Upper Austral Zones and more southern portions of Transition Zone, breeding from southern Florida and along Gulf coast to southern Texas northward to New Brunswick (Nova Scotia?), Quebec, Ontario, southern Michigan, Wisconsin, Minnesota, and North Dakota, and in Mexican States of Tamaulipas and Nuevo León; westward to wooded valleys of streams crossing Great Plains; south in winter through eastern Mexico and Central America to Colombia (Bonda, Santa Marta; Medellín, Antioquia), Venezuela (San Cristóbal; Altagràcia; Nericàgua), Trinidad, and western Ecuador (Chimbo),<sup>a</sup> and to West Indies in general (Bahamas, Cuba, Haiti, Jamaica, Porto Rico, St. Croix, Barbuda, Barbados, Carriacou, Bequia, Grenada) and to Swan Island, Caribbean Sea. (Said to breed in Haiti, Cuba, Jamaica, and some other islands, but the breeding bird of the West Indies, at least the Lesser Antilles, may be *C. a. julieni*.) Accidental in Greenland, England, Belgium, and France.

[*Cuculus*] *americanus* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 111 (South Carolina; based on *Cuculus carolinianus* Catesby, Nat. Hist. Carolina, 9, pl. 9); ed. 12, i, 1766, 170.—GMELIN, Syst. Nat., i, pt. 1, 1788, 416.—LATHAM, Index Orn., i, 1790, 219.

*Cuculus americanus* TEMMINCK, Cat. Syst., 1807, 58.—STEPHENS, Shaw's Gen. Zool., ix, pt. i, 1815, 93.—SCHLEGEL, Rev. Crit. Ois. Eur., 1844, 51.—HARTING, Man. Brit. Birds, 1872, 124 (accidental in England).

*Coccyzus americanus* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, pt. ii, 1824, 367; Obs. Wilson's Am. Orn., 1826, [27]; Ann. Lyc. N. Y., ii, pt. i, 1826, 42.—AUDUBON, Orn. Biog., i, 1831, 18, pl. 2; v, 1839, 520; Synopsis, 1839, 187; Birds Am., oct. ed., iv, 1842, 293, pl. 275.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 551; 2d ed., 1840, 652.—GOULD, Birds Europe, iii, 1837, pl. 242, and text.—GOSSE, Birds Jamaica, 1847, 279.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 92, part (Indian Territory; Texas).—GLOGER, Journ. für Orn., 1874, 223.—MARTENS, Journ. für Orn., 1859, 215 (Bermudas).—NEWTON (A. and E.), Ibis, 1859, 149 (St. Croix;

<sup>a</sup> Records for Brazil, Argentina, etc., probably pertain chiefly if not wholly to *C. a. julieni*.

Footnote—Continued.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
FEMALES.					
Six adult females from Maryland (1), District of Columbia (2), and Virginia (3).....	145.7	145.3	27.2	25.2	18.3
Three adult females from South Carolina (May).....	150	149.3	27.7	25.2	18.7
One adult female from Florida (May, July).....	141	143.5	.....	26 "	18
Three adult females from eastern Texas (May, July).....	146.3	145.7	26.7	25.5	18.8
Two adult females from southern Illinois (1) and southern Indiana (1).....	147	144.5	27	26	18.5
Two adult females from Cuba (April 29—one without date)....	143.7	144	26	25.2	18.5
Three adult females of <i>C. julieni</i> (sex of one undetermined)....	135.2	138.3	26.7	23.5	17.8
Twelve adult females of <i>C. a. occidentalis</i> .....	150.1	147.2	27.7	26.9	19.2

habits; descr. nest and eggs).—WILLIS, An. Rep. Smithson. Inst., 1859, 287 (Bermudas).—SALVIN and SCLATER, Ibis, 1860, 43 (Coban, Guatemala).—TAYLOR, Ibis, 1860, 118 (Tigre I., Honduras).—SCLATER, Proc. Zool. Soc. Lond., 1860, 252 (Vera Cruz); 1864, 120, part (monogr.); 1870, 165, part (monogr.); Cat. Am. Birds, 1862, 322; Rev. List Birds Jamaica, 1910, 11 (breeding).—ALBRECHT, Journ. für Orn., 1862, 202 (Jamaica).—VERRILL (A. E.), Proc. Essex Inst., iii, 1862, 143 (Oxford Co., Maine, rare but probably breeding).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 366 (Panama); 1875, 237 (San Cristobal, Venezuela); 1879, 537 (Medellin, Antioquia, Colombia).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 291 (vicinity of New York City); ix, 1868, 128 (Costa Rica).—TRIPPE, Proc. Bost. Soc. N. H., xv, 1872, 233 (Decatur and Mahaska counties, Iowa, breeding).—COUES, Check List, 1873, no. 291; Birds Northwest, 1874, 275.—GENTRY, Proc. Ac. Nat. Sci. Phila., 1874, 108 (habits).—GUNDLACH, Journ. für Orn., 1874, 156 (Cuba; habits); 1878, 185 (Porto Rico); Orn. Cubana, ed. 1895, 144.—DUBOIS, Bull. Ac. Roy. Belg., xxxix, 1875, 9 (Belgium, 1 spec., Oct. 22, 1874).—MERRIAM, Trans. Conn. Ac. Sci., iv, 1877, 63 (Connecticut, common summer resident); Bull. Nutt. Orn. Club, vi, 1881, 232 (Adirondack region, New York, breeding).—ALLEN, Bull. Nutt. Orn. Club, ii, 1877, 110 (occasionally parasitic); Bull. Am. Mus. N. H., xiii, 1900, 134 (Bonda, Santa Marta, Colombia, Oct., Nov.); Auk, xvii, 1900, 364 (Bonda).—MERRILL (J. C.), Proc. U. S. Nat. Mus., i, 1878, 150 (Ft. Brown, Texas, breeding).—MEARNS, Bull. Essex Inst., xii, 1879, 117 (Hudson Highlands, New York, breeding).—CORY, Birds Bahama Is., 1880, 117 (New Providence I.); Auk, iii, 1886, 364 (West Indian localities and references); viii, 1891, 47 (Antigua), 351 (Inagua, Bahamas, May, June), 353 (Anguilla, May; Cay Sal, May); ix, 1892, 48 (Watling I.); Birds West Ind., 1889, 159; Cat. West Ind. Birds, 1892, 102 (New Providence, Watling, Great Inagua, Cay Sal, and Anguilla islands, Bahamas; Cuba; Jamaica; Port Rico; St. Croix; Barbada; Barbados); Pub. 137, Field Mus. N. H., 1909, 199 (Aruba, Dutch West Indies).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 190, part; x, 1888, 577 (Swan I., Caribbean Sea, Apr. 14); Nom. N. Am. Birds, 1881, no. 387, part; Orn. Illinois, i, 1889, 393.—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882, 60 (Navarro Co., Texas, summer resident; habits).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 171 (s. e. Texas, breeding).—BROWN (N. C.), Proc. Portl. Soc. N. H., 1882, (20) (Portland, Maine, rare).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 572 (Chimbo, w. Ecuador, Sept.).—REID, Bull. U. S. Nat. Mus., no. 25, 1884, 212 (Bermudas, April, Oct., Nov.).—SETON, Auk, ii, 1885, 335 (Toronto, Ontario, several records).—RALPH and BAGG, Trans. Oneida Hist. Soc., iii, 1886, 122 (Oneida Co., New York, rare summer resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 387, part; 2d ed., 1895, no. 387.—HANCOCK, Bull. Ridgw. Orn. Club, no. 2, 1887, 16 (Corpus Christi, Texas, breeding).—SCOTT, Auk, vi, 1889, 250 (Key West, Florida, breeding; crit.); ix, 1892, 212 (Caloosahatchie R., Florida, breeding), 274 (Jamaica), 372 (Port Henderson, Jamaica, breeding).—SALVIN, Ibis, 1889, 372 (Cozumel I., Yucatan; Ruatan I., Honduras; crit.).—FEILDEN, Ibis, 1889, 487 (Barbados).—CHERRIE, Auk, vii, 1890, 333 (Costa Rica); ix, 1892, 327 (San José, Costa Rica, Sept., Oct.); Contr. Orn. San Dom., 1896, 19 (Santo Domingo City, breeding).—WHITE, Auk, viii, 1891, 114 (Ottawa, Ontario, breeding); x, 1893, 224 (Mackinac I., Michigan, 1 spec., July).—HAGERUP, Auk, viii, 1891, 320 (Greenland).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1892, 106 (Corpus Christi, Texas, breeding).—COOMBS, Auk, ix, 1892, 205 (Louisiana, breeding).—ATFWATER, Auk, ix, 1892, 234 (San Antonio, Texas, breeding).—WAYNE, Auk, x, 1893, 337 (Old Town, n. w. Florida, breeding).—CHAPMAN,

- Bull. Am. Mus. N. H., vi, 1894, 65 (Monos I., Trinidad, May 4).—ATKINSON, Biol. Rev. Ont., i, 1894, 101 (near Toronto, breeding), 102 (Hamilton, breeding).—NUSSEY, Biol. Rev. Ont., i, 1894, 102 (near Toronto, breeding).—GRUNDTVIG, Trans. Wisc. Ac. Sci., etc., x, 1894, 110 (Shiocton, Wisconsin, breeding).—FIELD, Auk, xi, 1894, 124 (Jamaica, breeding).—SINGLEY, Rep. Geol. Surv. Texas, 1894, 349 (Lee Co., Texas, common summer resident).—BENDIRE, Life Hist. N. Am. Birds, (ii), 1895, pl. 5, fig. 1 (egg).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 525 (Mexican and Central American localities and references; Colombia; Antilles; Swan I.).—DEARBORN, Prelim. List Birds Belknap and Merrimack Counties, N. H., 1898, 18 (Northfield, New Hampshire, 1 pair, June 24, 1884).—FAXON and HOFFMANN, Birds Berkshire Co., Mass., 1900, 37 (rare summer resident).—EMBODY, Birds Madison Co., N. Y., 1901, 17 (rare, breeding).—FLEMING, Auk, xviii, 1901, 38 (Roseau, Ontario, breeding); xxiv, 1907, 75 (Toronto, Ontario, summer resident).—HOWE, Contr. Am. Orn., ii, 1902, 15 (Rutland, Cornwall, St. Albans, and St. Johnsbury, Vermont; rare summer resident or visitant).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 96 (Atagracia and Nericagua, Venezuela, April, Nov.).—WELLS, Auk, xix, 1902, 344 (Carriacou, Grenadines, Oct., Nov.).—BOWDISH, Auk, xix, 1902, 364 (near Aguadilla, Porto Rico; Mona I.).—EDWARDS, Auk, xx, 1903, 68 (laying eggs in nest of *Planesticus migratorius*).—BONHOTE, Auk, xx, 1903, 179 (Cay Lobos, Bahamas, March 17).—WILLIAMS (R. W.), Auk, xxi, 1904, 455 (Leon Co., Florida, breeding).—ALLISON, Auk, xxi, 1904, 477 (Baton Rouge Parish, Louisiana, common summer resident).—WOOD and FROTHINGHAM, Auk, xxii, 1905, 47 (Oscoda Co., Michigan; breeding?).—STOCKARD, Auk, xxii, 1905, 154 (Mississippi, breeding).—CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 267 (Barbados, Carriacou, and Bequia, Lesser Antilles).—WILSON (B. H.), Wilson Bull., no. 54, 1906, 4 (Scott Co., Iowa, abundant summer resident).—JONES, Wilson Bull., no. 57, 1906, 115 (Cleveland, Ohio, summer resident).—WOODRUFF, Bull. vi, Chicago Ac. Sci., 1907, 108 (Chicago area, summer resident).—TAVERNER and SWALES, Wilson Bull., no. 61, 1907, 133 (Point Pelee, Ontario, common summer resident).—NASH, Vertebr. Ont., 1908, Birds, p. 48 (summer resident).—BERGER, ALLISON, and KOPMAN, Auk, xxv, 1908, 444 (Louisiana, breeding; habits).—MENEGAUX, Rev. Franç. d'Orn., no. 2, 1909, 24 (Guantanamo, San Carlos, and Figuabas, Cuba, Jan.).—CHANEY, Auk, xxvii, 1910, 274 (Mason Co., Michigan; "fairly common").—WOOD and GAIGE, Pub. 4, Mich. Geol. and Biol. Surv., 1911, 285 (breeding throughout s. peninsula of Michigan).—COOKE, Condor, xiv, 1912, 148 (Clear Creek, Colorado, Aug. 23, 1910).
- [Coccyzus] americanus* WILLIS, An. Rep. Smithson. Inst. for 1858 (1859), 284 (Nova Scotia, breeding).—RIDGWAY, Ann. Lyc. N. Y., x, 1874, 377 (Illinois); Man. N. Am. Birds, 1887, 273.—NEWTON (A. and E.), Handb. Jamaica, 1881, 109.—KOPMAN, Gulf Fauna and Flora Bull., i, no. 2, 1899, 57 (s. Louisiana, summer resident).
- [Coccyzus] americanus* BONAPARTE, Consp. Av., i, 1850, 111.—GUNDLACH, Journ. für Orn., 1874, 312 (Porto Rico); 1878, 160 (Porto Rico).—COUES, Key N. Am. Birds, 1872, 190, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108.—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40 (Bermuda; Jamaica; etc.).—SHARPE, Hand-list, ii, 1900, 164.
- Coccyzus americanus americanus* WETMORE, Condor, xi, 1909, 158 (near Lawrence, Kansas).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 564 (Costa Rica).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 3rd ed., 1910, 181.—PHILLIPS, Auk, xxviii, 1911, 75 (Rampahuila, Santa Leonora, Galindo, and Guia-

ves, Tamaulipas, Sept., Oct.).—HONEYWILL, Auk, xxviii, 1911, 233 (Crooked Lake, Minnesota).

*Coccyzus americanus* CABANIS, Journ. für Orn., 1856, 104 (Cuba); 1862, 167 (Costa Rica).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 76; Cat. N. Am. Birds, 1859, no. 69.—GUNDLACH, Journ. für Orn., 1861, 415 (Cuba; crit.).—SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 37.—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 477, part, pl. 48, fig. "3"=4.—RATHBUN (F. R.), Rev. List Birds Centr. N. Y., 1879, 25 (breeding).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 415 (Lomita Ranch, s. Texas, breeding; habits).—DALGLEISH, Bull. Nutt. Orn. Club, v, 1880, 73 (5 British Island, 1 French, 1 Belgian records).—WIDMANN, Bull. Nutt. Orn. Club, vii, 1882, 56 (parasitic habits).—COUES, Check List, 2d ed., 1882, no. 429, part.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 123 (Cartago and San Juan de San José, Costa Rica).—BEYER, Proc. La. Soc. Nat. for 1897-99 (1900), 102 (Louisiana, breeding).

[*Coccygus*] *americanus* MAXIMILIAN, Journ. für Orn., 1858, 423.—CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1862, 75 (Georgia; etc.).—COUES, Key N. Am. Birds, 2d ed., 1884, 476, part.

[*Coccygus*] *americanus* GUNDLACH, Journ. für Orn., 1861, 334 (Cuba).—CORY, List Birds West Ind., 1885, 19 (Bahamas; Cuba).

*Piaya americana* LESSON, Traité d'Orn., 1831, 142.

[*Coccyzus*] *americanus* KEYSERLING and BLASIUS, Wirb. Eur., 1840, pp. xxxiv, 147.—HARTERT, Kat. Vogelsamml. Mus. Senckenb., 1891, 147.

[*Coccyzoides*] *americanus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 202 (Georgia).

*Erythrophrys americanus* BONAPARTE, Geog. and Comp. List, 1838, 40.

*Coccyzus pyropterus* VIEILLOT, Nouv. Dict. d'Hist. Nat., viii, 1817, 270 (new name for *Cuculus americanus* Linnæus).

(?) [*Cuculus*] *dominicus* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 170 (Santo Domingo; based on *Cuculus dominicensis* Brisson, Orn., iv, 110, pl. 9).—GMELIN, Syst. Nat., i, pt. 1, 1788, 416.—LATHAM, Index Orn., i, 1790, 221.

(?) *Coccygus dominicus* BAIRD, Proc. Ac. Nat. Sci. Phila., 1863, 154.

(?) *Coccygus dominicus*? BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 96 (Santo Domingo).

(?) *P[iaya] dominica* GRAY, Gen. Birds, ii, 1846, 457.

[*Coccyzus*] *flavivestris* GLOGER, Journ. für Orn., ii, May, 1854, 223 (new name for *Cuculus americanus* Gmelin).

*Cuculus carolinensis* WILSON, Am. Orn., iv, 1811, 13, pl. 28, fig. 1 (new name for *C. americanus* Linnæus?).

*Coccyzus bairdi* SCLATER, Proc. Zool. Soc. Lond., 1864 (pub. Aug. 1), 120 (Jamaica; coll. P. L. Selater).

*Coccyzus minor* (not *Cuculus minor* Gmelin) BONHOTE, Auk, xviii, 1901, 148 (Cay Lobos, Bahamas; see Bonhote, Auk, xx, 1903, 179).

## COCCYZUS AMERICANUS OCCIDENTALIS Ridgway.

### CALIFORNIA CUCKOO.

Similar to *C. a. americanus* but averaging decidedly larger.

*Adult male*.—Length (skins), 276-309 (287); wing, 143.5-154.5 (149.6); tail, 140-155 (147.1); exposed culmen, 27-30 (27.7); tarsus, 25-29 (26.7); outer anterior toe, 18.5-20 (19.1).<sup>a</sup>

<sup>a</sup> Eleven specimens.

*Adult female*.—Length (skins), 268–315 (284); wing, 144–156.5 (150.1); tail, 133.5–156 (147.2); exposed culmen, 26–29 (28.4); tarsus, 25–28.5 (26.9); outer anterior toe, 18–22 (19.2).<sup>a</sup>

Western United States and British Columbia (Fraser River at Mount Lehman; Burrard Inlet; Kamloops; Mount Tolmie; Chilliwack); breeding southward to Cape San Lucas, Sinaloa (Mazatlán), Chihuahua, etc.; eastward to Idaho (Fort Sherman, 1 specimen), Colorado, and western Texas (Tom Green, Concho, and Kerr counties); in winter southward as far as Costa Rica (San José).

*Coccyzus americanus* (not *Cuculus americanus* Linnæus) WOODHOUSE, in Rep. Sitgreaves' Expl. Zúñi and Col. R., 1853, 92, part (New Mexico).—COOPER, Orn. Calif., 1870, 371 (Napa Valley; Sacramento).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 293 (Mazatlan, Sinaloa, breeding).—COUES, Check List, 1873, no. 291, part; Birds Northwest, 1874, 275, part.—HENSCHAW, Ann. Lyc. N. Y., xi, 1874, 8 (Provo, Utah); Rep. Orn. Spec. Wheeler's Surv., 1874, 47 (Provo, Utah), 164 (s. e. Arizona, summer resident); Zool. Expl. W. of 100th Merid., 1875, 386 (Provo, Utah; Cienega, Arizona).—RIDGWAY, Orn. Fortieth Parallel, 1877, 558 (Sacramento, California, June; Truckee Valley, Nevada, July); Proc. U. S. Nat. Mus., iii, 1880, 190, part; Nom. N. Am. Birds, 1881, no. 387, part.—BELDING, Proc. U. S. Nat. Mus., i, 1879, 432 (Marysville, California, June; Murphy's, Calaveras Co., Sept.).—DREW, Auk, ii, 1885, 17 (Colorado, breeding at 4,000–8,000 ft.).—SCOTT, Auk, iii, 1886, 425 (Santa Catalina Mts., Arizona, up to 4,000 ft.).—LLOYD, Auk, iv, 1887, 190 (Tom Green and Concho counties, w. Texas, breeding).

(?) *Coccyzus americanus* SCLATER, Proc. Zool. Soc. Lond., 1864, 120, part (monogr.), 177 (near City of Mexico); 1870, 165, part (monogr.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 136 (Fraser R., at Mt. Lehman, Brit. Columbia).

[*Coccyzus*] *americanus* COUES, Key N. Am. Birds, 1872, 140, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.

*Coccyzus americanus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 477, part.—COUES, Check List, 2d ed., 1882, no. 429, part.—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 26 (Tucson, Arizona, June).

*Coccyzus americanus* COUES, Key N. Am. Birds, 2d ed., 1884, 476, part.

<sup>a</sup> Twelve specimens.

Locality.	Wing.	Tail.	Ex- posed cul- men.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from California.....	151.2	147	29.7	27.2	19.2
Seven adult males from Arizona.....	149.7	147.5	28.6	26.3	19.1
One adult male from western Texas (Ft. Clark).....	143.5	145	27	25.5	18.5
FEMALES.					
Four adult females from California.....	149.1	149.2	27.4	27.1	19.4
Four adult females from Arizona.....	153.2	150.6	28.2	27.8	19.8
Four adult females from western Texas (Ft. Clark and Ft. Hancock).....	148.8	141.6	27.5	26.4	18.5



- (?) *Coccyzus erythrophthalmus* (not *Cuculus erythrophthalmus* Wilson?) NEWBERRY, Rep. Pacific R. R. Surv., vi, chapt. ii, 1857, 92 (Ft. Reading, California, July).
- Coccyzus americanus occidentalis* RIDGWAY, Man. N. Am. Birds, Sept. 27, 1887, 273 (Santa Rita Mts., Arizona; coll. U. S. Nat. Mus.).
- Coccyzus americanus occidentalis* RIDGWAY, Man. N. Am. Birds, 1887, 591.—CHAPMAN, Auk, v, 1888, 396.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 9; Check List, 2d ed., 1895, no. 387a; 3rd ed., 1910, 182.—BRYANT (W. E.), Proc. Calif. Ac. Sci., ser. 2, ii, 1889, 286 (Ensenada, Lower California).—FANNIN, Check List Birds Brit. Col., 1891, 27 (Burrard Inlet; Kamloops, breeding; Mt. Tolmie).—LAWRENCE (R. H.), Auk, ix, 1892, 44 (Grays Harbor, Washington, summer resident), 393 (Ridgefield, Clark Co., Washington, breeding).—BENDIRE, Life Hist. N. Am. Birds, (ii), 1895, 25, pl. 5, fig. 2 (eggs).—HATCH (J. M.), Auk, xiii, 1896, 347, in text (Escondido, California).—COOKE, Bull. Col. Agric. Coll., no. 37, 1897, 82 (Colorado, up to 8,000 ft.).—MERRILL (J. C.), Auk, xiv, 1897, 353 (Ft. Sherman, Idaho, 1 spec., July, 1895).—GRINNELL (J.), Pub. 2, Pasadena Ac. Sci., 1898, 24 (Los Angeles Co., California, summer resident); Pacific Coast Avifauna, no. 3, 1902, 36 (California range).—BROOKS, Auk, xvii, 1900, 106 (coast Brit. Columbia).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 101 (San José del Rancho, s. Lower California, breeding).—RATHBUN (S. F.), Auk, xix, 1902, 134 (Seattle, Washington, summer resident).—SWARTH, Pacific Coast Avifauna, no. 4, 1904, 10 (Huachuca Mts., Arizona, rare migrant; San Pedro R., Arizona, summer resident).—BANGS, Proc. New Engl. Zool. Club, iv, 1908, 23 (San José, Costa Rica; crit.).—ROCKWELL, Condor, x, 1908, 164 (Mesa Co., w. Colorado, breeding).—KERMODE, Provinc. Mus. Victoria, 1909, 47 (s. w. Brit. Columbia, breeding; Chilliwack; habits).—VISHER, Auk, xxvii, 1910, 282 (near Tucson, Arizona, common, breeding).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 564 (San José, Costa Rica).—LACEY, Auk, xxviii, 1911, 209 (Kerville, Texas, breeding).
- [*Coccyzus*] *americanus* subsp. *occidentalis* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40.
- [*Coccyzus americanus occidentalis*] SHELTON, Condor, xiii, 1911, 19-22 (Sonoma Co., California; nesting habits).
- Coccyzus a[mericanus] occidentalis* PECK, Condor, xiii, 1911, 66 (Malheur Co., Oregon).—JAY, Condor, 1911, 69-73, figs. 30-32 (Los Angeles Co., California; nesting habits, etc.).
- [*Coccyzus americanus*] *occidentalis* COOKE, Condor, xiv, 1912, 148, in text (Barr, Colorado, July 25).
- Coccygus americanus occidentalis* BOWLES, Auk, xxiii, 1906, 143 (Tacoma, Washington, rare summer resident).
- [*Coccyzus*] *occidentalis* SHARPE, Hand-list, ii, 1900, 164.

### COCCYZUS AMERICANUS JULIENI (Lawrence).

#### SOUTHERN YELLOW-BILLED CUCKOO.

Similar to *C. a. americanus* but smaller; color of upper parts darker and browner, and inner webs of remiges passing into dull white or very pale dull buffy on edges (except distal portion).

*Adults* (*sexes alike*).—Above, including lores and upper half of auricular region, plain deep hair brown (between hair brown and fuscous), faintly glossed with bronze, the forehead and lores slightly

more grayish, the middle rectrices darker terminally or subterminally; rectrices next to middle pair mostly deep hair brown or fuscous, becoming dull black subterminally and narrowly tipped with white; other rectrices dull black passing into fuscous basally and broadly tipped with white, the white tip about 17–32 mm. wide on inner web of outermost rectrix (on which the outer web is white for a much greater distance) to 10–19 wide on the third rectrix; suborbital and malar regions, lower portion of auricular region, chin, throat, chest, breast, and sides clear grayish white passing into pure white on abdomen, flanks, and under tail-coverts; axillars and under wing-coverts immaculate white; under surface of remiges (except outermost primary and distal portion of other remiges) dull buffy white to pale dull buff; maxilla black, the lower basal portion (for more than one-third the distance from rictus to tip) yellow; mandible deep yellow; legs and feet horn color (bluish gray in life?).

*Young*.—Similar to adults but slightly browner above (especially on greater wing-coverts and secondaries), anterior under parts more strongly grayish (this color on side of head less strongly contrasted with or less abruptly defined against the brown of pileum, etc.), and lateral rectrices grayish brown broadly tipped with dull white.

*Adult female*.—Wing, 133.5–141.5 (137.5); tail, 135.5–147.5 (141.5); exposed culmen, 25.5–26 (25.7); tarsus, 23.5–24.5 (24); outer anterior toe, 17–19 (18).<sup>a</sup>

Guiana to southern Brazil; Sombrero, West Indies. (Possibly the breeding bird of the West Indies.)

*Coccyzus julieni* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, 1864, 42, 98 (Sombrero, Lesser Antilles; coll. G. N. Lawrence).

<sup>a</sup> Two specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
One adult female from Santarem, lower Amazon (type of <i>C. lindeni</i> Allen).....	133.5	135.5	25.5	24.5	17
One adult female from Chapada, Mattogrosso.....	147.5	147.5	26	23.5	19
One adult (sex not determined) from Rio Janeiro.....	130	132.5	26	23.5	18
One young from Sombrero I., West Indies (type of <i>C. julieni</i> Lawrence).....	128	129	21.5	22.5	15.5

Allowing for the differences in coloration which distinguish young birds from adults in all species of this genus, the type of *Coccyzus julieni* Lawrence, said to be from the island of Sombrero, West Indies (but possibly wrongly accredited to that locality), agrees very closely with the Brazilian specimens of *C. euleri* (all adults) examined. It is possible that the so-called *C. americanus* which breeds in the West Indies is in reality *C. a. julieni*, but all West Indian specimens of *C. americanus* examined by me are either young birds or winter adults.

- (?) *Coccyzus americanus* (not *Cuculus americanus* Linnæus?) SCLATER, Proc. Zool. Soc. Lond., 1872, 496 (Quilines, Buenos Aires, Argentina; crit.).—BERLEPSCH, Journ. für Orn., 1887, 133 (South America to Buenos Aires).—WITHINGTON, Ibis, 1888, 468 (Lomas de Zamora, Argentina).—SCLATER and HUDSON, Argentine Orn., ii, 1889, 37, part (not description, which is of *C. americanus*).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 308, part (Buenos Aires, Argentina; Bahia, Brazil).—KOENIGSWALD, Journ. für Orn., 1896, 378 (São Paulo, s. Brazil).—HOLMBERG, Segundo Censo Argentina, i, 1898, 516.—IHERING, Rev. Mus. Paulista, iii, 1899, 304 (São Paulo).—KERR, Ibis, 1901, 229 (Gran Chaco, Paraguay).—LÖNNBERG, Ibis, 1903, 454 (San Luis, Bolivia, Feb. 8).—CHUBB, Ibis, 1910, 271 ((Sapucay, Paraguay, Jan.)).—DABBENE, Orn. Argent., 1910, 271 (Tucuman and Lomas de Zamora), 423 (La Rioja; Saladillo, La Sierra).
- Coccyzus americanus* ALLEN, Bull. Am. Mus. N. H., v, 1893, 136 (Chapada, Mattogrosso, s. w. Brazil).
- (?) *Coccygus bairdi*? (not *Coccyzus bairdi* Sclater) PELZELN, Orn. Bras., 1870, 273, footnote (Paciencia, Brazil; crit.).
- (?) [*Coccygus*] *bairdi*? PELZELN, Orn. Bras., iv, 1871, 450.
- Coccygus eulери* CABANIS, Journ. für Orn., ser. 4, i, Jan., 1873, 72 (Cantogallo, s. e. Brazil; coll. Berlin Mus.); 1874, 226 (Brazil).
- Coccyzus eulери* CHAPMAN, Auk, viii, 1891, 159 (Santarem, lower Amazon; Mattogrosso; crit.).—IHERING, Rev. Mus. Paulista, iv, 1900, 161 (Cantogallo).
- [*Coccyzus*] *eulери* SHARPE, Hand-list, ii, 1900, 164.
- Coccyzus lindeni* ALLEN, Bull. Essex Inst., viii, no. 8, Oct.-Nov., 1876, 81 (Santarem, lower Amazon; coll. Mus. Comp. Zool.).

### COCCYZUS MINOR MINOR (Gmelin)?

#### MANGROVE CUCKOO.

*Adults (sexes alike).*—Above plain grayish brown (deep hair brown), very faintly glossed with bronzy, except on pileum, the middle pair of rectrices dusky subterminally and narrowly tipped (except in worn plumage) with paler grayish brown or dull whitish; other rectrices black passing into grayish brown basally and broadly tipped with white, the white terminal areas decreasing in extent from about 23–30 mm. on outermost pair to 3–8 mm. on next to middle pair; lores similar in color to pileum but somewhat darker, especially next to eye; upper two-thirds (more or less) of auricular region dull black, this continued, narrowly, beneath bare orbital space to the dusky color in front of eye; lower portion of auricular region, suborbital and malar regions, and entire under parts, together with axillars and under wing-coverts, plain dull ochraceous-buff or cinnamon-buff, usually paler on chin and upper throat; inner webs of remiges with proximal two-thirds (more or less) lighter cinnamon-buff; maxilla black, the mandible with basal two-thirds (more or less) yellow, the terminal portion black; bare orbital space yellow (in life); iris brown; legs and feet horn color (bluish gray in life?).

*Young.*—Similar to adults but middle rectrices paler grayish brown terminally, the lateral ones darker grayish brown with white (or whitish) terminal areas, as in adults, but these much duller white and

not sharply defined; alula, primary coverts, and distal secondaries slightly cinnamomeous or buffy, narrowly edged with paler.

*Adult male*.—Length (skins), 288–305 (298); wing, 128.5–129 (128.7); tail, 156.5–161 (159.2); exposed culmen, 28–30 (29); tarsus, 28–29.5 (28.8); outer anterior toe, 19–21 (20).<sup>a</sup>

*Adult female*.—Length (skins), 290–295 (292.5); wing, 129.5–135.5 (132.8); tail, 158.5–163 (160.7); exposed culmen, 28.5; tarsus, 28.5–29.5 (29); outer anterior toe, 19–20.5 (19.7).<sup>a</sup>

Atlantic coast of South America, from Amazon Valley northward, including island of Trinidad; Caribbean and Gulf coasts of Central America and Mexico, from Panamá (Natá, Coclé;<sup>b</sup> Chiriquí northward through Costa Rica (exact locality unknown<sup>b</sup>), Nicaragua (Greytown<sup>b</sup>), Honduras (Ruatán Island; Puerto Cabello), British Honduras (pine ridge near Manatee Lagoon<sup>b</sup>), and Yucatan (Temáx;<sup>b</sup> Xbac;<sup>b</sup> Mugerres Island;<sup>b</sup> Cozumél Island; Izamál; Buctzotz) to State of Tamaulipas (Tampico; Alta Mira;<sup>c</sup> Matamoros<sup>c</sup>), Mexico.

[*Cuculus*] *minor* Gmelin, Syst. Nat., i, pt. 1, 1788, 411 (Cayenne; based on *Petit Vieillard* Buffon, Hist. Nat. Ois., vi, 401; *Coucou des Palétuviers* Daubenton, Pl. Enl., pl. 813; *Mangrove Cuckow* Latham, Synopsis Birds, i, pt. 2, 537).

[*Coccyzus*] *minor* Gray, Gen. Birds, ii, 1846, 457.—RIDGWAY, Man. N. Am. Birds, 1887, 274, part.

<sup>a</sup> Three specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Panama (Natá, Coclé).....	128.5	160	28	29.5	20
One adult male from Mugerres Island, Yucatan.....	129	156.5	30	29	21
One adult male from southern Tamaulipas (Alta Mira).....	128.5	161	29	28	19
FEMALES.					
One adult female from eastern Costa Rica.....	133.5	158.5	28.5	29.5	19.5
One adult female from eastern Nicaragua (Greytown).....	135.5	163	28.5	29	20.5
One adult female from Mugerres Island, Yucatan.....	129.5	.....	28.5	28.5	19

The Alta Mira specimen is very pale, agreeing closely in coloration with *C. m. palloris*; but its measurements are much too small for that form.

Not having specimens of true *C. minor* for comparison, I am not at all sure that the birds from the Caribbean and Gulf coasts of Central America and Mexico are really referable to that form. The specimens examined from Yucatan, Honduras, etc., closely resemble in coloration *C. m. rileyi* of Antigua and Barbuda, but have the whole chest, foreneck, throat, and subauricular and submalar regions clear buff, nearly concolor with the rest of under parts, instead of being more or less distinctly paler and tinged with pale grayish.

<sup>b</sup> Specimens from these localities examined by me.

<sup>c</sup> As remarked above, the specimen from Alta Mira is very pale, hardly different in fact from *C. m. palloris* in coloration, but much too small for that form. The example from Matamoros is deeply colored.

- Coccyzus minor* SCLATER, Proc. Zool. Soc. Lond., 1870, 166, part (monogr.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 839 (Puerto Cabello, n. Honduras).—SALVIN, Ibis, 1886, 64 (Brit. Guiana); 1889, 372 (Cozumel I., Yucatan; Ruatan I., Honduras).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 536, part (Caribbean coast Costa Rica); Auk, ix, 1892, 326, part (e. coast Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 518 (Greytown, Nicaragua); xviii, 1895, 629 (Alta Mira, s. Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 65 (Trinidad).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (Temax, Izamal; Buctotzot, and Cozumel I., Yucatan; Ruatan I. and Puerto Cabello, Honduras; Greytown, Nicaragua; Colombia; Venezuela; Guiana; lower Amazon).—LOAT, Ibis, 1898, 564 (Brit. Guiana).—BERLEPSCH, Novit. Zool., xv, 1908, 282 (Cayenne).
- [*Coccyzus*] *minor* GRAY, Hand-list, ii, 1870, 210, no. 8917, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—SHARPE, Hand-list, ii, 1900, 163, part.
- Coccyzus minor minor* BANGS, Proc. Biol. Soc. Washington, xx, April 18, 1907, 53, in text.
- Coccyzus minor* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 482, part, pl. 48, fig. 3.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 123, part (Costa Rica).
- C[occystes] minor* HARTERT, Kat. Vogelsamml. Mus. Senckenb., 1891, 147 (North America).
- [*Cuculus*] *seniculus* LATHAM, Index Orn., i, 1790, 219 (new name for *Cuculus minor* Gmelin).
- Cuculus seniculus* TEMMINCK, Cat. Syst., 1807, 60.—STEPHENS, Shaw's Gen. Zool. ix, pt. i, 1815, 125.
- Coccyzus seniculus* VIEILLOT, Nouv. Dict. d'Hist. Nat., viii, 1817, 275, part (Cayenne); Enc. Méth., iii, 1823, 1346, part.—SCLATER, Cat. Am. Birds, 1862, 323 ("South America"); Proc. Zool. Soc. Lond., 1864, 121, part (monogr.).—COUES, Birds Northwest, 1874, 276, footnote, part.
- C[occygus] seniculus* CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1862, 78, footnote (Cayenne; Guiana).
- Coccygus seniculus* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 38 (Guiana; South Am.).—HOLTZ, Journ. für Orn., 1870, 4 (descr. eggs).—PELZELN, Orn. Bras., 1870, 273, 450.
- C[occygus] helviventris* CABANIS, in Schomburgh's Reis. Brit. Guiana, iii, 1848, 714 (British Guiana; coll. Berlin Mus.?).

### COCCYZUS MINOR PALLORIS Ridgway.

#### PACIFIC MANGROVE CUCKOO.

Agreeing with *C. m. minor* in absence of gray tinge to buff of sub-orbital and subauricular regions, sides of neck and chest, but much larger and paler, the under parts pale cream-buff, and pileum distinctly grayer than back, passing into clear gray anteriorly; closely resembling *C. m. maynardi* in color of upper parts and posterior under parts but anterior under parts wholly pale buff, concolor with posterior portions, and decidedly larger.

*Adult male*.—Length (skins), 280–323 (305); wing, 136–144 (140.4); tail, 152.5–168 (162); exposed culmen, 29–31.5 (30.1); tarsus, 26–30 (29.3); outer anterior toe, 19.5–21 (20.5).<sup>a</sup>

*Adult female*.—Length (skins), 287–321 (305); wing, 137–148 (141.6); tail, 151.5–177 (166.4); exposed culmen, 28–30.5 (29.6); tarsus, 28–31 (29.5); outer anterior toe, 19.5–21 (20.4).<sup>b</sup>

Pacific coast district of Central America and Mexico, from Costa Rica (San José; Punta Arenas; La Palma de Nicoya; Bebedero; Mojica; San Lucas; Pigres; Pozo del Rio Grande) northward through Nicaragua (Chinandega; Volcán de Chinandega; Realejo; San Juan del Sur; Sucuyá), Salvadór (La Libertád), Oaxaca (Tapana; Caco-prieto), and Guerrero (Dos Arroyos) to Tepic (San Blas· Maria Madre, Tres Marias Islands).

*Coccyzus minor* (not *Cuculus minor* Gmelin) BOUCARD, Proc. Zool. Soc. Lond., 1878, 47 (Punta Arenas, Costa Rica).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 123, part (w. Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 536, part (Pacific coast Costa Rica, up to 6,000 ft.); Auk, ix, 1892, 326, part (San José and Pacific coast Costa Rica; crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (Dos Arroyos, Guerrero; Tapana and Caco-prieto, Oaxaca; La Libertad, Salvador; Chinandega, San Juan del Sur, and Sucuya, Nicaragua; Punta Arenas, La Palma de Nicoya, and San José, Costa Rica).—NELSON, North Am. Fauna, no. 14, 1899, 42 (Maria Madre I., Tres Marias).

[*Coccyzus*] *minor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—SHARPE, Hand-list, ii, 1900, 163, part.

*Coccyzus minor minor* BANGS, Auk, xxiv, July, 1907, 292 (Pozo del Rio Grande, s. w. Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 563 (Pigres, Mojica, and Bebedero, w. Costa Rica).

*Coccyzus seniculus* (not *Cuculus seniculus* Latham) NUTTING, Proc. U. S. Nat. Mus., v, 1882, 401 (La Palma de Nicoya, Costa Rica); vi, 1883, 376 (San Juan del Sur, Nicaragua); vi, 1884, 388 (Sucuya, Nicaragua).

*Coccyzus minor palloris* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 105 (Pigres, w. Costa Rica; coll. U. S. Nat. Mus.).

<sup>a</sup> Eleven specimens.

<sup>b</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Six adult males from western Costa Rica.....	140.8	161.7	30	29.7	20.6
Two adult males from western Nicaragua.....	138.5	161.7	31	29.7	20.7
Two adult males from Tepic, western Mexico.....	139.2	160	30	28	20.2
One adult male from Tres Marias Islands.....	144	168	29	29	20
FEMALES.					
Six adult females from western Costa Rica.....	142.1	163.7	29.4	29.8	20.3
Four adult females from western Nicaragua.....	141	168	30	29	20.5

## COCYZUS MINOR MAYNARDI (Ridgway).

## BAHAMA MANGROVE CUCKOO.

Similar to *C. m. palloris* in paleness of coloration but averaging decidedly smaller and with anterior under parts (chest, foreneck, throat, and chin) dull white shaded laterally with pale gray, in contrast with the pale buff of posterior portions.

*Adult male*.—Length (skins), 278–326 (298); wing, 126.5–140 (133.1); tail, 154–169 (161.8); exposed culmen, 26.5–28.5 (27.3); tarsus, 26.5–29 (28.2); outer anterior toe, 18.5–21 (19.4).<sup>a</sup>

*Adult female*.—Length (skins), 277–322 (298); wing, 128–145 (134.8); tail, 147–170.5 (163.2); exposed culmen, 25.5–30 (27.9); tarsus, 25.5–30.5 (28.4); outer anterior toe, 18–21.5 (19.8).<sup>b</sup>

Bahama Islands (Abaco, Berry, Eleuthera, New Providence, Andros, Watling, Rum Cay, Long, Acklin, North Caicos, East Caicos, Grand Caicos, and Great Inagua islands); Florida Keys (Key West); Gulf coast of southern Florida (Marco; Ten Thousand Islands; Charlotte Harbor); Cuba (Manatí, and Los Caños, Guantánamo); Grand Cayman?; occasional in Haiti (San Lorenzo, Santo Domingo).

*Coccyzus minor* (not *Cuculus minor* Gmelin) BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 65 (New Providence I., Bahamas).

<sup>a</sup> Twenty-one specimens.

<sup>b</sup> Nineteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Florida (Ten Thousand Islands and Charlotte Harbor).....	137	167.2	27.7	28	19.7
One adult male from Rum Cay.....	133	163	28	27	19
Five adult males from Watling Island.....	133.4	163.6	27.3	28.6	19.7
One adult male from Abaco Island.....	130.5	156	27.5	27	19.5
One adult male from Caicos Island.....	125	150.5	25	29	19
Three adult males from Inagua Island.....	131.2	162.3	27.8	28.5	19.7
Two adult males from Andros Island.....	132.7	159.7	26.5	26.7	19.2
Four adult males from New Providence Island.....	136.4	162.1	27.2	28.4	19
Two adult males from Eleuthera Island.....	130.5	160	27.5	28.7	19
FEMALES.					
Two adult females from Florida (Marco and Charlotte Harbor)...	138	164.5	29	29.5	20.2
One adult female from Rum Cay.....	137.5	161	30	28	21
Two adult females from Watling Island.....	137	153.2	28	29.7	20.2
Five adult females from Inagua Island.....	133.4	165.3	27.8	29	19.1
Five adult females from New Providence Island.....	134.6	159.8	27.5	27.7	20.1
One adult female from Eleuthera Island.....	138.5	164.5	27	28	21
One adult female from Long Island.....	131.5	.....	29	25.5	20
One adult female from Berry Island.....	128	158	28	29	18.5
One adult female from Cuba (Guantanamo).....	137	157	27	27.5	19

- Coccyzus minor* CORY, Birds Bahama Is., 1880, 117 (New Providence I.); Auk, iii, 1886, 365, part (Bahamas); Birds West Ind., 1889, 160, part (Bahamas).
- Coccyzus maynardi* RIDGWAY, Man. N. Am. Birds, Sept. 27, 1887, 274 (Ten Thousand Islands, Florida; coll. U. S. Nat. Mus.).
- Coccyzus maynardi* RIDGWAY, Man. N. Am. Birds, 1887, 591.—CORY, Auk, v, 1888, 159; viii, 1891, 394 (Inagua I., Bahamas; descr. abnormally colored specimen).—CHAPMAN, Auk, v, 1888, 396.—(?) NICOLL, Ibis, 1904, 584 (Grand Cayman).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 359 (San Lorenzo, Santo Domingo).
- [*Coccyzus maynardi* SHARPE, Hand-list, ii, 1900, 163.
- Coccygus maynardi* CORY, Birds West Ind., 1889, 296.
- Coccyzus minor maynardi* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 9; Check List, 2d ed., 1895, no. 386a; 3d ed., 1910, 181.—SCOTT, Auk, vi, 1889, 250 (Key West, Florida, breeding).—NORTHROP, Auk, viii, 1891, 75 (Andros I., Bahamas).—CORY, Auk, viii, 1891, 294 (New Providence I.), 295 (Berry Islands), 297 (Caicos Islands), 351 (Eleuthera I.; Inagua I.); ix, 1892, 48 (Watling I.); Cat. West Ind. Birds, 1892, 102, 141, part (Berry, Eleuthera, New Providence, Andros, Watling, Rum Cay, North Caicos, Grand Caicos, East Caicos, and Great Inagua islands, Bahamas; Grand Cayman).—RIDGWAY, Auk, viii, 1891, 336 (Eleuthera I.), 337 (Watling I.), 338 (Rum Cay).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 19.—BONHOTE, Ibis, 1899, 515 (New Providence I.; habits); 1903, 294 (New Providence I.; habits).—BANGS, Auk, xviii, 1900, 288 (New Providence I.; descr. young).—RILEY, Smithson. Misc. Coll., vol. 47, no. 8, 1904, 285; Auk, xxii, 1905, 355 (New Providence I.; Long I.).—TODD, Ann. Carnegie Mus., vii, 1911, 420 (Great Inagua; Watling I.; Abaco I.; crit.).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 453 (Acklin I., etc., Bahamas).—RAMSDEN, Auk, xxix, 1912, 393 (Manati, Guantanamo, Cuba, 1 spec., March 9, 1912; Los Caños, Guantanamo, 1 spec., March 26, 1911).
- Coccyzus minor maynardi* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 274.—BANGS, Proc. Biol. Soc. Wash., xx, 1907, 53, 54, in text.
- [*Coccyzus minor* subsp. *maynardi* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40.

### COCYZUS MINOR NESIOTES (Cabanis).

#### JAMAICAN MANGROVE CUCKOO.

Similar to *C. m. minor*, but pileum more grayish, especially on forehead; subauricular and (usually) suborbital regions, malar region, chin, throat, and chest more or less distinctly tinged with pale gray and (usually, at least) decidedly lighter in color than under parts of body; similar also to *C. m. maynardi* but more deeply colored below, the under parts of body, etc., much deeper buffy, and the chest, fore-neck, and throat distinctly buffy.

*Adult male*.—Length (skins), 268–320 (291); wing, 125–145 (132.6); tail, 148–174.5 (161.1); exposed culmen, 24.5–30 (27.5); tarsus, 25–30 (28.1); outer anterior toe, 17.5–20.5 (18.9).<sup>a</sup>

<sup>a</sup> Thirty-seven specimens.



*Adult female*.—Length (skins), 278–322 (299); wing, 127–140.5 (133.8); tail, 152.5–172 (163.1); exposed culmen, 26–29.5 (27.8); tarsus, 26.5–30 (28.9); outer anterior toe, 17.5–20.5 (19).<sup>a</sup>

Jamaica (Priestman's River; Kingston; Port Antonio; Port Henderson); Haiti (Port au Prince and Le Coup, Haiti; San Cristóbal, Catare, Puerto Plata, Samaná, Caña Honda, La Cañita, San Lorenzo, El Valle, and La Vega, Santo Domingo); Porto Rico (Caguás; Puerto Real; Luquillo; Mameyes; Utuado; Guayama; Lares; Aibonito; Caggy), and adjacent islands of Vieques, Mona, Culebra, and Culebrita; St. Thomas; St. Johns; Virgin Gorda; Tórtola?,<sup>b</sup> St. Croix?,<sup>b</sup> Cuba? Grand Cayman?<sup>b</sup> Occasional in Bahama Islands (Andros Island, Nov. 25; Abaco Island, May 6). [Coast of southern Florida (near Tampa; Punta Rassa; Caloosahatchie River, breeding; Key West, South Anclote, Boca Grande, Boca Chica, Sugar Loaf, Big Pine, Grassy, and Snipe Keys) ?]<sup>b</sup>

<sup>a</sup> Forty-three specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Seven adult males ( <i>C. m. nesiototes</i> ?) from Grand Cayman.....	133.3	162.9	29	28.9	18.9
Ten adult males from Jamaica.....	134.9	165.4	27.5	28.1	19.3
Ten adult males from Haiti.....	130.7	158.7	27.4	27.8	19
Six adult males from Porto Rico.....	131.4	162.6	26.3	27.5	18.3
One adult male from Vieques.....	126.5	153.5	26.5	28.5	18
Two adult males from Mona.....	133.5	149.5	27.2	25.5	18.5
One adult male from St. Thomas.....	134.5	151.5	26.5	27.5	19
FEMALES.					
Six adult females ( <i>C. m. nesiototes</i> ?) from Grand Cayman.....	133.3	161.4	28.5	28.7	18.6
Ten adult females from Jamaica.....	136.3	167.5	27.9	28.5	19.1
Nine adult females from Haiti.....	133.3	160.2	27.8	28.3	19.4
Eight adult females from Porto Rico.....	132.9	164.5	27.4	30.9	19.1
One adult female from Vieques.....	133.5	163.5	27	28	18.5
Three adult females from Mona.....	132.3	155	28	28.5	18.8
Three adult females from Culebra.....	132.7	163	28.2	28	18.7
One adult female from Culebrita.....	133.5	164.5	27.5	28.5	18
One adult female from St. Johns.....	127	161.5	28	27	20
One adult female from Virgin Gorda.....	138.5	169.5	27	29.5	17.5

The series in hand from Grand Cayman is a very unsatisfactory one, the plumage of all the specimens being not only more or less worn and faded but also to some extent discolored by the preservative used in their preparation. They are certainly much paler in coloration than those from other islands, except the Bahamas, and resemble much more closely *C. m. maynardi* than true *C. m. nesiototes*, and, unless the specimens are in abnormal condition, would better be referred to the former.

<sup>b</sup> I have not seen specimens from these islands, nor from any of the Florida localities named, the only Florida specimens examined (except the one on which Audubon's description and figures were based, this being of the present form) being *C. m. maynardi*, which see. Likewise, the only Cuban specimen seen by me (from Guantánamo) is *C. m. maynardi*.

- (?) *Coccyzus minor* (not *Cuculus minor* Gmelin) GUNDLACH, Journ. für Orn., 1859, 348 (crit.); 1874, 157 (Cuba; habits); Orn. Cubana, ed. 1895, 145.—CORY, Auk, iii, 1886, 502 (Grand Cayman); Cat. West Ind. Birds, 1892, 102, part (Cuba; Grand Cayman).—SCOTT, Auk, v, 1888, 185 (near Tampa, Florida; South Anclote Key, Florida, May 20, 1887); vi, 1889, 250 (Tampa and Punta Rassa, Florida, 2 specs.); viii, 1892, 212 (Caloosahatchie R., Florida, breeding).—BENDIRE, Life Hist. N. Am. Birds (ii), 1895, 17, part (Florida localities).—FOWLER, Auk, xxiii, 1906, 399 (Key West, Boca Grande, Boca Chica, Sugar Loaf, Big Pine, Grassy, and Snipe Keys, Florida).—LOWE, Ibis, 1911, 149 (Grand Cayman).
- Coccyzus minor* BRYANT, Journ. für Orn., 1866, 189 (Porto Rico; crit.); Proc. Bost. Soc. N. H., x, 1866, 254 (Porto Rico; crit.).—SCLATER, Proc. Zool. Soc. Lond., 1870, 166, part (monogr.); Revised List Birds Jamaica, 1910, 11.—GUNDLACH, Journ. für Orn., 1874, 312 (Porto Rico); 1878, 160, 185 (Porto Rico).—RIDGWAY, Proc. U. S. Nat. Mus., vii, 1884, 172 (St. Thomas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 386, part; 3d ed., 1910, 185, part.—CORY, Auk, iii, 1886, 365, part; vii, 1890, 375 (Tortola; Virgin Gorda); Birds West Ind., 1889, 160, part; Cat. West Ind. Birds, 1892, 102, part (Jamaica; Haiti; Mona; Porto Rico; Tortola; Virgin Gorda; St. Croix?).—SCOTT, Auk, ix, 1892, 274 (Jamaica), 372 (Jamaica; habits).—FIELD, Auk, xi, 1894, 124 (Port Henderson, Jamaica).—BENDIRE, Life Hist. N. Am. Birds, (ii), 1895, 17, part.—CHERRIE, Contr. Orn. San. Dom., 1896, 19.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (West Indies, part).—NICOLL, Ibis, 1904, 576 (St. Thomas).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 359 (San Lorenzo, El Valle, and La Vega, Santo Domingo).
- [*Coccyzus*] *minor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40 (St. Thomas).—SHARPE, Hand-list, ii, 1900, 163, part.
- C[*occyzus*] *minor* NEWTON, Handb. Jamaica, 1881, 109.—RIDGWAY, Man. N. Am. Birds, 1887, 274, part.
- (?) *Coccygus minor* CABANIS, Journ. für Orn., 1856, 104 (Cuba; habits).
- Coccygus minor* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 78, part ("Florida?").—BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 96 (Santo Domingo).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 482, part.—CORY, Bull. Nutt. Orn. Club, vi, 1881, 154 (Haiti); Birds Haiti and San Dom., 1885, 101.
- (?) [*Coccygus*] *minor* GUNDLACH, Journ. für Orn., 1861, 334 (Cuba).
- [*Coccygus*] *minor* CORY, List Birds West Ind., 1885, 19, part.
- Piaya minor* LESSON, Traité d'Orn., 1831, 141 (Porto Rico).
- Coccyzus seniculus* (not *Cuculus seniculus* Latham) VIEILLOT, Nouv. Dict. d'Hist. Nat., viii, 1817, 275, part.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 558; 2d ed., 1840, 659.—AUDUBON, Orn. Biog., ii, 1834, 390, pl. 169; Synopsis, 1839, 188; Birds Am., oct. ed., iv, 1842, 303, pl. 277.—GOSSE, Birds Jamaica, 1847, 281.—SALLÉ, Proc. Zool. Soc. Lond., 1857, 234 (Santo Domingo).—NEWTON (A. and E.), Ibis, 1859, 150 (St. Croix; crit.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 377 (St. Thomas).—SCLATER, Proc. Zool. Soc. Lond., 1861, 79 (Jamaica); 1864, 121, part (monogr.).—ALBRECHT, Journ.

- für Orn., 1862, 202 (Jamaica).—COUES, Check List, 1873, no. 292.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 190; Nom. N. Am. Birds, 1881, no. 386.
- [*Coccyzus*] *seniculus* BONAPARTE, Consp. Av., i, 1850, 111, part.—COUES, Key N. Am. Birds, 1872, 190.
- Coccyzus seniculus* COUES, Check List, 2d ed., 1882, no. 430.
- Coccyzus seniculus* COUES, Key N. Am. Birds, 2d ed., 1884, 476.
- Erythrophrys seniculus* BONAPARTE, Geog. and Comp. List, 1838, 40.
- (?) [*Coccyzus*] *dominicus* (not *Cuculus dominicus* Linnæus?) BONAPARTE, Consp. Av., i, 1850, 112 (Santo Domingo; based on *Cuculus dominicensis* Brisson, Orn., iv, pl. 9, fig. 2; described as having black bill!).
- Coccyzus dominicus* SALLÉ, Proc. Zool. Soc. Lond., 1857, 234 (Santo Domingo).—SCLATER, Cat. Am. Birds, 1862, 323 (Santo Domingo; Jamaica).
- Coccyzus minor dominicensis* BOWDISH, Auk, xix, 1902, 364 (Porto Rico, breeding).
- Coccyzus nesiotus* CABANIS, Mus. Hein., iv, Heft 1, Nov., 1862, 78, footnote (Greater Antilles, in summer wandering to Florida).
- Coccyzus nesiotus* SCLATER, Proc. Zool. Soc. Lond., 1864, 121, part (monogr.).—TAYLOR, Ibis, 1864, 170 (Porto Rico; descr. egg).
- [*Coccyzus*] *nesiotus* GRAY, Hand-list, ii, 1870, 210, no. 8918.
- Coccyzus seniculus* var. *nesiotus* COUES, Birds Northwest, 1874, 276, footnote (synonymy).
- Coccyzus minor nesiotus* RILEY, Smithson. Misc. Coll., vol. 47, Nov. 8, 1904, 285, part (Haiti; Jamaica; Grand Cayman [?]; Mona; Porto Rico; Vieques; St. Thomas; crit.).—TODD, Ann. Carnegie Mus., vii, 1911, 420, in text.
- Coccyzus minor nesiotus* BANGS, Proc. Biol. Soc. Wash., xx, 1907, 53, 54, in text.
- (?) *Coccyzus minor maynardi* (not *C. maynardi* Ridgway?) CORY, Cat. West Ind Birds, 1892, 102, part (Grand Cayman).—LOWE, Ibis, 1911, 149 (Grand Cayman).
- Coccyzus minor maynardi* CORY, Cat. West Ind. Birds, 1892, 102, part (Jamaica; Haiti; Porto Rico).
- Coccyzus minor dominicæ* (not *C. dominicæ* Shelley) CORY, Cat. West Ind. Birds, 1892, 102, part (Porto Rico).
- [*Coccyzus*] *dominicæ* SHARPE, Hand-list, ii, 1900, 163, part (Porto Rico).

### COCCYZUS MINOR RILEYI Ridgway.

#### RILEY'S MANGROVE CUCKOO.

Similar in coloration to *C. m. nesiotus* but decidedly larger; similar to *C. m. vincentis* but smaller, color of upper parts slightly grayer, and bill narrower (in lateral profile) and decidedly more compressed.

*Adult male*.—Length (skins), 278–330 (305); wing, 127–141 (134.7); tail, 156–175 (162.9); exposed culmen, 28–30.5 (29.1); tarsus, 27–31 (29.5); outer anterior toe, 19–21.5 (20.3).<sup>a</sup>

<sup>a</sup> Thirteen specimens.

*Adult female*.—Length (skins), 291–330 (313); wing, 133.5–147.5 (140.7); tail, 152–178 (162.7); exposed culmen, 27–30 (28.7); tarsus, 27–30 (29.1); outer anterior toe, 19–20.5 (20).<sup>a</sup>

Islands of Barbuda and Antigua, Lesser Antilles; Montserrat?; Swan Island, Caribbean Sea.

*Coccyzus seniculus* (not *Cuculus seniculus* Latham) SCLATER, Proc. Zool. Soc. Lond., 1864, 121, part (monogr.).

*Coccyzus minor* (not *Cuculus minor* Gmelin) SCLATER, Proc. Zool. Soc. Lond., 1870, 166, part (monogr.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 482, part.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 234 (Antigua), 240 (Barbuda); i, 1879, 487, part (Antigua; Barbuda).—CORY, Auk, iii, 1886, 365, part; viii, 1891, 47 (Antigua); Birds West Ind., 1889, 160, part; Cat. West Ind. Birds, 1892, 102, part (Antigua; Barbuda).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 577 (Swan I.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (West Indies, part; Swan I.).

(?) *Coccyzus minor* SCLATER, Proc. Zool. Soc. Lond., 1879, 765 (Montserrat).—GRISDALE, Ibis, 1882, 491 (Montserrat; habits).—CORY, Cat. West Ind. Birds, 1892, 102, part (Montserrat).

[*Coccyzus*] *minor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—SHARPE, Hand-list, ii, 1900, 163, part.

[*Coccygus*] *minor* CORY, List Birds West Ind., 1885, 19, part.

*Coccyzus minor nesiotus* (not *Coccygus nesiotus* Cabanis) RILEY, Smithson. Misc. Coll., xlvii, Nov. 8, 1904, 285, part (Barbuda; Antigua; Swan I.; crit.).

*Coccyzus minor rileyi* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 105 (Barbuda, Lesser Antilles; coll. U. S. Nat. Mus.).

### COCYZUS MINOR VINCENTIS Clark.

#### ST. VINCENT MANGROVE CUCKOO.

Similar in coloration to *C. m. nesiotus* but much larger; similar also to *C. m. abbotti*, but averaging slightly darker and with bill larger and much stouter.

*Adult male*.—Length (skins), 308–323 (314); wing, 142–152 (146.2); tail, 169–174 (171); exposed culmen, 30–32 (30.8); tarsus, 30.5–31.5 (30.8); outer anterior toe, 19.5–22 (20.7).<sup>b</sup>

<sup>a</sup> Twelve specimens.

<sup>b</sup> Three specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Barbuda.....	138.7	161.5	29	27	20.5
Nine adult males from Antigua.....	133.4	160.7	29.2	29.8	20.3
Two adult males from Swan Island.....	136.7	174.2	28.5	29	20
FEMALES.					
Two adult females from Barbuda.....	146.7	159.5	28.7	29.2	20.5
Nine adult females from Antigua.....	139.4	161.7	28.9	29.2	19.9
One adult female from Swan Island.....	141	178	27	28	20

*Adult female*.—Length (skins), 306–335 (318); wing, 140–146 (143.3); tail, 169.5–186 (176.6); exposed culmen, 29–31 (30.1); tarsus, 30–31.5 (30.7); outer anterior toe, 19.5–21.5 (20.3).<sup>a</sup>

Islands of St. Vincent and Santa Lucia, Lesser Antilles.<sup>b</sup>

*Coccyzus seniculus* (not *Cuculus seniculus* Latham) SCLATER, Proc. Zool. Soc. Lond., 1864, 121, part (monogr.).

*Coccyzus minor* (not *Cuculus minor* Gmelin) SCLATER, Proc. Zool. Soc. Lond., 1870, 166, part (monogr.); 1871, 273 (Santa Lucia); 1889, 395 (Santa Lucia).—SEMPER, Proc. Zool. Soc. Lond., 1872, 65 (Santa Lucia; habits).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 482, part.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 193 (St. Vincent); i, 1879, 487, part (St. Vincent).—CORY, Auk, iii, 1886, 365, part; Ibis, 1886, 473 (St. Vincent); Birds West Ind., 1889, 160, part; Cat. West Ind. Birds, 1892, 102, part (Santa Lucia; St. Vincent).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 130 (Santa Lucia).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (West Indies, part).

[*Coccyzus*] *minor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—SHARPE, Hand-list, ii, 1900, 163, part.

*Coccygus minor* ALLEN, Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).

[*Coccygus*] *minor* CORY, List Birds West Ind., 1885, 19, part.

*Coccyzus minor minor* CLARK (A. H.), West Ind. Bull., xi, no. 3, 1911, 183 (Santa Lucia).

*Coccyzus minor dominicæ* (not *C. dominicæ* Shelley) CORY, Cat. West Ind. Birds, 1892, 102, part (Santa Lucia).

*Coccyzus minor vincentis* CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, no. 7, Oct., 1905, 264 (Peter's Hope, St. Vincent; coll. E. A. and O. Bangs; habits); West Ind. Bull., xi, no. 3, 1911, 183 (Santa Lucia).

[*Coccyzus*] *minor vincentis* BANGS, Proc. Biol. Soc. Wash., xx, 1907, 53, 54, in text.

### COCCYZUS MINOR DOMINICÆ Shelley.

#### SHELLEY'S MANGROVE CUCKOO.

Similar in size to *C. m. vincentis* but coloration of under parts much deeper (decidedly the most deeply colored form of the species), and bill decidedly stouter.

<sup>a</sup> Six specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from St. Vincent.....	146.2	171	30.8	30.8	20.7
One adult male from Santa Lucia.....	144.5	169	30	30.5	19.5
FEMALES.					
Four adult females from St. Vincent.....	142.5	173.7	30.3	30.6	20.4
Two adult females from Santa Lucia.....	145	182.2	29.7	31	20.2

<sup>b</sup> The Harris specimen (in the collection of the Academy of Natural Sciences, Philadelphia) said to be from the Columbia River (but undoubtedly *not* from there) is apparently this form.

*Adult male*.—Length (skins), 297–390 (330); wing, 138.5–145.5 (142.2); tail, 151–171 (164.9); exposed culmen, 26–32 (29.3); tarsus, 28–31 (29.7); outer anterior toe, 19–23 (20.7).<sup>a</sup>

*Adult female*.—Length (skins), 297–316 (308); wing, 140–145.5 (143.4); tail, 159–173 (165.9); exposed culmen, 28.5–32 (30.1); tarsus, 30–30.5 (30.1); outer anterior toe, 20–22.5 (21.2).<sup>b</sup>

Islands of Guadeloupe, Dominica (St. Josephs; Shawford; Roseau), and Martinique, Lesser Antilles.

*Coccyzus seniculus* (not *Cuculus seniculus* Latham) SCLATER, Proc. Zool. Soc. Lond., 1864, 121, part (monogr.).—TAYLOR, Ibis, 1864, 170 (Dominica; food).—COUES, Birds Northwest, 1874, 276, footnote, part (Dominica; Guadeloupe; Martinique).

*Coccyzus minor* (not *Cuculus minor* Gmelin) SCLATER, Proc. Zool. Soc. Lond., 1870, 166, part (monogr.); 1889, 326 (Dominica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 482, part.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 62 (Dominica; notes); i, 1879, 359 (Martinique), 459 (Guadeloupe; habits), 487, part (Guadeloupe; Dominica; Martinique).—CORY, Auk, iii, 1886, 365, part; iv, 1887, 96 (Martinique); viii, 1891, 48 (Guadeloupe); Birds West Ind., 1889, 160, part; Cat. West Ind. Birds, 1892, 102, part (Guadeloupe; Dominica; Martinique).—VERRILL, Trans. Conn. Ac. Arts and Sci., viii, 1892, 329 (Dominica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (West Indies, part).

[*Coccyzus*] *minor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—SHARPE, Hand-list, ii, 1900, 163, part.

[*Coccygus*] *minor* CORY, List Birds West Ind., 1885, 19, part.

[*Coccyzus minor*] Subsp. *b.*, *Coccyzus dominicæ* SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 306 (Dominica, Lesser Antilles; coll. Brit. Mus.).

*Coccyzus minor dominicæ* CORY, Cat. West Ind. Birds, 1892, 11, 102, part (Dominica).

[*Coccyzus*] *minor dominicæ* BANGS, Proc. Biol. Soc. Wash., xx, 1907, 53, 54, in text.

[*Coccyzus*] *minor* subsp. *dominicæ* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40.

*Coccyzus dominicæ* SHELLEY, Cat. Birds Brit. Mus., xix, 1891, pl. 12, fig. 1.

[*Coccyzus*] *dominicæ* SHARPE, Hand-list, ii, 1900, 163, part (Dominica).

*Coccyzus minor shelleyi* RILEY, Smithson. Misc. Coll., xlvii, Nov. 8, 1904, 285 (new name to replace *C. dominicæ* Shelley considered preoccupied by *Cuculus dominicus* Linnæus).

<sup>a</sup> Eight specimens.

<sup>b</sup> Four specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Four adult males from Dominica .....	142.7	164.9	30	30.1	20.4
Three adult males from Guadeloupe .....	141.7	163	27.7	29.7	20.5
One adult male from Martinique .....	141	164.9	29.3	29.7	20.7
FEMALES.					
Four adult females from Dominica .....	143.4	165.9	30.1	30.1	21.2

## COCCYZUS MINOR GRENADENSIS Bangs.

## GRENADA MANGROVE CUCKOO.

Similar to *C. m. vincentis* but averaging decidedly paler (slightly paler than *C. m. nesiotis*, more nearly like *C. m. maynardi*), and bill slightly smaller.

*Adult male*.—Length (skins), 287–320 (303); wing, 134–146 (138); tail, 158.5–174 (166.6); exposed culmen, 28.5–32.5 (30.9); tarsus, 27–33 (30); outer anterior toe, 18.5–22 (20.5).<sup>a</sup>

*Adult female*.—Length (skins), 282–321 (301); wing, 134.5–144 (139); tail, 161–176 (165.2); exposed culmen, 29.5–32.5 (30.4); tarsus, 28.5–31 (29.8); outer anterior toe, 20–20.5 (20.1).<sup>b</sup>

Islands of Grenada and the Grenadines (Unión; Bequia; Canonán; Carriacou), Lesser Antilles.

*Coccyzus seniculus* (not *Cuculus seniculus* Latham) SCLATER, Proc. Zool. Soc. Lond., 1864, 121, part (monogr.).

*Coccyzus minor* (not *Cuculus minor* Gmelin) SCLATER, Proc. Zool. Soc. Lond., 1870, 166, part (monogr.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 482, part.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 272 (Grenada; habits); i, 1879, 487, part (Grenada).—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 620 (Grenada; food, etc.); Auk, xix, 1902, 344 (Carriacou, breeding).—CORY, Auk, iii, 1886, 365, part; Birds West Ind., 1889, 160, part; Cat. West Ind. Birds, 1892, 102, part (Bequia; Canonan; Union; Carriacou; Grenada).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 523, part (West Indies, part).—NICOLL, Ibis, 1904, 565 (Grenada; crit.).

[*Coccyzus minor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.—SHARPE, Hand-list, ii, 1900, 163, part.

*Coccyzus minor minor* CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 263 (Grenada and Grenadines; crit.; habits; descr. nest and eggs).

[*Coccygus minor* CORY, List Birds West Ind., 1885, 19, part.

*Coccyzus minor dominicæ* (not *C. dominicæ* Shelley) CORY, Cat. West Ind. Birds, 1892, 102, part (Grenada).

*Coccyzus minor grenadensis* BANGS, Proc. Biol. Soc. Wash., xx, Apr. 18, 1907, 53 (Union Island, Grenadines; coll. E. A. and O. Bangs).

<sup>a</sup> Seventeen specimens.

<sup>b</sup> Eight specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Six adult males from Grenada.....	140.7	169.2	31.5	30.2	21
Six adult males from Union Island.....	135.8	164.1	30.9	29	19.8
Three adult males from Bequia.....	137.8	171.2	30.7	31.2	21
Two adult males from Carriacou.....	136.5	159.2	29.2	30.5	20.5
FEMALES.					
Three adult females from Grenada.....	140	166.5	31	29.2	20.2
Four adult females from Union Island.....	139.1	164.5	30	30.7	20.2
One adult female from Carriacou.....	135.5	164	30	29	19.5

## COCCYZUS MINOR ABBOTTI (Stone).

## ABBOTT'S MANGROVE CUCKOO.

Similar in coloration to *C. m. vincentis*, but averaging slightly paler and with bill smaller and narrower.

*Adult male*.—Length (skins), 293–318 (309); wing, 134.5–145.5 (140.8); tail, 160.5–174 (166.6); exposed culmen, 27–31 (29); tarsus, 28–30 (29.3); outer anterior toe, 18–19.5 (19).<sup>a</sup>

*Adult female*.—Length (skins), 306–332 (316); wing, 131–155.5 (142); tail, 159–173.5 (166.3); exposed culmen, 28–30 (29.1); tarsus, 27.5–30 (28.8); outer anterior toe, 18.5–20.5 (19.5).<sup>b</sup>

Islands of St. Andrews and Old Providence, Caribbean Sea; island of Aruba, Dutch West Indies?

*Coccyzus minor* (not *Cuculus minor* Gmelin) CORY, Auk, iv, 1887, 180 (Old Providence I., Caribbean Sea); Pub. 137, Field Mus. N. H., 1909, 199 (Aruba, Dutch West Indies).

*Coccyzus abbotti* STONE, Proc. Ac. Nat. Sci. Phila., 1899, 301 (St. Andrews Island, Caribbean Sea; coll. Ac. Nat. Sci. Phila.).

[*Coccyzus*] *abbotti* SHARPE, Hand-list, ii, 1900, 163.

## COCCYZUS FERRUGINEUS Gould.

## COCOS ISLAND CUCKOO.

Similar to the more deeply colored forms of *C. minor*, but with upper parts (except pileum and hindneck) more olivaceous and the wings extensively rufescent.

*Adults (sexes alike)*.—Pileum plain dull slate-gray, becoming clearer gray on forehead and passing into browner or more olivaceous gray on hindneck; back, scapulars, proximal wing-coverts and secondaries, rump, upper tail-coverts, and middle pair of rectrices grayish brown (between hair brown and olive-brown), faintly glossed with greenish bronze, especially on middle rectrices, which become distinctly darker subterminally, with a narrow tip of pale brownish or dull brownish white; other rectrices mostly black, broadly tipped

<sup>a</sup> Five specimens.

<sup>b</sup> Four specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from Old Providence Island.....	144	164.8	29	29.7	19
Two adult males from St. Andrews Island (one of them the type).....	136	169.2	29	28.7	19
FEMALES.					
Three adult females from Old Providence Island.....	145.5	170	29.5	28.5	19.5
One adult female ( <i>C. m. abbotti</i> ?) from Aruba.....	131.5	159	28	29.5	19.5



with white, this most extensive on lateral pair,<sup>a</sup> the blackish portion of which is edged, on both webs, with pale buff or buffy white, the pair next to middle ones with proximal third or more grayish brown; outer surface of wings (except proximal coverts and secondaries) mostly bright rufescent brown or russet, passing on distal portion of primaries into grayish brown; lores and upper half (or more) of auricular region dull black or slate-black in strong contrast with color of pileum, the two areas narrowly connected beneath bare orbital space; lower portion of suborbital and auricular regions, malar region, and chin very pale buff or buffy white, passing into dull warm buff on throat and other under parts, the color deeper on flanks, thighs, and under tail-coverts; under wing-coverts clear warm buff, the under surface of remiges similar proximally, but deepening, through a more rufescent hue, on middle portion, the distal portion grayish brown; maxilla black; mandible yellow, tipped with black; bare orbital space yellow; legs and feet horn color in dried skins (pale bluish gray in life?).

*Adult male*.—Length (skins), 317–323 (320); wing, 138–138.5 (138.2); tail, 165–172 (168.5); exposed culmen, 29–29.5 (29.2); tarsus, 29–30.5 (29.7); outer anterior toe, 20–21 (20.5).<sup>b</sup>

Cocos Island, Pacific Ocean, off Costa Rica.

*Coccyzus ferrugineus* GOULD, Proc. Zool. Soc. Lond., 1843 (pub. Dec., 1843), 105 (Cocos Island; coll. Mus. Zool. Soc. Lond.); Zool. Voy. "Sulphur", vol. i, no. 4, Jan. 1, 1844, 46, pl. 29.—BONAPARTE, Consp. Av., i, 1850, 97, footnote.—SCLATER, Proc. Zool. Soc. Lond., 1870, 167 (monogr.).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 303.—TOWNSEND (C. H.), Bull. Mus. Comp. Zool., xxvii, 1895, 124.—SNODGRASS and HELLER, Proc. Wash. Ac. Sci., iv, 1902, 517 (description).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 563.

[*Coccyzus*] *ferrugineus* GRAY, Hand-list, ii, 1870, 211, no. 8935.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108.—SHARPE, Hand-list, ii, 1900, 163.

*P[iaya] ferruginea* GRAY, Gen. Birds, ii, 1847, 457.

*N[esococcyx] ferrugineus* CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 79.

### COCYZUS MELACORYPHUS Vieillot.

#### AZARA'S CUCKOO.

Similar in coloration of plumage to *C. minor*, but bill wholly black and size much less.

*Adults (sexes alike)*.—Pileum slate color or deep slate-gray (sometimes tinged with grayish brown), the hindneck sometimes similar but usually more brownish; rest of upper parts plain grayish brown (hair brown to broccoli brown), very faintly glossed with bronzy, the middle pair of rectrices blackish terminally; second pair of rectrices (from middle) black distally (sometimes for greater part),

<sup>a</sup> The white tip about 35.5 mm. in extent on outermost pair and about 10 mm. on pair next to middle ones.

<sup>b</sup> Two specimens. (No female or young specimen examined.)

narrowly tipped with white, the remaining lateral rectrices black broadly tipped with white; lores blackish slate, deepening into dull slate-black around eyes and on auricular region; malar region, lower portion of suborbital region, and sides of neck pale gray, usually tinged with buffy; under parts plain buff, usually deepest on thighs; under wing-coverts light buff, the inner webs of remiges passing into light buff on edges (except distally); bill wholly black;<sup>a</sup> iris dark brown; legs and feet dusky (pale bluish gray in life?).

*Young*.—Similar to adults but lateral rectrices dull grayish black with terminal areas brownish white and not sharply defined, and middle pair of rectrices not blackish terminally.

*Adult male*.—Length (skins), 242–278 (260); wing, 110.5–120.5 (115.3); tail, 128–144 (134.6); exposed culmen, 22.5–26 (24.4); tarsus, 26–28.5 (26.8), outer anterior toe, 17–19.5 (17.9).<sup>b</sup>

*Adult female*.—Length (skins), 240–287 (262); wing, 112.5–124.5 (118.1); tail, 128–150.5 (139.6); exposed culmen, 22.5–26.5 (24.2); tarsus, 25–28.5 (26.8); outer anterior toe, 17–20 (18.1).<sup>c</sup>

Colombia (Cali, Guabinas, Palmira, Cauca Valley, Cauca at 3,500 feet, and Rio Lima, Cauca; Bonda, Santa Marta; Rio Barratoro; Los Tambos; Jiménez; Atúncelo; Caldas; Gorgona Island), Venezuela (Caracas; La Guaira; La Brea; Quiribana de Caicará; Culata), Trinidad, British Guiana (Annai; Bartica Grove; Demerara River; Yuruani River), Surinam, Cayenne, and southward to Paraguáy (Lambaré; Sapucáy), Uruguáy (Concepción), Argentina (Buenos Aires, Conchitas, and Barracas al Sud, Buenos Aires; Lomas de Zamora; Tapia; Punta Lara; Belgrano; Estancia Espartilla; lower Rio Pilcomayo;

<sup>a</sup> The mandible possibly grayish basally in life.

<sup>b</sup> Fifteen specimens.

<sup>c</sup> Twenty specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Four adult males from Colombia.....	114.7	136	24.4	27	18.1
Two adult males from Venezuela.....	117.5	137.2	25	27.2	17.2
One adult male from Argentina.....	115	136.5	24.5	27	17
One adult male from Uruguay.....	111.5	128	24.5	26.5	18.5
Five adult males from Galapagos Islands.....	115.7	134.2	24.6	26.9	17.7
FEMALES.					
Ten adult females from Colombia.....	117.7	138.7	24.8	26.9	18.5
One adult female from Gorgona I., Colombia.....	117	135	22.5	25.5	17
One adult female from Venezuela.....	116	134	24	25	18
Two adult females from British Guiana.....	121.2	148	23.2	26.7	17.2
Two adult females from Bolivia.....	119.7	141.5	24	26.7	17.7
Two adult females from Argentina.....	114	141.7	24.2	26.5	18
Two adult females from Uruguay.....	120.7	137.2	23	28.2	18.2

Chilecito; La Rioja; Catamarca, Córdoba; Tucumán; Chaco; Salta, Bolivia (Rio Surutu, Del Sara; Puerto Saurez; Aguairendo), and Peru (Sarayacu; Rio Ucayali; Rio Huallaga; Chyavetas; Chamicuros; Pebas; Yquitos; Lima); Galapagos Archipelago (Charles, Chatham, and Albemarle islands).

*Coccyzus melacoryphus* VIEILLOT, Nouv. Dict. d'Hist., Nat., viii, 1817, 271 (Paraguay; based on *Ceniciento* Azara, Apunt., ii, 368); Enc. Méth., iii, 1823, 1344.—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 97 (Quiribana de Caicara, Venezuela).—ROTHSCHILD and HARTERT, Novit. Zool., ix, 1902, 403 (Albemarle and Charles islands, Galapagos, breeding; habits; descr. nest), 417 (Galapagos; resident?).—BERLEPSCH, Novit. Zool., xv, 1908, 282 (Cayenne).

*P[ia]ya melacorypha* GRAY, Gen. Birds, ii, 1846, 457.

*Piaya melacorypha* LÉOTAUD, Ois. Trinidad, 1866, 349.

*Coccyzus melanorhynchos* PUCHERAN, Rev. et Mag. de Zool., 1852, 476 (crit.).

*Coccyzus melanocoryphus* SCLATER, Cat. Am. Birds, 1862, 323 (Cayenne); Proc. Zool. Soc. Lond., 1864, 122 (monogr.); 1866, 100 (Lima, Peru; habits); 1867, 752 (Rio Huallaga, e. Peru); 1870, 168 (monogr.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 195 (Rio Ucayali, e. Peru); 1867, 979 (Pebas, e. Peru); 1869, 633 (Conchitas, Buenos Aires, Argentina); 1873, 296 (Rio Ucayali, Chyavetas, Chamicuros, and Pebas, e. Peru).—BARROWS, Auk, i, 1884, 28 (Concepcion, Uruguay).—TACZANOWSKI, Orn. du Pérou, iii, 1886, 189.—SALVIN, Ibis, 1886, 64 (Bartica Grove and Yuruani River, Brit. Guiana).—BERLEPSCH, Journ. für Orn., 1887, 24 (Lambare, Paraguay), 121 (Paraguay).—WITHINGTON, Ibis, 1888, 468 (Lomas de Zamora, Argentina).—SCLATER and HUDSON, Argentine Orn., ii, 1889, 38.—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 113 (Chatham and Charles islands, Galapagos); xix, 1896, 581 (Charles and Chatham islands; crit.; measurements).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 307 (Cayenne; Bartica Grove, etc., Brit. Guiana; Caracas, Venezuela; Ecuador; Sarayacu, Yquitos, Lima, etc., Peru; Pernambuco, Bahia, and Rio de Janeiro, Brazil; Bolivia; Conchitas, Belgrano, and Punta Lara, Argentina).—KERR, Ibis, 1892, 140 (lower Rio Pilcomayo, Argentina).—HOLLAND, Ibis, 1892, 203 (Estancia Espartilla, Argentina; habits; descr. eggs).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 135 (Chapada, Mattogrosso, s. w. Brazil); xiii, 1900, 134 (Bonda, Santa Marta, Colombia).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1893, 386 (Lima, Peru; crit.).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 65 (Trinidad).—KOENIGSWALD, Journ. für Orn., 1896, 378 (São Paulo, s. Brazil).—ROBINSON, Proc. U. S. Nat. Mus., xviii, 1896, 684 (La Guayra, Venezuela).—SALVADORI, Boll. Mus. Zool., etc., Torino, xii, 1897, 26 (Aguairenda, s. Bolivia).—HOLMBERG, Segundo Censo Argent., i, 1898, 516.—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 174 (Chatham, Charles, and Albemarle islands, Galapagos; crit.).—IHERING, Revista Mus. Paulista, iii, 1899, 304 (Piquete, São Paulo); iv, 1900, 82 (descr. nest and eggs), 263 (descr. eggs); vi, 1904, 335 (Paraguay).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 21 (La Concepcion, centr. Ecuador).—ROBINSON and RICHMOND, Proc. U. S. Nat. Mus., xxiv, 1901, 170 (La Guayra, Venezuela).—GOOD, FELLOW, Ibis, 1902, 215 (Rio Coca, Ecuador; habits).—BAER, Ornis, xii, 1904, 225 (Tapia, Argentina).—SNODGRASS and HELLER, Proc. Wash. Ac. Sci., v, 1904, 268 (Charles, Chatham, and Albemarle islands).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 94 (Gorgona I., Colombia).—HELLMAYR, Novit. Zool., xiv, 1907, 80 (Teffé, Brazil).—SNETHLAGE, Journ.

- für Orn., 1908, 537 (Arimethua, Tocantins, Brazil).—HARTERT and IHERING, Novit. Zool., xvi, 1909, 231 (Barracas al Sud, Argentina; descr. nest and eggs).—REISER, Denkw. Mat. Nat. Kaiserl. Ak. Wiss. Wien, 1910, 58 (Carnahyba, n. e. Brazil).—DABBENE, Orn. Argent., 1910, 271 (Chilecito, La Rioja; Catamarca, Cordoba; Tucuman; Chaco; Barracas al Sur, Buenos Aires).—CHUBB, Ibis, 1910, 271 (Sapucay, Paraguay).
- [*Coccyzus melanocoryphus* GRAY, Hand-list, ii, 1870, 210, no. 8916.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108.—SHARPE, Hand-list, ii, 1900, 163.
- C[*Coccyzus melanocoryphus* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40 (Brazil).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 202 (Galapagos).
- C[*Coccygus melanocoryphus* CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 77 (Brazil; Paraguay; Montevideo, Uruguay; La Plata).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 476.
- Coccygus melanocoryphus* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 38 ("Haiti" error!).—PELZELN, Orn. Bras., iii Abth., 1870, 273.—CABANIS, Journ. für Orn., 1878, 198 (Argentina).—FRENZEL, Journ. für Orn., 1891, 116 (Cordova, Argentina).
- [*Coccygus melanocoryphus* PELZELN, Orn. Bras., iv, Abth., 1871, 450.
- [*Coccygon melanocoryphus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 202 (Novo Friburgo, Brazil).
- Coccygus melanocoryphus* BEEBE, Zoologica, i, 1909, 87 (La Brea, n. e. Venezuela).
- Piaya melanorhynchus* LESSON, Traité d'Orn., 1831, 141 (ex *Cuculus melanorhynchus* Cuvier, manuscript).
- Coccyzus minor* (not *Cuculus minor* Gmelin) HARTLAUB, Index Azara Apunt., 1847, 19 (see Pucheran, Rev. et Mag. de Zool., 1852, 476; crit.).—WHITE, Proc. Zool. Soc. Lond., 1882, 619 (Salta, Argentina; descr. nest and eggs).
- (?) *Coccyzus cinereus* (not of Vieillot) BONAPARTE, Consp. Av., i, 1850, 112.
- Coccygus seniculus* (not *Cuculus seniculus* Latham) BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 267; Journ. für Orn., 1860, 244 (Parana and Tucuman, Argentina); Reis. La Plata, ii, 1861, 444.—STERNBERG, Journ. für Orn., 1869, 193 (Buenos Aires, Argentina; habits; descr. eggs).

### COCYZUS ERYTHROPTALMUS (Wilson).

#### BLACK-BILLED CUCKOO.

*Adults (sexes alike).*—Above plain olivaceous hair brown to broccoli brown, glossed with bronze, passing into a more grayish hue on forehead, the proximal primaries and distal secondaries sometimes slightly more rufescent basally; rectrices (except middle pair) rather broadly tipped with dull white and crossed by a broad subterminal bar of dusky; loreal region brownish gray, like forehead; auricular region grayish brown, like hindneck, etc.; malar region, lower portion of suborbital region, chin, throat, and upper chest varying from pale buffy grayish to pale grayish buff; rest of under parts plain dull white, the under tail-coverts more buffy or brownish white; under wing-coverts pale buff; inner webs of remiges passing into buff on edges, except distally; maxilla black; mandible pale grayish blue (in life), dusky terminally; iris deep brown; naked orbital space bright red (in life); legs and feet pale bluish gray or grayish blue (in life).

*Young*.—Similar to adults, but general color of upper parts decidedly more brownish, especially anteriorly; outer webs of primaries more distinctly rufescent proximally; under parts rather more strongly suffused with pale brownish buffy; rectrices with whitish tips less distinct, and subterminal dusky bar indistinct or obsolete; naked skin of orbital region yellow, instead of red.

*Nestling*.—Similar to the full-grown young, but feathers of back and rump, scapulars, interscapulars, and upper tail-coverts tipped with grayish white.

*Adult male*.—Length (skins), 269–295 (281); wing, 132.5–144 (143.9); tail, 142–155 (149.8); exposed culmen, 22.5–26 (23.8); tarsus, 21–25 (23.5); outer anterior toe, 16–19 (17.5).<sup>a</sup>

*Adult female*.—Length (skins), 270–300 (286); wing, 137–146.5 (141.4); tail, 146.5–164.5 (154.7); exposed culmen, 21.5–25 (23.4); tarsus, 21.5–25.5 (23.8); outer anterior toe, 16.5–19 (17.8).<sup>b</sup>

Temperate eastern North America, breeding north to Prince Edward Island, Quebec, Ontario (Point Pelee; Parry Sound; Muskoka), southern Manitoba, southeastern Saskatchewan, and southeastern Alberta, west to eastern Montana (Fort Keogh; Custer County), etc., straggling (?) to eastern Colorado (Fort Collins; Loveland; Wray; Jackson Canyon), etc., south to South Carolina (Mount Pleasant), Georgia (St. Simons Island), northern Florida (Leon County), Kentucky, Arkansas, and Kansas; in winter southward through Mexico (reaching Pacific coast in Guerrero), and Central America, to northern South America, as far as Peru (Rio Ucayali; Guajango; Lechugál) and Trinidad, and to Bermudas, Cuba, and Porto Rico; accidental in Ireland, Azores, and Italy.

*Cuculus erythrophthalma* WILSON, Am. Orn., iv, 1811, 16, pl. 28, fig. 2 (type locality probably Pennsylvania; mentions also Georgia).

*Cuculus erythrophthalmus* BONAPARTE, Obs. Wilson's Am. Orn., 1826 [240].—HARTING, Handb. Brit. Birds, 1872, 124 (accidental in Ireland).

*Cu[culus] erythrophthalmus* STEPHENS, Shaw's Gen. Zool., xiv, pt. i, 1826, 208.

*Coccyzus erythrophthalmus* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, pt. ii, 1824, 367; Obs. Wilson's Am. Orn., 1826, [28]; Ann. Lyc. N. Y., ii, pt. i, 1826, 42, 437 (crit.).—AUDUBON, Orn. Biog., i, 1831, 170, pl. 32; v, 1839, 523;

<sup>a</sup> Fifteen specimens.

<sup>b</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Ten adult males from Atlantic States.....	147.3	149.3	23.7	23.5	17.7
Five adult males from Mississippi Valley.....	137	150.6	23.8	23.4	17.2
FEMALES.					
Five adult females from Atlantic States.....	141.4	154.8	23.3	23.9	17.6
Five adult females from Mississippi Valley.....	141.4	154.7	23.6	23.8	18.1

Synopsis, 1839, 187; *Birds Am.*, oct. ed., iv, 1842, 300, pl. 276.—WOODHOUSE, in *Rep. Sitgreaves's Expl. Zuñi and Col. R.*, 1853, 92.—GLOGER, *Journ. für Orn.*, 1854, 224.—SCLATER, *Proc. Zool. Soc. Lond.*, 1859, 252; 1860, 252 (Vera Cruz); 1864, 122 (monogr.); 1870, 168 (monogr.); *Cat. Am. Birds*, 1862, 323 (Mexico; Bogota, Colombia).—SALVIN and SCLATER, *Ibis*, 1860, 276 (Dueñas, Guatemala).—LAWRENCE, *Ann. Lyc. N. Y.*, vii, 1862, 477 (Lion Hill, Panama); ix, 1868, 128 (Barranca, Costa Rica).—LÉOTAUD, *Ois. Trinidad*, 1866, 352.—SELYS-LONGCHAMPS, *Ibis*, 1870, 452 (Lucca, Italy, accidental).—GUNDLACH, *Journ. für Orn.*, 1871, 293 (Cuba); 1878, 185 (Porto Rico); *Orn. Cubana*, ed. 1895, 146.—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1873, 296 (Rio Ucayali, e. Peru); 1879, 537 (Medellin, Antioquia, Colombia).—COUES, *Check List*, 1873, No. 290; *Birds Northwest*, 1874, 274.—BREWSTER, *Ann. Lyc. N. Y.*, xi, 1875, 144 (Ritchie County, West Virginia); *Bull. Nutt. Orn. Club*, iii, 1878, 178 (descr. young).—GRINNELL (G. B.), in *Ludlow's Rep. Recon.*, 1876, 80 (Missouri R., as far as Wolf Point, 40 miles below Fort Peck).—BAGG, *Bull. Nutt. Orn. Club*, ii, 1877, 110 (occasional parasitic habits).—MCCHESNEY, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 81 (Fort Sisseton, South Dakota, breeding).—TACZANOWSKI, *Proc. Zool. Soc. Lond.*, 1879, 241 (Guájango and Lechugal, Peru; crit.); *Orn. du Pérou*, iii, 1886, 189.—RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, 1880, 190; *Nom. N. Am. Birds*, 1881, no. 388; *Orn. Illinois*, i, 1889, 395.—BECKHAM, *Journ. Cinc. Soc. N. H.*, vi, 1883, 144 (Bardstown, Kentucky, breeding).—REID, *Bull. U. S. Nat. Mus.*, no. 25, 1884, 211 (Bermudas, straggler).—SETON, *Auk*, iii, 1886, 155 (Manitoba, common summer resident).—CORY, *Auk*, iii, 1886, 366 (West Indian localities and references; descr.); *Birds West Ind.*, 1889, 161; *Cat. West Ind. Birds*, 1892, 102 (Cuba).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886 (and 2d ed., 1895), no. 388; 3d ed., 1910, 182.—LLOYD, *Auk*, iv, 1887, 190 (Tom Green and Concho counties, w. Texas, spring and fall).—RICHMOND, *Auk*, v, 1888, 21 (District of Columbia, breeding).—PINDAR, *Auk*, vi, 1889, 313 (Fulton Co., Kentucky, July 16).—SALVIN, *Ibis*, 1889, 373 (Cozumel I., Yucatan).—RIVES, *Proc. Newport N. H. Soc.*, doc. vii, 1890, 64 (Virginia, summer resident).—CHERRIE, *Auk*, vii, 1890, 333 (San José, Costa Rica); ix, 1892, 327 (San José and both coasts, Costa Rica).—THOMPSON, *Proc. U. S. Nat. Mus.*, xiii, 1890, 547 (Manitoba; habits, etc.).—CHAPMAN, *Bull. Am. Mus. N. H.*, vi, 1894, 65 (Trinidad).—COOKE, *Auk*, xi, 1894, 183 (Fort Collins, Colorado); *Bull. 37, Col. Agric. Coll.*, 1897, 82 (Loveland and Fort Collins, Colorado, in migration); *Auk*, xxvi, 1909, 412 (Wray, Colorado, 2 specimens, May).—BENDIRE, *Life Hist. N. Am. Birds*, (ii), 1895, 27, pl. 5, figs. 3, 4 (eggs).—THORNE, *Auk*, xii, 1895, 214 (Fort Keogh, Montana, June, July).—SALVIN and GODMAN, *Biol. Centr.-Am.*, Aves, ii, 1896, 526 (Vera Cruz and Orizaba, Vera Cruz; Valley of Mexico; Acapulco and Dos Arroyes, Guerrero; Cozumel I.; Dueñas, Guatemala; Barranca and San José, Costa Rica; Lion Hill, Panama; Colombia to e. Peru; Cuba; Trinidad).—FLEMING, *Auk*, xviii, 1901, 39 (Parry Sound and Muskoka, n. w. Ontario, breeding).—WILLIAMS (R. W.), *Auk*, xxi, 1904, 455 (Leon County, n. w. Florida, rare summer resident, breeding).—SMITH (H. G.), *Auk*, xxii, 1905, 82 (Jackson Cañon, Colorado, May 21, 1904).—HARTERT and GRANT, *Novit. Zool.*, xii, 1905, 114 (San Miguel, Azores, accidental).—WILSON (B. H.), *Wilson Bull.*, no. 54, 1906, 4 (Scott County, Iowa, common summer resident).—HUNT, *Wilson Bull.*, no. 58, 1907, 18 (Lake Sebago, Maine, Aug.).—HOLMES, *Wilson Bull.*, no. 58, 1907, 23 (Summit, New Jersey, common summer resident).—TAVERNER and SWALES, *Wilson Bull.*, no. 61, 1907, 133 (Point Pelee, Ontario, common summer resident).—CAMERON, *Auk*, xxiv, 1907, 269 (Custer County, Montana,

rare summer visitant).—BENT, Auk, xxv, 1908, 26 (s. w. Saskatchewan, breeding).—VISHER, Auk, xxvi, 1909, 148 (White R. and Bad R., w. South Dakota); xxviii, 1911, 11 (Harding County, South Dakota, 1 specimen, June 11).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 565 (Costa Rica).—WAYNE, Auk, xxviii, 1911, 485 (Mount Pleasant, South Carolina, breeding).

[*Coccyzus*] *erythrophthalmus* BONAPARTE, Consp. Av., i, 1850, 111.—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 291 (vicinity of New York City).—COUES, Key N. Am. Birds, 1872, 190.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108.—GUNDLACH, Journ. für Orn., 1878, 160 (Porto Rico).—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 40 (Chicago and Grand Crossing, Illinois).—SHARPE, Hand-list, ii, 1903, 164.

[*Coccyzus*] *erythrophthalmus* GRAY, Genera Birds, ii, 1846, 457.—RIDGWAY, Man. N. Am. Birds, 1887, 274.

*Coccyzus erythrophthalmus* CABANIS, Journ. für Orn., 1856, 104 (Cuba; said to breed!).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 77; Cat. N. Am. Birds, 1859, no. 70.—GUNDLACH, Journ. für Orn., 1861, 415 (Cuba).—SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 37.—McILWRAITH, Proc. Essex Inst., v, 1866, 83 (Hamilton, Ontario).—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 484, pl. 48, fig. 5.—COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 615 (Pembina Mountains, North Dakota, breeding); Check List, 2d ed., 1882 no. 428.—DALGLEISH, Bull. Nutt. Orn. Club, v, 1880, 73 (1 British Island, 1 Italian, record).—BAILEY (H. B.), Bull. Nutt. Orn. Club, viii, 1883, 40 (St. Simons I., Georgia, breeding).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 123 (Barranca, Costa Rica).

[*Coccyzus*] *erythrophthalmus* CABANIS and HEINE, Mus. Hein, iv, Heft 1, 1862, 76, footnote.—RIDGWAY, Ann. Lyc. N. Y., x, 1874, 377 (Illinois).—COUES, Key N. Am. Birds, 2d ed., 1884, 475.

[*Coccyzus*] *erythrophthalmus* GUNDLACH, Journ. für Orn., 1861, 334 (Costa Rica).

[*Coccyzus*] *erythrophthalmus* CORY, List Birds West Ind., 1885, 19 (Cuba).

*Erythrophrys erythrophthalmus* BONAPARTE, Geog. and Comp. List, 1838, 40.

[*Coccygon*] *erythrophthalmus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 202 (New York).

[*Coccystes*] *erythrophthalmus* HARTERT, Kat. Vogelsamml. Mus. Senckenb., 1891, 147.

*Piaya erythrophthalma* LESSON, Traite d'Orn., 1831, 141.

*Coccyzus dominicus* (not *Cuculus dominicus* Linnæus) NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 556; 2d ed., 1840, 657.

### COCCYZUS LANSBERGI Bonaparte.

#### LANSBERG'S CUCKOO.

*Adults (sexes alike).*—Pileum and sides of head (down to upper edge of malar region) deep brownish gray (between deep neutral gray and deep mouse gray), the crown somewhat more brownish; hindneck, back, scapulars, proximal secondaries (tertials), rump, and upper tail-coverts plain prouts brown, the wings (except proximal secondaries) brighter or more rufescent (russet), the primaries more grayish brown on terminal portion of inner webs; tail blackish olive-brown or dull fuscous-blackish, faintly glossed with greenish, the rectrices (except middle pair) broadly tipped with white, the middle pair narrowly tipped with the same; malar region, chin, throat, chest,

thighs, and under tail-coverts ochraceous-tawny or light tawny, fading into cinnamon-buff on abdomen; under wing-coverts pale cinnamon-buff or pinkish buff; under surface of remiges dull russet, fading into pale cinnamon-buff toward edge of inner web on proximal portion; bill blackish, paler on basal portion of mandible, where yellowish (in dried skins) on under side; legs and feet horn color in dried skins (grayish or bluish in life?).

*Adult female*.—Length (skin), 240; wing, 107.5; tail, 131; exposed culmen, 24; tarsus, 26.5; outer anterior toe, 18.5.<sup>a</sup>

Panamá (exact locality unknown),<sup>b</sup> Colombia (Bogotá; Santa Marta and Cienega, Santa Marta), Venezuela, and Ecuador (Yaguachi).

*Coccyzus lansbergi* BONAPARTE, *Consp. Av.*, i, Jan., 1850, 112 (Bogota, Colombia; coll. Leyden Mus.).—SCHLEGEL, *Mus. Pays-Bas*, i, no. 25 (Cuculi), 1864, 39 (descr. from type).—SHELLEY, *Cat. Birds Brit. Mus.*, xix, 1891, 303 (Santa Marta, Colombia; Venezuela).

[*Coccyzus*] *lansbergi* GRAY, *Hand-list*, ii, 1870, 210, no. 8919.—SHARPE, *Hand-list*, ii, 1900, 163 (Panama; Colombia; Venezuela).

[*Coccyzus*] *lansbergi* CABANIS and HEINE, *Mus. Hein.*, iv, Heft i, 1863, 79, footnote. *Coccyzus lansbergi* SCLATER, *Proc. Zool. Soc. Lond.*, 1855, 163 (Bogota); 1864, 122 (monogr.; Santa Marta); 1870, 169 (monogr.).—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1873, 511 (Venezuela).—TACZANOWSKI and BERLEPSCH, *Proc. Zool. Soc. Lond.*, 1888, 108 (Yaguachi Ecuador).—ALLEN, *Bull. Am. Mus. N. H.*, xiii, 1900, 134 (Cienega, Santa Marta, Colombia).

[*Coccyzus*] *lansbergi* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 108.

### Genus COCCYCUA Lesson.

*Coccyua* LESSON, *Traité d'Orn.*, 1831, 142. (Type, *Cuculus monachus* Cuvier = *C. rutilus* Illiger.)

*Coccyzaca* (emendation) BURMEISTER, *Syst. Ueb. Th. Bras.*, ii, 1855, 267, footnote.

*Coccyzusa* (emendation) CABANIS and HEINE, *Mus. Hein.*, iv, Heft 1, 1862, 89, footnote.

Small Cuculinæ (length about 250 mm.) resembling the genus *Piaya* but differing in relatively much shorter tail (only one and a half times as long as wing), relatively much shorter tenth (outermost) primary (decidedly less than half as long as longest primary), and much smaller size.

<sup>a</sup> One specimen, from Puerto Cabello, Venezuela. I have not seen an undoubted male of this species, which seems to be very rare in collections. The only other example of the species examined is one without sex determined, from Cienega, Santa Marta, Colombia, which measures as follows: Length (skin), 265; wing, 116.5; tail, 143; ; exposed culmen, 25.5; tarsus, 25; outer anterior toe, 19.5.

Two specimens (sex not determined) in the collection of the Academy of Natural Sciences, Philadelphia, have been measured for me by Mr. Stone, the measurements being as follows: No. 20116, "Lima, Peru." Wing, 109; tail, 139; exposed culmen, 27; tarsus, 25. No. 20120, "South America." Wing, 110; tail, 137; exposed culmen, 28; tarsus, 25.

<sup>b</sup> The occurrence of this species in Panama is possibly doubtful, since it is omitted from the *Biologia Centrali-Americana*.



Bill relatively small (very much shorter than head), compressed, rather strongly decurved, its depth at frontal feathering decidedly greater than its width at same point; culmen (from frontal feathering) much shorter than tarsus, slightly shorter than middle toe without claw, strongly decurved from base, narrowly rounded; gonyes nearly twice as long as mandibular rami, faintly concave, narrowly rounded or very indistinctly ridged; maxillary tomium without trace of sub-terminal notch. Nostril longitudinally ovate or slightly comma-shaped (the upper anterior end pointed), slightly operculate. Wing rather short, much rounded, the longest primaries exceeding distal secondaries by less than length of exposed culmen; fourth, fifth, and sixth primaries longest, the eighth shorter than second, ninth very much shorter than secondaries, and tenth (outermost) decidedly less than half as long as sixth. Tail about one and a half times as long as wing, graduated for nearly half its length, the rectrices relatively rather broad. Tarsus about one-fourth as long as wing, slightly but decidedly longer than middle toe with claw, only the extreme upper portion in front feathered.

*Plumage and coloration.*—Plumage in general blended but rather lax; a bare space (mostly hidden) above upper eyelid; eyelashes distinct. Above plain chestnut, including tail, the rectrices tipped with white; throat and chest tawny, the remaining under parts olive or olive-brownish.

*Range.*—Eastern Panama to eastern Peru and Cayenne. (Monotypic.)

**COCZYCUA RUTILA PANAMENSIS (Todd).**

**PANAMA CUCKOO.**

Similar to *C. r. rutila*,<sup>a</sup> of Cayenne, etc., but cinnamon-rufous of chest, etc., averaging lighter and more abruptly defined against the ochraceous-gray of breast, posterior under parts more decidedly gray,

<sup>a</sup> *Cuculus rutilus* Illiger, Abh. der Königl. Ak. Wissensch. Berlin for 1812-13 (1816), 224, in text (based, essentially, on *Cuculus cayanensis minor* Brisson, Orn., iv, 124); Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 277.—[*Piaya*] *rutilus* Bonaparte, Cons. Av., i, 1850, 110.—*P[yrhococcyx] rutilus* Cabanis and Heine, Mus. Hein., iv, Heft 1, 1862, 88 (Para, Brazil; diagnosis).—*C[occyzusa] rutila* Heine, Journ. für Orn., xi, 1863, 356.—*Coccyzus minutus* Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 275 (Cayenne; based on *Cuculus cayanensis* var. A Latham, etc.).—*P[iaya] minuta* Gray, Gen. Birds, ii, 1847, 457.—*Piaya minuta* Sclater, Cat. Am. Birds, 1862, 322, part (Trinidad; Cayenne); Shelley, Cat. Birds Brit. Mus., xix, 1891, 378, part.—*P[yrhococcyx] minutus* Cabanis, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 714.—*Coccygus minutus* Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 367.—(?) *Macropus caixana* (male) Spix, Av. Bras., i, 1824, 54, pl. 43, fig. 2 (Rio Tonantins, Brazil).—*Coccyzus caixana* Stephens, Shaw's Gen. Zool., xiv, pt. i, 1826, 207.—*Coccyzua monachus* Lesson, Traité d'Orn., 1831, 142 (Cayenne; ex *Cuculus monachus* Cuvier, manuscript, in Mus. Paris).—*Coccyzæa monachus* Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 267, in text.—*Piaya minor* Schlegel, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 59 (Cayenne; based on *Cuculus cayanensis minor* Brisson, Orn., iv, 124, etc.).

and color of upper parts appreciably lighter (less castaneous); similar also to *C. r. gracilis*,<sup>a</sup> of western Colombia to western Ecuador, but coloration decidedly darker.

*Adults (sexes alike).*—General color of upper parts plain rich reddish brown (between chestnut and bay), becoming more or less distinctly lighter and more cinnamomeous on forehead, darker (liver brown or carob brown) on upper tail-coverts, the remiges passing terminally into grayish brown with a faint bronzy gloss; tail dark bay, becoming darker subterminally, all the rectrices tipped with white, this increasing in width from the middle to the outermost rectrices; sides of head and neck similar in color to pileum, lightening into dull tawny, or between tawny and russet, on chin, throat, and chest; rest of under parts light drab or ochreous gray on breast, passing through brownish gray (nearly mouse gray) on abdomen and flanks into brownish black or very dark sooty brown on under tail-coverts; under surface of rectrices (except white tip) blackish brown, becoming more castaneous basally; bill yellowish (yellow or yellowish green in life); iris and bare orbital space red; legs and feet grayish dusky (in dried skins).

*Young.*—Much duller in color than adults; above mars brown, darker on tail (especially toward tip), more rufescent on remiges; throat and chest light brown (dull verona brown); rest of under parts sooty gray, darker on under tail-coverts; rectrices without white tips.

*Adult male.*—Length (skins), 240–267 (255); wing, 101–108 (103.8); tail, 145–154 (148.7); exposed culmen, 18–19.5 (18.8); tarsus, 24–26.5 (25.8); outer anterior toe, 17–19 (18.1).<sup>b</sup>

*Adult female.*—Length (skins), 250–266 (258); wing, 101.5–104.5 (102.7); tail, 146–157 (153.1); exposed culmen, 18–19 (18.6); tarsus, 26–27.5 (26.7); outer anterior toe, 17.5–19 (18.1).<sup>c</sup>

<sup>a</sup> *Piaya rutila* (not *Cuculus rutilus* Illiger) Sclater, Proc. Zool. Soc. Lond., 1860, 285 (Babahoyo, w. Ecuador), 297 (Esmeraldas, w. Ecuador).—*Piaya minuta* (not *Coccyzus minutus* Vieillot) Sclater, Cat. Am. Birds, 1862, 322, part (Babahoyo); Shelley, Cat. Birds Brit. Mus., xix, 1891, 378, part.—*C[occyzusa] gracilis* Heine, Journ. für Orn., xi, Sept., 1863 (published November, or later), 356 (Esmeraldas, w. Ecuador; coll. Heine Mus.?).

<sup>b</sup> Eight specimens.

<sup>c</sup> Five specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Eight adult males from Panama.....	103.8	148.7	18.8	25.8	18.1
Two adult males ( <i>C. r. gracilis</i> ) from western Colombia.....	106.7	149.7	20	28.2	19.2
One adult male ( <i>C. r. minuta</i> ) from Venezuela.....	103.5	144	17.5	26	17
Two adult males ( <i>C. r. minuta?</i> ) from Trinidad.....	105	145	19	26.5	18.5
One adult male ( <i>C. r. minuta</i> ) from British Guiana.....	105	153.5	18	25	17
Two adult males ( <i>C. r. gracilis?</i> ) from Ecuador (Bacay, Guayas).....	104	148	18.2	25.5	18

Eastern Panamá (Colón, Lion Hill, Bohio, and Tabernilla, Canal Zone; Cana, Darién; Laguna del Pita).

[*Piaya*] *rutila* (not *Cuculus rutilus* Illiger) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 300 (Lion Hill, Panama).

*Piaya gracilis* (not *Coccyzus gracilis* Heine) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 366 (Lion Hill, Panama; crit.).

[*Piaya*] *minuta* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part (Panama).—SHARPE, Hand-list, ii, 1900, 170, part (Panama).

*Piaya minuta* SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 378, part (Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 531, part (Lion Hill, Panama).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, p. 8 (Laguna del Pita, Panama).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 16 (Lion Hill, Panama).

*Piaya rutila panamensis* TODD, Ann. Carnegie Mus., viii, no. 2, May 20, 1912, 212 (Loma del Leon=Lion Hill, Panama; coll. E. A. and O. Bangs).

### Genus *PIAYA* Lesson.

*Piaya* LESSON, Traité d'Orn., 1831, 139. (Type, *Cuculus cayanus* Linnæus.)

*Pyrrhococcyx* a CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 713. (New name for *Piaya* Lesson, on grounds of purism.)

Rather large, very long-tailed arboreal Cuculinæ (length about 380–600 mm.) with tarsus less than one and a half times as long as middle toe without claw (not more than one-fourth as long as wing); tail more than one and a half times (sometimes twice) as long as wing, graduated for much more than one-third (sometimes for one-half) its length; tenth (outermost) primary not less than half as long as longest primary; bill shorter than head, strongly decurved, deeper, than wide at nostrils, and coloration mostly bright cinnamon-rufous, the rectrices broadly tipped with white.

Footnote—Continued.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Outer anterior toe.
FEMALES.					
Five adult females from Panama.....	102.7	153.1	18.6	26.7	18.1
Five adult females ( <i>C. r. gracilis</i> ) from western Colombia.....	107	147.5	18.7	25.7	18.5
Four adult females ( <i>C. r. minuta</i> ) from Venezuela.....	103	148.6	18.9	26.2	17.7
One adult female ( <i>C. r. minuta</i> ?) from Trinidad.....	104	128	19.5	26	18
One adult female ( <i>C. r. minuta</i> ) from lower Amazon Valley.....	105	155	20	26	19.5
One adult female ( <i>C. r. minuta</i> ?) from eastern Peru.....	103	147	21	27	18
One adult female ( <i>C. r. gracilis</i> ?) from Ecuador (Bacay, Guayas).....	97	136	18.5	24.5	16.5
One adult (sex unknown) ( <i>C. r. gracilis</i> ) from western Ecuador (Guayaquil).....	101	148	18	26.5	18

In addition to the well-marked Pacific slope form, *C. r. gracilis*, one or more additional South American forms probably require separation.

<sup>a</sup> Πυρρόκος, rothlich, rothbraun; κόκκιξ Kukuk. (Cabanis and Heine.)

Bill much shorter than head, rather broad basally, compressed and strongly but gradually decurved terminally, its width at anterior end of nostrils decidedly less to much less than its depth at same point; exposed culmen equal to or longer than outer anterior toe without claw (longer than toe with claw in *P. melanogastra*), strongly decurved from near base, rather narrowly rounded; gonys decidedly longer than mandibular rami, nearly straight but usually very faintly concave terminally, slightly prominent basally, narrowly rounded or very indistinctly ridged; maxillary tomium distinctly concave to beneath or posterior to nostril, deflected and more or less convex basally, without trace of subterminal notch. Nostril obliquely longitudinal, narrowly elliptical, in lower anterior portion of nasal fossa. Wing rather short, strongly rounded, the longest primaries exceeding distal secondaries by not more (usually much less) than length of exposed culmen; fifth and sixth or fourth to sixth primaries longest, the eighth about equal to distal secondaries, the tenth (outermost) half as long as longest primary or a little more. Tail much more than one and a half times (sometimes more than twice) as long as wing, graduated for much more than one-third (sometimes for one-half) its length, the rectrices relatively rather broad; tarsus about one and a half times as long as middle toe without claw, about one-fourth as long as wing.

*Plumage and coloration.*—Orbital region mostly naked (brightly colored in life); eyelashes strongly developed; no trace of bristles about base of bill; plumage in general soft and blended, somewhat hair-like, especially on head, neck, and under parts; pileum not crested. General color bright cinnamon-rufous to chestnut, paler on throat and chest, the pileum sometimes gray; under parts of body light bluish gray to dusky; rectrices broadly tipped with white and with a more or less distinct broad subterminal band or area of black.

*Range.*—The whole of Tropical America except West Indies and Galapagos Islands. (About twelve species and subspecies.)

KEY TO THE SPECIES AND SUBSPECIES OF *PIAYA*.<sup>a</sup>

- a. Under side of rectrices (except white tips) black (sometimes with concealed portion more or less tinged with rufescent brown); upper parts chestnut or bay; under parts of body deeper gray. (*P. cayana*.)

<sup>a</sup> Including among extralimital forms only the true *P. cayana* and those occurring in Colombia. The South American forms have been worked out, more or less satisfactorily, by Cabanis (Mus. Hein., iv, Heft 1, 1862, 82-88); J. A. Allen (Bull. Am. Mus. N. H., v, 1893, 136-139); Hellmayr (Novit. Zool., xiii, 1906, 43, 44); Stone (Proc. Ac. Nat. Sci. Phila., 1908, 492-501), Dabbene (Orn. Argentina, 1910, 423-427, footnotes), and Cory (Pub. 183, Field Mus. Nat. Hist., Orn. Ser., i, no. 9, Aug. 7, 1915, 304, 307-310). Among the considerable number of more or less strongly marked South American forms are the two styles of coloration represented in Middle America by *P. c. thermophila* and *P. mexicana*, respectively, and these certainly represent two specific types; certainly it is impossible that *P. c. thermophila* and *P. mexicana* can be conspecific, for perfectly typical examples of each occur together in the State of Oaxaca, and none of the large number of specimens examined shows the slightest intergradation of characters.

b. Flanks and anal region pale gray, the under tail-coverts deeper gray; pileum deep brown. (Guianas, Venezuela, etc.).

*Piaya cayana cayana* (extralimital).<sup>a</sup>

bb. Flanks and anal region blackish slate to black; pileum light brown or vinaceous-brown.

c. Posterior under parts black, in abrupt contrast with gray of more anterior portion, the black involving whole of flanks and lower abdomen; pileum darker, nearly concolor with back. (Western Colombia to western Peru.)

*Piaya cayana caucæ* (extralimital).<sup>b</sup>

cc. Posterior under parts blackish slate, gradually fading into gray of abdomen, etc.; color of pileum lighter, more vinaceous, brown, quite different from chestnut or bay of back. (Panama to southeastern Mexico.)

*Piaya cayana thermophila* (p. 47).

aa. Under surface of rectrices (except white tips and sharply defined subterminal black band or space) cinnamon-rufous or rufous-tawny; upper parts cinnamon-rufous to chestnut-rufous; under parts of body much paler gray.

b. Larger and lighter colored, the under surface of rectrices clear rufous-tawny, in abrupt contrast with black subterminal areas; back, etc., much lighter (clear rufous-tawny). (Southwestern and western Mexico.)

*Piaya mexicana* (p. 51).

bb. Smaller and darker, the under surface of rectrices dull cinnamon-rufous or hazel, in less abrupt contrast with black subterminal areas; back, etc., chestnut-rufous. (Eastern Colombia to Venezuela.). *Piaya columbiana* (extralimital).<sup>c</sup>

### PIAYA CAYANA THERMOPHILA (Sclater).

#### CENTRAL AMERICAN SQUIRREL-CUCKOO.

Similar to *P. c. cayana*<sup>d</sup> but white tips to rectrices broader, color of upper parts (especially the pileum) lighter, and color of under parts decidedly darker, the under tail-coverts blackish slate instead

<sup>a</sup> [*Cuculus*] *cayanus* Linnæus, Syst. Nat., ed. 12, i, 1766, 170 (Cayenne; based on *Cuculus cayennensis* Brisson, Orn., iv, 122).—[*Coccyzus*] *cayanus* Temminck, Tabl. Méth., in Pl. Col., 1839, 53.—*Piaya cayana* Lesson, Traité d'Orn., 1831, 140; Shelley, Cat. Birds Brit. Mus., xix, 1891, 373, part.—*Pyrrhococcyx cayanus* Cabanis, Journ. für Orn., 1862, 169 (crit.).—*P[yrhococcyx] cayanus* Cabanis, Mus. Hein., iv, Heft 1, 1862, 86, footnote (crit.).—*Cuculus cayanensis* Swainson, Classif. Birds, ii, 1837, 323.—*Cuculus caijanus* Temminck, Cat. Syst., 1807, 57.—*Piaya cayana (typica)* Allen, Bull. Am. Mus. N. H., v, July, 1893, 139 (geog. range).—*Piaya cayana cayana* Hellmayr, Novit. Zool., xiii, Feb., 1906, 43 (crit.).—*Coccyzus macrocerus* Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 275 (Guiana; cites *Cuculus cayanus* Latham and Pl. Enl., 211).

<sup>b</sup> *Piaya cayana caucæ* Stone, Proc. Ac. Nat. Sci. Phila., 1908, 499 (Rio Cauca, w. Colombia; coll. Am. Mus. N. H.).

This form is closely related to *P. c. nigricrissa* (*Piaya nigricrissa* Sclater, Proc. Zool. Soc. Lond., 1860, 285, 297 Babahoyo, w. Ecuador, coll. P. L. Sclater; *Piaya cayana nigricrissa* Hellmayr, Novit. Zool., xiii, Feb., 1906, 44; Stone, Proc. Ac. Nat. Sci. Phila., 1908, 500); but apparently differs in the characters pointed out by Dr. Stone.

<sup>c</sup> *Pyrrhococcyx columbianus* Cabanis, Journ. für Orn., 1862, 170 (Cartagena, Colombia; coll. Berlin Mus.).—*P[yrhococcyx] columbianus* Cabanis, Mus. Hein., iv, Heft 1, 1862, 82, footnote (Cartagena; crit.).—*Piaya cayana columbiana* Hellmayr, Novit. Zool., xiii, 1906, 44 (descr.; range); Stone, Proc. Ac. Nat. Sci. Phila., 1908, 498; Dabbene, Orn. Argent., 1910, 425, 426 (synonymy; range).—*Piaya cayana mehleri* (not *Piaya mehleri* Bonaparte) Bangs, Proc. New Engl. Zool. Club, i, 1899, 76 (San Sebastian, Santa Marta, Colombia).—[*Piaya*] *columbianus* Sharpe, Hand-list, ii, 1900, 170.

<sup>d</sup> See above, in key and footnote a.

of slate-gray; similar also to *P. c. caucæ*<sup>a</sup> but darker color of posterior under parts less decidedly black, much less extensive, and much less abruptly contrasted with gray of abdomen, etc.

*Adults (sexes alike).*—Above plain chestnut, deepening into bay on tail and fading into more rufous-chestnut on upper back and hind-neck, the pileum duller, often more or less tinged with grayish brown; remiges tipped with rather light grayish brown; tail bright bay, faintly glossed with purplish, broadly tipped with white and crossed by a broad subterminal band of brownish black, the white tip becoming gradually (but not conspicuously) narrower toward middle rectrices; shafts of rectrices black, sometimes passing into dark chestnut basally; chin, throat, and upper chest plain vinaceous-cinnamon, gradually deepening laterally into nearly the color of pileum and nape on sides of head and neck; breast, abdomen, and sides plain gray (no. 7 or no. 8) deepening into slate-gray on flanks, thighs, and anal region, the under tail-coverts black or slate-black, the longer ones usually indistinctly tipped with whitish; under surface of tail, anterior to the white tip, uniform brownish black; bill, and naked orbital space yellowish green to light olive-green; iris carmine red; legs and feet light bluish gray (in life).

*Young.*—Similar to adults but middle rectrices without white tip or subterminal black area, and other rectrices with the white tip much narrower and not preceded (on upper surface) by a definite or sharply defined black area; texture of plumage different (softer and more lax).

*Adult male.*—Length (skins), 385–485 (420); wing, 134–156.5 (146.4); tail, 233–309 (269.6); exposed culmen, 26–33 (29); tarsus, 30.5–41.5 (38.8); outer anterior toe, 21–27 (24.1).<sup>b</sup>

*Adult female.*—Length (skins), 381–484 (422); wing, 138–161 (142.9); tail, 237–306 (272.8); exposed culmen, 27–31 (28.7); tarsus, 35–40.5 (37.2); outer anterior toe, 22–26 (24).<sup>c</sup>

<sup>a</sup> See page 47.

<sup>b</sup> Sixty-four specimens.

<sup>c</sup> Thirty-six specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from southern Tamaulipas.....	146	265	30	38.1	24
Eight adult males from Vera Cruz.....	150.1	281.6	27.7	36.1	24.2
Six adult males from Oaxaca.....	147.3	261.3	29	36.7	25.1
One adult male from Tabasco.....	137	245	26	36	21
Nine adult males from Yucatan.....	148.4	264.2	27.7	37.6	24.2
Three adult males from Chiapas.....	145.7	275.3	28.7	36	24.2
Three adult males from Guatemala.....	150.5	278.3	29.5	38.3	23.7
Three adult males from British Honduras.....	144.7	264	29.3	38.5	24
Six adult males from Honduras.....	145.8	268	29.7	38.3	24.2
Three adult males from Nicaragua.....	146.3	261.7	30.8	38.5	24.7
Ten adult males from Costa Rica.....	149	275.8	30.1	37.5	23.0
Ten adult males from eastern Panama (Canal Zone).....	144.6	267.5	29.4	36.5	24

Southeastern Mexico, in States of Tamaulipas (Tampico; Altamira), Vera Cruz (Miradór; Orizaba; Jalapa; Córdoba, and San Lorenzo, Córdoba; Potrero; Jico; Misantla; Cofre de Perote; Coátepec; Playa Vicente; Atoyác; Buena Vista; Rio Tamasí, near Rayón), Puebla (Huachinango), Oaxaca (Tehuántepec; Bárrio; Guichicovi; Chihuitán; Chimalapa; Rincón Antonio; Cacoprieto; mountains near Santo Domingo), Tabasco (Teapa; Frontera; San Juan Bautista; Atasta), Campeche (Apazote), Yucatán (Mérida; Chichen-Itza; Peto; Ticúl; Tabí; Temáx; Buctzotz; Izamá; Tizimín; Puerto Morelos; Quintana Roo; Meco, Holbox, and Muger Islands) and Chiapas (Tonalá; Huehuetán; Ociulapa), and southward, through Guatemala (Petén; Cobán; Yzabál; Chiséc; San Gerónimo; Los Amates; Gualán, Zacapa; Patulúl; San José; Lake Amatitlán; Dueñas; Retalhuleu; Tactic; Nentón; Cajabón; Escuintla; Puerto Bárrios), British Honduras (Belize; near Manatee Lagoon; Quamin Creek; Toledo District), Honduras (Omoa; San Pedro; San Pedro Sula; Comayagua; Truxillo; Céiba; Yaruca; Rio Segóvia), Nicaragua (Chontales; León; Bluefields; Rio Escondido; Mosquito Coast; San Juan del Sur; Managua; Sucuyá; Chinandega; San Gerónimo, Chinandega; Ocotál), and Costa Rica (Angostura; La Palma de Nicoya; Bebedero; Liberia; Alajuela; Palmár; Boruca; Bolsón; Pigres; Santo Domingo de San Mateo; Carrillo; Bonilla; Juan Viñas; Guayabo; Guápiles; Coliblanco; Cartago; Jiménez; Tucurriqui; San José; Volcán de Irazú; Laguária; Santa Maria de Dota), to Panamá (Boquete, Divala, David, Bocas del Toro, and Boquerón, Chiriquí; Castillo and Calovévora, Verágua; Lion Hill, near Panamá, Frijole, Chepo, Paraiso, Obispo, Gatún, Punta de Sabana, Empire, Tabernilla, Rio Índio, La Chorrera, and Agua Dulce, Canal Zone; Puerto Bello, east of Canal Zone; Cana, Darién).

Footnote—Continued.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
FEMALES.					
Four adult females from Vera Cruz.....	155.2	283.2	28.1	39.2	24.8
One adult female from Tabasco.....	147	262	30	35.5	24
Two adult females from Campeche.....	144	252	28	36.7	23
Two adult females from Yucatan.....	146	275	28.7	37.7	23
Two adult females from Guatemala.....	150.5	296	27.2	37.5	24.5
One adult female from British Honduras.....	156.5	306	31	39	24
Six adult females from Honduras.....	148.9	272.3	28.8	37.3	24.4
Two adult females from Nicaragua.....	153.5	258	30	38	23.5
Ten adult females from Costa Rica.....	145.3	267.4	28.2	36.6	23.8
Six adult females from eastern Panama (Canal Zone).....	146.3	275.6	29.2	36.5	24.2

- Coccyzus cayanus* (not *Cuculus cayanus* Linnæus) BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115 (Guatemala).
- Piaya cayana* LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 33 (Juchitan and Barrio, Oaxaca).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 454 (Yucatan, habits).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 162 (Jalapa, Vera Cruz).—SALVIN, Ibis, 1889, 372 (Meco, Mugeris, and Holbox Islands, Yucatan).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 206 (Ticul, Yucatan).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 373, part (Tampico, Tamaulipas; Valles, San Luis Potosi; Misantla, Coatepec, Cofre de Perote, San Lorenzo, Playa Vicente, Jalapa, Orizaba, and Atoyac, Vera Cruz; Teapa, Tabasco; Tonala, Chiapas; Tabi, Peto, Buctzotz, Temax, Merida, Izalam, Meco I., Mugeris I., and Holbox I., Yucatan; Belize, etc., British Honduras; Retalhuleu, Dueñas, Yzabal, Coban, Cajabon, Chisec, and San Geronimo, Guatemala; San Pedro, Honduras; Chontales, Nicaragua; Angostura, Bebedero, and Tucurriqui, Costa Rica Castillo, Chepo, Paraiso, and Panama, Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 528, part (Tampico, Tamaulipas; Misantla, Jalapa, Cofre de Perote, Coatepec, Cordova, San Lorenzo, Orizaba, and Atoyac, Vera Cruz; Chihuahua and Barrio, Oaxaca; Tonala, Chiapas; Teapa, Tabasco; Peto, Izalam, Temax, Merida, etc., Yucatan; British Honduras; Peten, Coban, Yzabal, Chisec, Cajabon, San Geronimo, Dueñas, and Retalhuleu, Guatemala; La Libertad; Salvador; Omoa, Truxillo, San Pedro, Comayagua, and Rio Segovia, Honduras; Chontales, Leon, Chinandega, San Juan del Sur, Sucuya, Rio Escondido, and Bluefields, Nicaragua; San Jose, Angostura, Irazu, La Palma de Nicoya, Alajuela, Liberia, Cartago, and Jimenez, Costa Rica; David, Castillo, Calovevora, and Lion Hill, Panama).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, 8 (Punta de Sabana, Panama).
- [*Piaya*] *cayana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part (Mexico; Central America).—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 43, part (Tehuantepec, Oaxaca; Tactic, Guatemala; Honduras).—SHARPE, Hand-list, ii, 1900, 169 (Mexico to Panama).
- Piaya mexicana* (not *Cuculus mexicanus* Swainson) SCLATER, Proc. Zool. Soc. Lond., 1856, 308 (Cordova, Vera Cruz; crit.); 1858, 359 (Comayagua, Honduras).—MOORE, Proc. Zool. Soc. Lond., 1859, 60 (Peten, Guatemala; Omoa, Honduras).—SCLATER and SALVIN, Ibis, 1859, 133 (Lake Peten, Guatemala; Omoa, Honduras).
- Piaya mehleri* (not of Bonaparte, 1850?) SCLATER, Proc. Zool. Soc. Lond., 1860, 285 (Mexico; Guatemala); (?) 1864, 177 (vicinity of City of Mexico); Cat. Am. Birds, 1862, 322 (Jalapa, Vera Cruz; Guatemala).—SALVIN, 1872, 323 (Chontales, Nicaragua); Proc. Zool. Soc. Lond., 1867, 156 (David, Chiriqui, Panama; crit.); 1870, 211 (Castillo and Calovevora, Veragua, Panama).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 280 (Mosquito Coast, Nicaragua).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 128 (San José and Angostura, Costa Rica); ix, 1869, 205 (Merida, Yucatan).—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—BOUCARD, Liste Ois. récol. Guat., 1878, 25; Proc. Zool. Soc. Lond., 1878, 48 (San José, Costa Rica).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 22.
- (?) [*Piaya*] *mehleri* BONAPARTE, Consp. Av., i, 1850, 110 (Bogota, Colombia; coll. Mus. Leyden).
- Piaya cayana mehleri* NUTTING, Proc. U. S. Nat. Mus., v, Sept. 12, 1882, 401 (La Palma de Nicoya, Costa Rica; habits); vi, 1883, 376 (San Juan del Sur, Nicaragua), 388 (Sucuya, Nicaragua).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 498 (Volcan de Irazu; notes).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 110 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 123 (San Jose, Alajuela, Liberia, Cartago, and Jimenez, Costa Rica).—CHERRIE, Auk, ix,



1892, 326 (San Jose, Costa Rica; habits; descr. nest and eggs).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 517 (Rio Escondido, Nicaragua; habits).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 87 (Los Amates, Gualan, Patulul, San Jose, and Lake Amatitlan, Guatemala).—STONE, Proc. Ac. Nat. Sci. Phila., 1908, 499 (crit.; Mexico to Panama).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 565 (Pigres, Guayabo, Coliblanco, Bonilla, Santo Domingo de San Mateo, Laguaría de Dota, Guapiles, Juan Viñas, Carrilo, and Boruca, Costa Rica; habits; crit.).

*Piaya cyanea mehleri* CHERRIE, Expl. Zool. Merid. C. R., 1893, 58 (Palmar, Costa Rica).

*Pyrrhococcyx mehleri* CABANIS, Journ. für Orn., 1862, 167, 168 (Costa Rica; crit.).  
*P[yrhococcyx] mehleri* CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1863, 83 (Jalapa, Vera Cruz).

[*Pyrrhococcyx] mehleri* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 202 (Jalapa).

*Piaya thermophila* SCLATER, Proc. Zool. Soc. Lond., 1859, 368 (Jalapa, Vera Cruz; coll. P. L. Sclater).—SALVIN and SCLATER, Ibis, 1860, 43 (Coban, Dueñas, and Yzabal, Guatemala).—TAYLOR, Ibis, 1860, 118 (Honduras; habits).

*P[iaya] thermophila* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 43 (crit.).

*Piaya cayana thermophila* ALLEN, Bull. Am. Mus. N. H., v, July 19, 1893, 139 (s. Mexico to Panama; crit.).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Alta Mira, Tamaulipas).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 16 (Loma del Leon, Panama); iii, 1902, 24 (Boquete, Panama, 4,000 feet); Auk, xviii, 1901, 360 (Divala, Panama); xxiv, 1907, 292 (Boruca, Costa Rica); Bull. Mus. Comp. Zool., xxxix, 1903, 143 (Ceiba and Yaruca, Honduras).—COLE, Bull. Mus. Comp. Zool., i, 1906, 129 (Chichen Itza, Yucatan).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1906, 214 (Sabana de Panama).—FERRY, Pub. 146, Field Mus. N. H., 1910, 261 (Guayabo and Coliblanco, Costa Rica; habits).

*Piaya nigricrissa* (not of Sclater, 1860) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 300 (Lion Hill, Panama); viii, 1867, 177 (David, Panama).—SCLATER and SALVINI, Proc. Zool. Soc. Lond., 1864, 366 (Lion Hill, Panama; crit.).

*Piaya cayana nigricrissa* RIDGWAY, Proc. U. S. Nat. Mus., iv, Nov. 25, 1881, 194, part (Chiriqui, Panama).

*Coccyzus viridirostris* WÜRTEMBERG, Naumannia, 1852, ii, 55 ("Mexico").

[*Piaya] viridirostris* BONAPARTE (ex Würtemberg MS.), Ateneo Italiano, ii, 1854, 121 (Consp. Volucr. Zygod., 1854, 6).

*Piaya viridirostris* BONAPARTE, Compt. Rend., xlii, May, 1856, 957.

*Pyrrhococcyx viridirostris* CABANIS, Mus. Hein., iv, Heft 1, 1862, 84, in text.

*Piaya circe* (not of Bonaparte, 1850) SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 57, part (Costa Rica; Guatemala).

#### PIAYA MEXICANA (Swainson).

##### MEXICAN SQUIRREL-CUCKOO.

Resembling *P. cayana thermophila*, but colored portion of under surface of rectrices cinnamon-rufous (instead of brownish black) with a dull black area immediately preceding the white tip, general coloration much lighter, and tail relatively much longer.

*Adults (sexes alike)*.—Upper parts plain light cinnamon-rufous, becoming gradually paler (sometimes slightly tinged with grayish) on pileum and deeper on tail; remiges tipped with rather light grayish brown; rectrices crossed by a broad subterminal band of brownish

black and broadly tipped with white, the white tip and subterminal black area approximately equal in width on lateral rectrices but the former gradually decreasing in width to the middle pair, on which the white is very much narrower, sometimes almost wanting; chin, throat, and upper chest salmon-buff, gradually deepening on sides of head and neck into nearly the color of the pileum and hindneck; rest of under parts plain pale bluish gray (nearest pearl gray), deepening into light slate-gray on under tail-coverts; under surface of rectrices, anterior to the black subterminal area, light cinnamon-rufous, in strong contrast; bill apple green (in life), slightly more dusky basally, the inside of mouth blue-black; iris carmine or crimson; legs and feet plumbeous.<sup>a</sup>

*Young*.—Similar to adults but middle pair of rectrices without white tip and crossed by an indistinct subterminal band of dusky brown (instead of black).

*Adult male*.—Length (skins) 431–477 (456); wing, 144.5–157 (149.9); tail, 285–330 (308.3); exposed culmen, 26–29.5 (27.8); tarsus, 36–39.5 (37.9); outer anterior toe, 23–25.5 (24.1).<sup>b</sup>

*Adult female*.—Length (skins), 406–490 (460); wing, 144–159.5 (152.4); tail, 272–335 (308.6); exposed culmen, 26–29 (27.5); tarsus, 35.5–39.5 (37.5); outer anterior toe, 23–26 (24.2).<sup>b</sup>

Western and southwestern Mexico, in States of Mexico (Temascaltepec), Oaxaca (Juquila; Putla; Juchatengo; Tehuantepec), Guerrero (Acapulco; Tlalixquatilla; Xautipa), Colima (Manzanillo; Rio Tupila; Plains of Colima; Colima), Sinaloa (Plomosas; Arroyo de Limones, 3,500 feet; Escuinapa; Mazatlán; Las Flores; Caletic), Jalisco (San Sebastián; Juanacatlán; Barranca Ibarra; Hacienda San Marcos; Zapotlán; Guadalajara; Bolaños; Ojo de Agua; Tuxpán; Volcán de Fuego), Durango (Chacalá), Michoacán (La Salada), Guanajuato, and Puebla (Chietla), and Territory of Tepic (Santiago; San Blas).

(?) [*Cuculus*] *ridibundus* GMELIN, Syst. Nat., i, pt. i, 1788, 414 (based on *Cuculus mexicanus* Brisson, Orn., iv, 119).—LATHAM, Index Orn., i, 1790, 220.

(?) *Coccyzus ridibundus* VIEILLON, Nouv. Dict. d'Hist. Nat., viii, 1817, 277 (Mexico); Tabl. Enc. Méth., iii, 1823, 1348.

(?) *Cuculus ridibundus* VIEILLON, Nouv. Dict. d'Hist. Nat., xxviii, 1819, 414.

(?) *P[iaya] ridibunda* GRAY, Gen. Birds, ii, 1846, 457.

(?) [*Piaya*] *ridibundus* BONAPARTE, Consp. Av., i, 1850, 111.

*Piaya ridibundus* (not *Cuculus ridibundus* Gmelin?) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 293 (Mazatlan; Rio Tupila; Plains of Colima); Bull. U. S. Nat. Mus., no. 4, 1876, 33 (Tehuantepec City, Oaxaca).

(?) [*Ptiloleptis*] *ridibundus* BONAPARTE, Ateneo Italiano, ii, 1854, 121 (Consp. Volucr. Zygod., 1854, 6).

*Cuculus rubicundus* STEPHENS, Shaw's Gen. Zool., ix, pt. i, 1815, 109 (Mexico).

*Cuculus mexicanus* SWAINSON, Philos. Mag., n. s., i, no. 6, June, 1827, 440 (Temascaltepec, Mexico; coll. Bullock Mus.).

<sup>a</sup> According to P. L. Jouy.

<sup>b</sup> Ten specimens.

- Piaya mexicana* SCLATER, Proc. Zool. Soc. Lond., 1859, 388 (Juquila, Oaxaca; crit.); 1860, 285 (Oaxaca); Cat. Am. Birds, 1862, 322 (Oaxaca).—SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 57.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 162 (Chietla, Puebla).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 786 (Juanacatlan and Barranca Ibarra, Jalisco).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 137, in text (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 531 (Mazatlan, Sinaloa; San Blas, Tepic; Hacienda de San Marcos, Zapotlan, Guadalajara, and Bolaños, Jalisco; Guanajuato; Rio Tupila and Plains of Colima, Colima; Temascaltepec, Mexico; Acapulco and Xautipa, Guerrero; Juchatengo, Juquila, and Tehuantepec, Oaxaca).
- [*Piaya mexicana* SHARPE, Hand-list, ii, 1900, 169.
- [*Piaya*] [*cayana mexicana* ALLEN, Bull. Am. Mus. N. H., v, July 19, 1893, 138, in text (crit.).
- Piaya cayana mexicana* ALLEN, Bull. Am. Mus. N. H., v, July 19, 1893, 139 (Colima).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 349 (Caletic, Escuinapa, etc., s. Sinaloa).—STONE, Proc. Ac. Nat. Sci. Phila., 1908, 498 (crit.).
- Pyrrhococcyx mexicanus* CABANIS, Journ. für Orn., 1862, 170 (crit.).—FINSCH, Abh. Nat. Ver. Bremen, 1870, 356 (Mazatlan).
- [*Pyrrhococcyx*] *mexicanus* CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 82 (w. Mexico; diagnosis).
- [*Pyrrhococcyx*] *mexicanus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 202 (w. Mexico).
- [*Coccyzus*] *mexicanus* GRAY, Hand-list, ii, 1870, 211, no. 8930.
- Piaya cayennensis* (not *Coccyzus cayannensis* Swainson) GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1849, 215 (Mazatlan, etc.).—SALVIN, Proc. Zool. Soc. Lond., 1883, 426 (Acapulco, Guerrero).
- [*Piaya*] *cayanus* (not *Cuculus cayanus* Linnæus) BONAPARTE, Consp. Av., i, 1850, 110, part (Mexico).
- Piaya cayana* SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 273, part (Mazatlan, Sinaloa; Putla, Oaxaca; Bolaños, Hacienda San Marcos, and Zapotlan, Jalisco; Colima; Acapulco, and Xautipa, Guerrero).
- [*Piaya*] *cayana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.

#### Genus HYETORNIS Sclater.

- Ptiloleptis* (not *Ptiloleptus* Swainson, 1837) BONAPARTE, Ateneo Italiano, ii, 1854, 121 (Consp. Volucr. Zygod., 1854, 6). (Type, *Cuculus pluvialis* Gmelin.)
- Hyetornis* SCLATER, Cat. Am. Birds, April, 1862, 321. (Type, *Cuculus pluvialis* Gmelin.)
- Hyetomantis* CABANIS, Journ. für Orn., May, 1862, 203, footnote. (Type, *Cuculus pluvialis* Gmelin.)

Large, long-tailed, arboreal Cuculinæ (length about 410-530 mm.), closely resembling the genus *Piaya* but differing in relatively shorter and less graduated tail (little more than one and a half times as long as wing, graduated for little if any more than one-half its length), larger bill and feet, and very different coloration (olivaceous or slaty above, the tail black with broad white tips to rectrices, and under parts, at least of body, chestnut).

Bill shorter than head, strong, moderately broad basally (rather narrow in *H. ruficularis*) but much compressed terminally, very strongly decurved (much less so in *H. ruficularis*); exposed culmen slightly shorter than tarsus, strongly decurved from base, rounded (not ridged); gonys about as long as mandibular rami or slightly longer, distinctly concave (though slightly so in *H. ruficularis*), slightly prominent at base, rounded; maxillary tomium very strongly concave (especially in *H. pluviialis*), rather strongly deflected from nostril to rictus (much less so in *H. ruficularis*), slightly convex basally. Nostril longitudinal or slightly oblique, elliptical or elliptical-oval, in lower anterior portion of nasal fossa. Wing moderate, much rounded, the longest primaries exceeding distal secondaries by less than distance from nostril to tip of maxilla in *H. pluviialis*, by more than that distance in *H. ruficularis*; fifth, fifth and sixth, or fourth to seventh primaries longest, the eighth about equal to first, the tenth (outermost) more than half as long as longest. Tail slightly more than one and a half times as long as wing, graduated for about one-third to more than one-half its length, the rectrices relatively broad. Tarsus decidedly longer than middle toe without claw, very stout.

*Plumage and coloration.*—Orbital region mostly naked; eyelashes strongly developed; no trace of bristles about base of bill; plumage in general blended, rather coarse, somewhat hairlike, especially on head, neck, and under parts. Upper parts plain slate-grayish to olive, with a faint greenish-bronzy gloss, the primaries sometimes chestnut; tail bluish black with broad white tips to rectrices; under parts chestnut, with throat and chest white and pale gray in *H. pluviialis*, chestnut anteriorly, ochraceous posteriorly in *H. ruficularis*.

*Range.*—Islands of Jamaica and Haiti, Greater Antilles. (Two species.)

There is much difference in form of the bill in the two species, that of *H. ruficularis* being much more slender, less strongly decurved, and narrower at the base than that of *H. pluviialis*. The former also has the tail more strongly graduated.

#### KEY TO THE SPECIES OF HYETORNIS.

- a. Outer webs of primaries olive, concolor with back, etc.; chin, throat, and malar region white; chest pale gray; bill much stouter, much more strongly decurved. (Jamaica.).....*Hyetornis pluviialis* (p. 55).
- aa. Outer webs of primaries deep chestnut or bay, in conspicuous contrast with olivaceous gray of back, etc.; chin, throat, malar region, and chest chestnut or bay; bill much more slender, much less strongly decurved. (Haiti.)  
*Hyetornis ruficularis* (p. 56).

## HYETORNIS PLUVIALIS (Gmelin).

## JAMAICAN HYETORNIS.

*Adults (sexes alike).*—Forehead and crown olivaceous slate color, darkening into dull slate-black on lores and passing into olive on occiput and nape, the hindneck, back, scapulars, and rump uniform olive; wings and upper tail-coverts plain olive glossed with greenish bronze; tail dull black, faintly glossed with violet and broadly tipped with white; chin, throat, and malar region dull buffy white, passing into very pale gray on chest and into deeper gray (about no. 8) on auricular region and sides of neck; rest of under parts, including under wing-coverts and under tail-coverts, plain deep cinnamon-rufous or rufous-chestnut; maxilla dull black, mandible pale gray (in life)<sup>a</sup>; interior of mouth black<sup>a</sup>; iris brown; legs and feet bluish gray<sup>a</sup> (in life).

*Adult male.*—Length (skins), 460–500 (478); wing, 174–191 (182.4); tail, 272–299 (283.6); exposed culmen, 34.5–38.5 (35.9); tarsus, 39–43.5 (41.4); outer anterior toe, 25.5–28.5 (26.8).<sup>b</sup>

*Adult female.*—Length (skins), 470–532 (500); wing, 182.5–197 (191.7); tail, 280–324 (295); exposed culmen, 37.5–43 (40); tarsus 40.5–46 (43.7); outer anterior toe, 26–31 (29.4).<sup>c</sup>

Island of Jamaica (Metcalfé Parish; Spanishtown; Moneague; Priestmans River; St. Georges; Salt Pond).

[*Cuculus*] *pluvialis* GMELIN, Syst. Nat., i, pt. i, 1788, 411 (based on *Old Man* or *Rain Bird* Sloane, Jamaica, 312, pl. 258, fig. 1; *Cuculus jamaicensis* Brisson, Orn., iv, 114).—LATHAM, Index Orn., i, 1790, 218.

*Cuculus pluvialis* STEPHENS, Shaw's Gen. Zool., ix, pt. i, 1815, 124.—HARTLAUB, Rev. Zool., 1847, 64.—WALDEN, Ibis, 1869, 336.

*P[iaya] pluvialis* GRAY, Gen. Birds, ii, 1846, 457.

*Piaya pluvialis* GOSSE, Birds Jamaica, 1847, 277; Illustr. Birds Jam., 1849, pl. 74.—DES MURS, Icon. Orn., livr. 11 (text to pl. 65), 1848, and table of contents.—SCLATER, Proc. Zool. Soc. Lond., 1861, 79.—ALBRECHT, Journ. für Orn., 1862, 203.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 283.—PELZELN, Ibis, 1873, 33.

[*Piaya*] *pluvialis* BONAPARTE, Consp. Av., i, 1850, 111.

[*Ptiloleptis*] *pluvialis* BONAPARTE, Ateneo Italiano, ii, 1854, 121 (Consp. Volucr. Zygod., 1854, 6).

*Hyetornis pluvialis* SCLATER, Cat. Am. Birds, 1862, 321; Revised List Birds Jam., 1910, 11.—CORY, Auk, iii, 1886, 336; Birds West Ind., 1889, 161; Cat. West Ind. Birds, 1892, 11, 102, 130.—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 372 (Moneague, Jamaica).—SCOTT, Auk, ix, 1892, 274 (crit.).

*H[yetornis] pluvialis* CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 80.—NEWTON (A. and E.), Handb. Jamaica, 1881, 109.

[*Hyetornis*] *pluvialis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108.—CORY, List Birds West Ind., 1885, 19.—SHARPE, Hand-list, ii, 1900, 169.

*Hyetomantis pluvialis* CABANIS, Journ. für Orn., 1862, 203, footnote.

<sup>a</sup> According to Gosse.

<sup>b</sup> Ten specimens.

<sup>c</sup> Eight specimens.

*Coccyzus pluvialis* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 39.

[*Hyetornis*] *pluvianus* GRAY, Hand-list, ii, 1870, 212, no. 8939.

*Piaya cinnamomeiventris* LAFRESNAYE, Rev. Zool., ix, Sept. (=Nov.), 1846, 321 (Jamaica; coll. Lafresnaye); 1847, 80.—DES MURS, Icon. Orn., livr. 11, 1848, pl. 65.

*Coccyzus jamaicensis* HARTLAUB, Verz. Mus. Brem., Nachtr., 1846, 16 (ex *Cuculus jamaicensis* Brisson).

### HYETORNIS RUFIGULARIS (Württemberg).

#### HAITIAN HYETORNIS.

*Adults (sexes alike).*—Above, including sides of head and neck, and sides of chest, plain olivaceous gray (between neutral gray and deep mouse gray), the wing-coverts, proximal secondaries, and proximal two-thirds (more or less) of middle rectrices similar but faintly glossed, especially on the latter, with bronze-greenish; primaries deep chestnut or bay, their distal portion similar in color to back, etc., but darker; secondaries with proximal portion largely chestnut or bay, but this concealed in closed wing, by broad grayish edges to feathers; distal third (approximately) of middle pair of rectrices and greater part of remaining rectrices blue-black faintly glossed with violet-blue, all the rectrices abruptly tipped with white, the white tip about 8 mm. wide on middle pair and increasing to about 20–22 mm. on outer pair; chin, throat, median portion of chest, breast, and upper abdomen uniform chestnut or bay; abdomen (except extreme upper portion), flanks, and thighs light ochraceous-tawny (deeper next to chestnut of breast), fading into pale buff or buffy white on longer under tail-coverts; under wing-coverts and axillars clear tawny-ochraceous; under surface of remiges cinnamon-rufous (paler proximally), the distal portion, abruptly, grayish brown; maxilla black, mandible paler with middle lower portion yellowish; legs and feet dusky horn color (in dried skins).

*Adult male.*—Length (skins), 410–433 (421); wing, 162.5–170 (166.2); tail, 250–263 (256.5); exposed culmen, 36–37 (36.5); tarsus, 38.5–39 (38.7); outer anterior toe, 25.5–26 (25.7).<sup>a</sup>

*Adult female.*—Length (skin), 431; wing, 174.5; tail, 253; exposed culmen, 40.5; tarsus, 42.5; outer anterior toe, 28.5.<sup>b</sup>

Island of Haiti (Maniél, Honduras, and between Miranda and LaVega, Santo Domingo).

*Coccyzus rufigularis* WÜRTEMBERG, Naumannia, 1852, heft ii, p. 55 (Santo Domingo).

[*Piaya*] *rufigularis* BONAPARTE, Ateneo Italiano, ii, 1854, 121 (Consp. Volucr. Zygod., 1854, 6).

*Hyetornis rufigularis* CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1863, 80, footnote (diagnosis).

*Hyetornis pluvialis rufigularis* RIDGWAY, Proc. U. S. Nat. Mus., iv, Nov. 25, 1881, 194.

<sup>a</sup> Two specimens.

<sup>b</sup> One specimen.

- Piaya pauli-guilelmi* HARTLAUB, Naumannia, 1852, Heft ii, p. 55, in text (Santo Domingo; new name for *Coccyzus rufigularis* Württemberg).  
*Hyetornis fieldi* CORY, Auk, xii, July, 1895, 278 (Maniel, Santo Domingo; coll. Field Mus. Nat. Hist.).—CHERRIE, Contr. Orn. San Dom., 1896, 19 (Maniel and Honduras, Santo Domingo; habits).  
 [*Hyetornis*] *fieldi* SHARPE, Hand-list, ii, 1900, 169.  
*Hyetornis fieldii* VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 359 (between Miranda and LaVega, Santo Domingo).

## Genus SAUROTHERA Vieillot.

*Saurothera*<sup>a</sup> VIEILLOT, Analyse, 1816, 28; Nouv. Dict. d'Hist. Nat., xxxii, 1819, 348. (Type, *Coucou à longbec* Buffon=*Cuculus vetula* Linnæus.)

Large, very long-tailed, semiterrestrial Cuculinae (length about 390–530 mm.) with bill as long as or longer than head, relatively slender and straight, with tip abruptly decurved; tarsus longer than middle toe with claw; tail more than one and a half times as long as wing, graduated for more than one-third (sometimes nearly half) its length; upper parts, including tail, plain olive (primaries sometimes chestnut), under parts tawny, ochraceous, or buffy posteriorly, whitish to light buffy brownish anteriorly, the rectrices (except middle pair) broadly tipped with white and with a subterminal band or area of black.

Bill slightly to decidedly longer than head, relatively straight and narrow, abruptly decurved terminally, compressed, its width at anterior end of nostrils decidedly less than its depth at same point; exposed culmen much longer than tarsus, broadly rounded, nearly straight to near tip, where abruptly decurved; gonys slightly to considerably longer than the relatively long mandibular rami, nearly straight (the terminal portion, however, usually very slightly concave), slightly prominent basally, broadly rounded; maxillary tomium nearly straight for most of its length but decidedly decurved terminally, the basal portion slightly deflected, sometimes faintly convex. Nostril longitudinal (sometimes slightly oblique), elliptical, in lower anterior end of nasal fossa. Wing moderate, much rounded, the longest primaries exceeding distal secondaries by not more (usually less) than length of hallux, with claw; fifth, fifth and sixth, sixth and seventh, or fourth to seventh primaries longest, the eighth slightly longer to decidedly shorter than distal secondaries, the tenth (outermost) decidedly more than half as long as the longest. Tail more than one and a half times as long as wing, graduated for more than one-third to nearly half its length, the rectrices relatively broad. Tarsus longer than middle toe with claw, at least one-fourth as long as wing (usually more), rather stout.

*Plumage and coloration.*—Orbits mostly naked; eyelashes strongly developed; no trace of antrorse bristles about base of bill, but feathers of head in general with fine bristle-like tips, directed back-

<sup>a</sup> σαῦρος, lacertus, θηρόω, venor. (Vieillot.)

ward; plumage in general blended, hair-like (softer and more downy on posterior under parts). Above (including tail) plain olive or drab, the back sometimes brown, the primaries usually chestnut, at least on inner webs; under parts grayish white to light buffy brown anteriorly, buff to tawny posteriorly; rectrices (except middle pair) broadly tipped with white and with a broad black subterminal band or area.

*Range*.—Greater Antilles and Bahamas. (Five species.)

KEY TO THE SPECIES AND SUBSPECIES OF SAUROTHERA.

- a. Larger, with much stouter bill (wing not less than 160; depth of bill at nostrils more than 12 mm.).
- b. Outer webs of primaries brownish gray, like general color of upper parts. (*Saurothera bahamensis*.)
- c. Grayer above, without rufescent tinge on basal portion of primaries; under parts paler; blackish subterminal areas on under surface of rectrices broader; bill averaging longer and narrower. (New Providence and Eleuthera islands, Bahamas.).....*Saurothera bahamensis bahamensis* (p. 58).
- cc. Browner above, with basal portion of primaries more rufescent; under parts more deeply colored; bill averaging shorter and relatively deeper. (Andros Island, Bahamas.).....*Saurothera bahamensis andria* (p. 60).
- bb. Outer webs of primaries deep cinnamon-rufous. (*Saurothera merlini*.)
- c. Larger (wing 165-187, tail 272-331, culmen 50-65, tarsus 40.5-47); color browner above, darker below. (Cuba.).....*Saurothera merlini merlini* (p. 60).
- cc. Smaller (wing 155-178.5, tail 234-278, culmen 47-53, tarsus 39-45.5); color grayer above, paler below. (Isle of Pines.)  
*Saurothera merlini decolor* (p. 61).
- aa. Smaller, with much more slender bill (wing less than 150; depth of bill at nostrils not more than 10 mm., usually much less).
- b. Pileum browner than back; no buff on chin or throat.
- c. Lateral rectrices grayish, with black subterminal band; outer webs of primaries grayish brown; color of pileum not conspicuously different from that of back. (Porto Rico.).....*Saurothera vieillotii* (p. 62).
- cc. Lateral rectrices black (except the very broad white tip); outer webs of primaries deep cinnamon-rufous; color of pileum and hindneck dark brown, conspicuously different from color of back. (Jamaica.)  
*Saurothera vetula* (p. 63).
- bb. Pileum gray, like back; chin and throat buff or cinnamon-buff. (Haiti.)  
*Saurothera dominicensis* (p. 64).

SAUROTHERA BAHAMENSIS BAHAMENSIS Bryant.

BAHAMAN LIZARD-CUCKOO.

Much like *s. merlini* but upper parts much grayer (without brown on back, etc.), outer webs of primaries pale grayish brown instead of cinnamon-rufous, and color of lower breast, abdomen, etc., very much paler.

*Adults (sexes alike)*.—Above plain brownish gray or light grayish olive, becoming more decidedly gray on pileum and hindneck, the secondaries and tail faintly glossed with bronze-greenish; outer



webs of primaries grayish brown, the inner webs cinnamon-rufous passing into grayish brown or grayish olive on distal portion (extensively); rectrices (except middle pair) tipped with dull white and crossed by a broad subterminal band of black, the white tip gradually but decidedly decreasing in width toward the innermost rectrices; chin and throat dull grayish white to dull buffy grayish white, passing into deeper pale buffy grayish on foreneck, chest, and upper breast; rest of under parts, including under wing-coverts and under tail-coverts, pale buff or cream-buff; under surface of rectrices, anterior to the black subterminal area, pale brownish gray; bill grayish or yellowish gray, darker toward culmen, paler on mandible; bare orbital skin vermilion red; iris brown; legs and feet bluish horn color (in life).

*Young*.—Essentially like adults but rectrices wanting both the white tip and subterminal black area, the outer ones, however, with a very narrow and indistinct paler tip.

*Adult male*.—Length (skins), 423–461 (448); wing, 149–167.5 (155.4); tail, 246–265 (256.9); exposed culmen, 48.5–53 (51.7); tarsus, 39–42 (40.1); outer anterior toe, 23–25 (24.3).<sup>a</sup>

*Adult female*.—Length (skins), 440–500 (472); wing, 154.5–164 (159.3); tail, 250–280 (268.3); exposed culmen, 50–57.5 (55.2); tarsus, 39–44 (41.7); outer anterior toe, 24–28 (26).<sup>b</sup>

Bahamas (New Providence and Eleuthera islands).

*Saurothera vetula* (not *Curulus vetula* Linnæus) BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 106 (New Providence I., Bahamas).—ALBRECHT, Journ. für Orn., 1861, 51.

*Saurothera bahamensis* BRYANT, Proc. Bost. Soc. N. H., ix, 1864, 280 (New Providence Island, Bahamas).—CORY, Birds Bahama Is., 1880, 116, plate (New Providence); Auk, iii, 1886, 364; viii, 1891, 294 (New Providence), 351 (Eleuthera I.); Birds West Ind., 1889, 159; Cat. West Ind. Birds, 1892, 11, 102, 127, 142, part (New Providence and Eleuthera islands).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 371.—RIDGWAY, Auk, viii, 1891, 336 (New Providence).—MILLER (G. S.), Auk, xi, 1894, 164, 165 (crit.; measurements).—BONHOTE, Ibis, 1899, 515 (New Providence; habits); 1903, 293 (New Providence; habits).—BANGS, Auk, xvii, 1900, 288 (Nassau, New Providence; descr. young).—RILEY, Auk, xxii, 1905, 355 (New Providence; notes, etc.).

[*Saurothera*] *bahamensis* CORY, List Birds West Ind., 1885, 18; revised ed., 1890, 18.—SHARPE, Hand-list, ii, 1900, 169.

*Saurothera bahamensis bahamensis* TODD, Ann. Carnegie Mus., vii, Oct., 1911, 419 (New Providence; crit.; fresh colors of unfeathered parts; measurements).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 453 (New Providence; habits).

<sup>a</sup> Nine specimens.

<sup>b</sup> Eleven specimens.

An adult (sex undetermined) from Eleuthera (the only one seen from that island) measures as follows: Wing, 147.5; tail, 282; exposed culmen, 54; tarsus, 41; outer anterior toe, 24.5.

## SAUROTHERA BAHAMENSIS ANDRIA (G. S. Miller).

## ANDROS ISLAND CUCKOO.

Similar to *S. b. bahamensis* but color of upper parts decidedly browner, outer webs of primaries more or less rufescent basally, under parts more deeply colored, blackish subterminal areas of rectrices narrower, and bill shorter and relatively deeper.

*Adult male*.—Length (skins), 411–455 (440); wing, 157.5–161 (159); tail, 242–260 (253); exposed culmen, 49.5–52 (50.5); tarsus, 37–41 (38.8); outer anterior toe, 22.5–24.5 (23.5).<sup>a</sup>

*Adult female*.—Length (skin), 450; wing, 154; tail, 247; exposed culmen, 52.5; tarsus, 41.5; outer anterior toe, 25.<sup>b</sup>

Andros Island, Bahamas.

*Saurothera bahamensis* (not of Bryant) NORTHROP, Auk, viii, 1891, 74 (Andros I., Bahamas).—CORY,<sup>26</sup> Cat. West Ind. Birds, 1892, 11, 102, 127, 142, part (Andros I.).

*Saurothera andria* MILLER (G. S.), Auk, xi, April, 1894, 164 (Fresh Creek, Andros Is., Bahamas; coll. G. S. Miller, jr.).

[*Saurothera*] *andria* SHARPE, Hand-list, ii, 1900, 169.

*Saurothera bahamensis andria* TODD, Ann. Carnegie Mus., vii, Oct., 1911, 419 (Andros I.; fresh colors, etc.).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 453.

## SAUROTHERA MERLINI MERLINI D'Orbigny.

## CUBAN LIZARD-CUCKOO.

*Adults (sexes alike)*.—General color of upper parts grayish brown (broccoli brown or drab), the back more or less strongly washed with brown (sometimes distinctly brown) this brown wash usually invading the hindneck or even the posterior portion of pileum, the secondaries and tail faintly glossed with bronze-greenish, the forehead (more or less extensively) more grayish, with black shaft-streaks; primaries deep cinnamon-rufous, broadly tipped with grayish brown glossed with bronze-green, the inner webs of secondaries (especially the distal ones) also largely cinnamon-rufous; rectrices (except middle pair) broadly tipped with white and with a still broader subterminal area of faintly glossy black, this more extended on outer web than on inner; chin and throat varying from nearly pure white to pale grayish buff, deepening into clear, very pale, slightly buffy gray to light grayish buff on chest and upper breast, the sides of head and neck intermediate in color between the whitish or pale buffy of throat, etc., and the grayish brown of pileum; rest of under parts, including under wing-coverts and under tail-coverts, deep buff to deep ochraceous; under surface of rectrices, anterior to the black subterminal area, pale brownish gray; bill pale grayish yellow or dull yellow-

<sup>a</sup> Three specimens.

<sup>b</sup> One specimen.

ish white, becoming horn color or dusky on culmen and basal portion of maxilla (sometimes on basal portion of mandible also); bare orbital space red (in life); iris brown; legs and feet dusky horn color (in dried skins).

*Young*.—Similar to adults but rectrices without a well-defined subterminal area and the white tip much more restricted, much duller white.

*Adult male*.—Length (skins), 480–539 (510); wing, 165–185.5 (174.1); tail, 272–327 (303.5); exposed culmen, 50–55 (52.6); tarsus, 40.5–46 (43.6); outer anterior toe, 25–29.5 (26.4).<sup>a</sup>

*Adult female*.—Length (skins), 489–544 (517); wing, 170–187 (177); tail, 295–331 (306.8); exposed culmen, 51.5–60.5 (54.1); tarsus, 41–47 (45.1); outer anterior toe, 25.5–30.5 (27.6).<sup>b</sup>

Island of Cuba (Guantánamo Bay; El Guamá; Guamá; Santiago; Cabo de San Antonio; Monte Verde; Holguín; Trinidad; San Diego de los Baños; Figuabas; San Cristóbal).

*Saurothera merlini* D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 152, pl. 25.—LAFRESNAYE, Rev. Zool., 1847, 359.—CABANIS, Journ. für Orn., 1856, 104 (crit.).—GUNDLACH, Journ. Bost. Soc. N. H., vi, 1857, 319; Repert. Fisico-Nat. Cuba, i, 1866, 296; Journ. für Orn., 1874, 158 (habits); Orn. Cubana, ed. 1895, 146.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—CORY, Auk, iii, 1886, 363; Birds West Ind., 1889, 158; Cat. West Ind. Birds, 1892, 11, 102, 128.—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 370 (San Cristobal, Cuba).—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 298 (near Trinidad, s. Cuba).—MENECAUX, Rev. Franç. d'Orn., no. 2, 1909, 24 (Figuabas, e. Cuba).

*S[aurothera] merlini* GRAY, Gen. Birds, ii, 1847, 452.—BONAPARTE, Consp. Av., i, 1850, 97.—CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 91.

[*Saurothera merlini* GUNDLACH, Journ. für Orn., 1861, 334.—GRAY, Hand-list, ii, 1870, 208, no. 8899.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—CORY, List Birds West Ind., 1885, 18.—SHARPE, Hand-list, ii, 1900, 169.

*Coccygus merlini* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 40.

### SAUROATHERA MERLINI DECOLOR Bangs and Zappey.

#### ISLE OF PINES CUCKOO.

Similar to *S. m. merlini* but much smaller (except feet), and coloration paler (especially the under parts) and grayer.

*Adult male*.—Length (skins), 445–490 (467); wing, 160–172.5 (167.5); tail, 247–278 (264.7); exposed culmen, 49–53 (50.7); tarsus, 40.5–44.5 (42.6); outer anterior toe, 24.5–28 (26).<sup>c</sup>

*Adult female*.—Length (skins), 417–474 (454); wing, 155–178.5 (167.8); tail, 234–270 (255.7); exposed culmen, 47–52 (49.7); tarsus, 39–45.5 (42.7); outer anterior toe, 24–26 (25.2).<sup>d</sup>

Isle of Pines, Cuba (Callebonita; La Vega; Hospital; Managua).

*Saurothera merlini decolor* BANGS and ZAPPEY, Am. Nat., xxxix, April, 1905, 199 (La Vega, Isle of Pines, Cuba; coll. E. A. and O. Bangs).

<sup>a</sup> Eleven specimens. <sup>b</sup> Ten specimens. <sup>c</sup> Three specimens. <sup>d</sup> Four specimens.

## SAUROTHERA VIEILLOTI Bonaparte.

## PORTO RICAN LIZARD-CUCKOO.

Similar in size and general appearance to *S. vetula* but general color of upper parts much browner, with pileum and hindneck nearly concolor with back, etc.; outer webs of primaries brown or grayish brown instead of cinnamon-rufous; pale gray of throat extending over chest; remaining under parts ochraceous or tawny-ochraceous instead of buff, and rectrices mostly grayish with much smaller white tip preceded by a relatively narrow area of black.

*Adults (sexes alike).*—Above plain grayish brown (nearest broccoli brown or drab), more decidedly brown on pileum and hindneck, more olivaceous on secondaries and tail, which are faintly glossed with bronze-greenish; outer webs of primaries brown or grayish brown, the inner webs with more than proximal half cinnamon-rufous; rectrices (including middle pair) tipped with white, this preceded by a subterminal area of black, both greatly increasing in extent from the middle to the outermost pair; chin, throat, and chest plain, very pale brownish gray or buffy gray, somewhat paler on chin and upper throat; rest of under parts, including under wing-coverts, uniform deep ochraceous to tawny-ochraceous or tawny.

*Young.*—Similar to adults, but middle rectrices without either white tip or black subterminal bar, these on remaining rectrices more restricted in extent and much less sharply defined, the white tips more or less tinged with brown; wing-coverts and secondaries indistinctly margined or edged with dull tawny-brown.

*Adult male.*—Length (skins), 390–445 (421); wing, 126.5–137 (131.8); tail, 219–257 (239.1); exposed culmen, 42.5–47.5 (45.3); tarsus, 30–37.5 (32.7); outer anterior toe, 21–24.5 (23).<sup>a</sup>

*Adult female.*—Length (skins), 378–460 (418); wing, 126.5–136 (131.5); tail, 225–255 (238); exposed culmen, 40.5–48 (43.7); tarsus, 32–36.5 (34.6); outer anterior toe, 22–26 (23.5).<sup>b</sup>

Island of Porto Rico (Caguás; Mayagüez; Lares; Mameyes; Quebradillas; Utuado; Maricao; Aibonito); Viéques Island,<sup>c</sup> near Porto Rico; St. Thomas.<sup>c</sup>

*Saurothera vetula* (not *Cuculus vetula* Linnæus) VIEILLOT, Nouv. Dict. d'Hist. Nat., xxxii, 1819, 348, part (Porto Rico); Enc. Méth., iii, 1823, 1341; Gal. Ois., i, 1825, 25, pl. 38.—(?) LESSON, Traité d'Orn., 1831, 144 ("Guiane"; "Saint-Domingue").—LAFRESNAYE, Rev. Zool., 1847, 357.

*Saurothera velata* (typ. error) SWAINSON, Classif. Birds, ii, 1837, 324, fig. 286b. (?) *Cuculus vetula* LESSON, Man. d'Orn., ii, 1828, 121 ("Jamaïque"; "Saint-Domingue").

*[Saurothera] vieilloti* BONAPARTE, Consp., Av., i, 1850, 97 (based on *S. vetula* Lafresnaye Rev. Zool., 1847, 357 and Vieillot, Gal. Ois., i, 25, pl. 38).—NEW-

<sup>a</sup> Nine specimens.

<sup>b</sup> Ten specimens.

<sup>c</sup> Specimens from Viéques and St. Thomas not seen by me.

TON (A. and E.), Ibis, 1859, 378.—CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 91, footnote (Porto Rico; Vieque Island).

*Saurothera vieillotii* SUNDEVALL, Oefv. k. Vet.-Ak. Förh., 1869, 599.—GUNDLACH, Journ. für Orn., 1874, 312; 1878, 160, 184 (habits; descr. nest and eggs); Anal. Soc. Esp. Hist. Nat., vii, 1878, 230.—CORY, Auk, iii, 1886, 363 (synonymy; description); Birds West Ind., 1889, 158; Cat. West Ind. Birds, 1892, 11, 102, 132.—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 371 (Porto Rico; St. Thomas; Vieque Is.).—BOWDISH, Auk, xix, 1902, 364 (Porto Rico).

[*Saurothera*] *vieillotii* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.

*Saurothera vieillotii* SCLATER, Cat. Am. Birds, 1862, 324 (Vieque Is.).—TAYLOR, Ibis, 1864, 170.

*Saurothera vieillotii*. Var. *rufescens* BRYANT, Proc. Bost. Soc. N. H., x, 1866, 256 (Porto Rico); Journ. für Orn., 1866, 189 (Porto Rico).

### SAUROTHERA VETULA (Linnæus).

#### JAMAICAN LIZARD-CUCKOO.

Nearest to *S. vieillotii* but differing in deep cinnamon-rufous outer webs of primaries, mostly black instead of grayish or grayish brown rectrices with much broader white tips, and dark brown pileum and hindneck, contrasting strongly with grayer upper parts.

*Adults (sexes alike)*.—Forehead deep brownish gray to grayish brown, passing gradually into deep sepia brown on crown, occiput, and hindneck; rest of upper parts plain brownish gray, the secondaries slightly more olivaceous and faintly glossed with bronze-greenish; primaries deep cinnamon-rufous tipped with glossy grayish olive, the distal secondaries and primary coverts also tinged with cinnamon-rufous; rectrices (including middle pair) very broadly tipped with white, which is preceded by a subterminal area of black, which increases from a broad bar on middle pair to an area about twice the length of the extensive white tip on outer pair; chin, throat, and malar region buffy white, passing into very pale buffy gray on upper chest; rest of under parts, except under wing-coverts and under tail-coverts, clear deep buff or light ochraceous, the under wing-coverts pinkish buff or deep cream-buff, the under tail-coverts pale buff; maxilla black, mandible paler (bluish gray in life?); iris brown; bare orbital space scarlet (in life); legs and feet horn color in dried skins (bluish gray in life?).

*Adult male*.—Length (skins), 356–397 (375); wing, 122–133.5 (125.9); tail, 190–216 (200); exposed culmen, 43.5–48 (45.4); tarsus, 30–34 (31.7); outer anterior toe, 21.5–24.5 (22.8).<sup>a</sup>

*Adult female*.—Length (skins), 355–402 (375); wing, 124–131 (126.2); tail, 192–222 (202.5); exposed culmen, 46.5–48.5 (47.5); tarsus, 30.5–34.5 (32.2); outer anterior toe, 22–25 (23.6).<sup>b</sup>

Island of Jamaica (Moneague; Great Salt Pond; Priestmans River; Spanishtown; Port Henderson).

<sup>a</sup> Eight specimens.

<sup>b</sup> Five specimens.

- [*Cuculus*] *vetula* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 111 (Jamaica; based on *Cuculus rostro longiore et magis recto* Sloane, Jamaica, ii, 313; etc.); ed. 12, i, 1766, 169.—GMELIN, Syst. Nat., i, pt. i, 1788, 410.—LATHAM, Index Orn., i, 1790, 218.
- Cuculus vetula* TEMMINCK, Cat. Syst., 1807, 57.
- Saurothera vetula* VIEILLOT, Nouv. Dict. d' Hist. Nat., xxxii, 1819, 348, part (Jamaica).—STEPHENS, Shaw's Gen. Zool., xiv, pt. i, 1826, 216.—GOSSE, Birds Jamaica, 1847, 273; Illustr. Birds Jam., 1849, pl. 74.—SCLATER, Cat. Am. Birds, 1862, 323; Revised List Birds Jam., 1910, 11.—ALBRECHT, Journ. für Orn., 1862, 202.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 283.—CORY, Auk, iii, 1886, 362; Birds West Ind., 1889, 157; Cat. West Ind. Birds, 1892, 11, 102, 130.—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 370 (Moneague and Spanish-town, Jamaica).—SCOTT, Auk, ix, 1892, 273, 371 (habits).—FIELD, Auk, xi, 1894, 124 (Port Henderson, Jamaica).
- S[aurothera] vetula* GRAY, Gen. Birds, iii, App., 1849, 22.—CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 90.—NEWTON (A. & E.), Handb. Jamaica, 1881, 109.
- [*Saurothera*] *vetula* BONAPARTE, Consp. Av., i, 1850, 96.—GRAY, Hand-list, ii, 1870, 203, no. 8896.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—CORY, List Birds West Ind., 1885, 18.—SHARPE, Hand-list, ii, 1900, 169.
- Coccygus vetula* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 39.
- Saurothera jamaicensis* LAFRESNAYE, Rev. Zool., x, 1847, 354 (Jamaica).

### SAUROTHERA DOMINICENSIS Lafresnaye.

#### HAITIAN LIZARD-CUCKOO.

Most like *S. vieilloti*, but upper parts nearly pure olive-gray, outer webs of primaries bright cinnamon-rufous, and chin and throat buff, more or less strongly contrasted with pale gray of adjacent parts.

*Adults (sexes alike)*.—Above plain, soft smoke gray, the pileum slightly darker and more brownish (between mouse gray and hair brown), the middle pair of rectrices with terminal portion extensively (for about 25–35 mm.) slightly glossy blue-black, narrowly margined at tip (except in worn plumage) with brownish gray or whitish, the secondaries and middle rectrices faintly glossed with bronze-greenish; primaries (both webs) clear, deep cinnamon-rufous broadly tipped with grayish brown or grayish olive, faintly glossed with bronze-greenish; second (next to middle) pair of rectrices with the subterminal bluish black area much larger (about 60–70 mm. long on outer web), tipped with white (for about 5–7 mm.), the olive-grayish of basal portion slightly darker; third pair similar but with the white tip much wider (about 15 mm.) and with nearly half the remaining portion bluish black; fourth pair with the white tip and subterminal bluish black area much larger (the former 18–20 mm. wide, the latter occupying about half the remaining portion); fifth pair with the white tip about 18–20 mm. wide, the bluish black subterminal area about 30–50 mm. in extent; auricular region, sides of neck, foreneck, chest, and upper breast plain pale smoke gray; chin, throat, and

malar region deep buff or light ochraceous-buff;<sup>a</sup> lower breast, abdomen, sides, flanks, thighs, anal region, under tail-coverts, axillars, and under wing-coverts plain ochraceous-buff; maxilla dusky grayish brown; mandible dull yellowish (in dried skins), dusky terminally; iris red; legs and feet dusky (in dried skins).

*Adult male*.—Length (skins), 370–408 (392); wing, 136.5–143.5 (139.6); tail, 190–233 (217.3); exposed culmen, 45–50 (47.7); tarsus, 34.5–37.5 (35.7); outer anterior toe, 22.5–25.5 (23.9).<sup>b</sup>

*Adult female*.—Length (skins), 376–405 (394); wing, 131–144 (138.8); tail, 194–230 (215.9); exposed culmen, 43–51.5 (46.8); tarsus, 33–39.5 (36.7); outer anterior toe, 21.5–26.5 (24.3).<sup>c</sup>

Island of Haiti (Le Coup, Aux Cayes, Jeremie, and Port au Prince, Haiti; Samaná, Puerto Plata, Caña Honda, La Cañita, Sanchez, Catare, Honduras, Mariél, Santo Domingo City, Aguacate, and La Vega, Santo Domingo).

*Saurothera vetula* (not *Cuculus vetula* Linnæus) VIEILLOT, Nouv. Dict. d'Hist. Nat., xxxii, 1819, 348, part (Santo Domingo).

[*Saurothera*] *vetula* GRAY, List Gen. Birds, 1841, 72.

[*Saurothera*] *vetula* HARTLAUB, Verz. Mus. Bremen, 1844, 94.

(?) *Cuculus vetulus* (not of Linnæus) LESSON, Man. d'Orn., ii, 1828, 121 ("Jamaïque;" "Saint-Domingue").

*Coccyzus pluvialis* (not *Cuculus pluvialis* Linnæus) TEMMINCK, Tabl. Méth., 1836, 53.

*Saurothera dominicensis* LAFRESNAYE, Rev. Zool., x, 1847, 355 (Santo Domingo).—SALLÉ, Proc. Zool. Soc. Lond., 1857, 234.—BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 95.—CORY, Bull. Nutt. Orn. Club, vi, 1881, 154 (Haiti; habits; notes); Birds Haiti and San Dom., 1885, 98, pl. (23), fig. 5; Auk, iii, 1886, 362; Birds West Ind., 1889, 157; Cat. West Ind. Birds, 1892, 11, 102, 131.—TRISTRAM, Ibis, 1884, 168 (Santo Domingo).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 369.—CHERRIE, Contr. Orn. San Dom., 1896, 19 (Santo Domingo).—CHRISTY, Ibis, 1897, 331 (Santo Domingo; habits).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 359 (Santo Domingo; habits).

[*Saurothera*] *dominicensis* BONAPARTE, Cons. Av., i, 1850, 96.—CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 90.

[*Saurothera*] *dominicensis* GRAY, Hand-list, ii, 1870, 208, no. 8897.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—CORY, List Birds West Ind., 1885, 18.—SHARPE, Hand-list, ii, 1900, 169.

*Coccygus dominicensis* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 40.

*Saurothera domingensis* Württemberg, MS. HARTLAUB, Naumannia, 1852, Heft ii, 55.

<sup>a</sup> There is a remarkably great amount of purely individual variation in the extent and intensity of the buffy color on the throat, etc., in a large series of specimens; sometimes only the chin, extreme upper throat, and anterior portion of the malar region are very buffy; in other specimens the whole throat and median foreneck are thus colored; more rarely the median line of the chest is the same color, thus nearly if not quite connecting with the similar but deeper color of the posterior under parts, and the color varies from a pale buff to deep buffy cinnamon or clay color.

<sup>b</sup> Ten specimens.

<sup>c</sup> Ten specimens.

*Saurothera vieilloti* (not of Bonaparte) SALLÉ, Proc. Zool. Soc. Lond., 1857, 234 (Santo Domingo).

*Saurothera vieilloti?* BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 95 (Santo Domingo).

### Genus TAPERA Thunberg.

*Tapera* THUNBERG, Götheborg.-k. Vet. och Vitterhets Samhällets Nya Handl., iii, 1819, i.<sup>a</sup> (Type, *T. brasiliensis* Thunberg=*Cuculus nævius* Linnæus.)

*Diplopterus* BOIE, Isis, 1826, 977. (Type, *Cuculus nævius* Linnæus.)

*Diplopterus* (emendation?) GAMBEL, Journ. Ac. Sci. Phila., 1849, 317.

Medium-sized, semiterrestrial Cuculinæ (length about 250-315 mm.) with bill only about half as long as head, stout, strongly decurved; tarsus more than one-fourth as long as wing; alulæ greatly developed, covering and concealing primary coverts; upper tail-coverts very long, covering more than basal two-thirds of tail; pileum conspicuously crested, and upper parts conspicuously striped.

Bill very short and stout, about half as long as head, deep, compressed, and strongly decurved; exposed culmen about half as long as tarsus, strongly decurved from near base, its depth at anterior end of nostril equal to about twice its width at same point, broadly rounded; gonys decidedly longer than mandibular rami, faintly concave, slightly prominent at base, broadly rounded; maxillary tomium strongly concave anterior to nostril, thence rather strongly deflected to the rictus, with no trace of subterminal notch. Nostril relatively large, longitudinal (slightly oblique) narrowly ovate or elliptical. Wing moderate, the longest primaries exceeding distal secondaries by about length of middle toe without claw; seventh primary longest, the sixth and eighth slightly but decidedly shorter and nearly equal, the ninth shorter than fourth, the tenth (outermost) shorter than first but much more than half as long as the longest; alulæ greatly developed, very broad and longer than primary coverts. Tail nearly one and a half times as long as wing, graduated for more than one-third its length, the rectrices relatively rather narrow especially distally. Tarsus equal to or slightly longer than middle toe with claw, more than one-fourth but less than one-third as long as wing, rather slender, the toes also slender.

*Plumage and coloration.*—Feathers of upper parts distinctly outlined, long, especially those of pileum, rump, and upper tail-coverts, the first developed into a conspicuous erectile crest, the last extremely long, rather loosely webbed, covering more than basal two-thirds of tail; plumage of under parts blended; orbits mostly naked; eyelashes strongly developed; no trace of antrorse bristles about base of bill. General color of upper parts dull ochraceous (the pileum more rufescent), streaked and spotted with blackish; under parts plain buff

<sup>a</sup> See Lönnberg, Ibis, 1903, 239.



anteriorly and posteriorly, white in middle portion; sexes alike, but young with ochraceous or buffy terminal spots to feathers of upper parts.

*Range*.—Whole of tropical America except West Indies and Galapagos Islands. (Monotypic.)

TAPERA NÆVIA EXCELLENS (Sclater).

NORTHERN STRIPED CUCKOO.

Similar to *T. n. nævia*,<sup>a</sup> of South America, but averaging decidedly larger, with relatively stouter bill.

*Adults (sexes alike)*.—Pileum, including crest, dull cinnamon-rufous or hazel, each feather with a broad median streak of dull black; rest of upper parts varying (according to age of plumage)<sup>b</sup> from cinnamon-ochraceous or clay color to buffy grayish, each feather (except remiges, rectrices, primary coverts, and alulæ) with a median area of blackish, these forming broad stripes on back and scapulars, narrow stripes or streaks on rump and upper tail-coverts, and broad central triangular or subcuneate spots on wing-coverts; alulæ plain sooty black; primary coverts grayish brown becoming darker terminally, the two outermost ones sooty blackish; primaries and distal secondaries grayish brown narrowly margined with pale grayish

<sup>a</sup> [*Cuculus*] *nævius* Linnæus, Syst. Nat., ed. 12, i, 1766, 170 (Cayenne; based on *Cuculus cayanensis nævius* Brisson, Orn., iv, 128=adult).—*Cuculus nævius* Temminck, Cat. Syst., 1807, 57; Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 271.—*Diplopterus nævius* Boie, Isis, 1826, 977; Sclater, Cat. Am. Birds, 1862, 321; Shelley, Cat. Birds Brit. Mus., xix, 1891, 423, part.—*Piaya nævia* Lesson, Traité d'Orn., 1831, 142.—*Geococcyx nævius* Schlegel, Mus. Pays-Bas, i, no. 25 (Cuculi) 1864, 42.—*Tapera nævia* Lönnberg, Ibis, April, 1903, 239, in text.—[*Cuculus*] *punctulatus* Gmelin, Syst. Nat., i, pt. i, 1788, 414 (Cayenne; based on *Punctated Cuckoo* Latham, Synop. Birds, i, pt. ii, 541=young).—*Coccyzus punctulatus* Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 277.—*Cuculus galeritus* Illiger, Abh. der Königl. Ak. Wiss. Berlin for 1812-13 (1816), 224 (Guiana; based on *Cuculus nævius*,  $\beta$  Gmelin, Syst. Nat., i, pt. i, 1788, 413; cites also *Chochi* Azara, Apunt., ii, 359).—*D[iplopterus]* *galeritus* Cabanis, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 713.—*Diplopterus nævius* Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 262.—*Coccyzus chochi* Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 272 (Paraguay; based on *Chochi* Azara, Apunt. Parag. (i), ii, 269).—*D[iplopterus]* *chochi* Cabanis and Heine, Mus. Hein., iv, Heft 1, 1862, 94 (s. Brazil).—*Diplopterus nævius* (?) *chochi* Ridgway, Proc. U. S. Nat. Mus., iv, Nov. 25, 1881, 193.—*Coccyzus chirri* Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 273 (Paraguay; based on *Chirri* Azara, Apunt. Parag. (i), ii, 269).—*Coccyzus ruficapillus* Vieillot, Nouv. Dict. d'Hist. Nat., viii, 1817, 278 ("New Holland").—*C[occyzus]* *septorum* Vieillot, Enc. Méth., iii, 1823, 1343 (Guiana; based on Buffon).—*Tapera brasiliensis* Thunberg, Götth. Vet. och Vitterhets Samhällets Nya Handl., iii, 1819, i, pl. 1.—*Piaya brasiliiana* Lesson, Rev. Zool., ii, Feb., 1839, 41 (Brazil; coll. Abeillé).—[*Diplopterus*] *brasiliiana* Bonaparte, Consp. Av., i, 1850, 110.—*Diplopterus lessoni* Bonaparte, Consp. Av., i, 1850, 109 (Brazil; coll. Paris Mus.).—[*Diplopterus nævius*] (?) *lessoni* Ridgway, Proc. U. S. Nat. Mus., iv, Nov. 25, 1881, 193.

<sup>b</sup> The freshly acquired or unworn plumage is strongly ochraceous, the worn or abraded plumage becoming more grayish.

cinnamon or brownish buffy; retrices grayish brown passing into dull ochraceous-cinnamon or clay color on edges and tipped with a paler tint of the same or dull buffy whitish; a broad postocular (supra-auricular) streak of buff or dull buffy whitish; auricular region dark sooty brown, more or less distinctly streaked with buffy brown or fulvous; suborbital, subauricular, and malar regions, lower throat, and foreneck or upper chest varying from deep buff (fading into paler buff or buffy white on chin and upper throat) to dull grayish buffy, relieved by a narrow malar streak of dusky; breast, sides, flanks, abdomen, axillars, and under wing-coverts immaculate dull white or grayish white; posterior flanks and under tail-coverts immaculate buff; under surface of remiges deep grayish brown in middle portion, lighter grayish brown or gray distally, abruptly white basally; maxilla brownish (more or less deep), darker on culmen; mandible lighter brown or dull yellowish; iris brown;<sup>a</sup> legs and feet horn color in dried skins, horn blue in life.<sup>a</sup>

*Young*.—In general resembling adults, but pileum sooty blackish, each feather tipped with a transverse spot of buff; scapulars and wing-coverts tipped with a transverse spot of buff, margined anteriorly by a narrow subterminal bar of black; lower throat and chest sometimes with a few indistinct narrow bars of dusky; otherwise like adults.

*Adult male*.—Length (skins), 270–315 (285); wing, 110–127.5 (118.1); tail, 150–188 (168.5); exposed culmen, 18–23 (19.8); tarsus, 29.5–36 (33.5); outer anterior toe, 22.5–28 (24.7).<sup>b</sup>

*Adult female*.—Length (skins), 253–289 (273); wing, 107–123.5 (114.3); tail, 146.5–173 (158.8); exposed culmen, 16–19.5 (18.2); tarsus, 31–34 (32.3); outer anterior toe, 23–25 (24.1).<sup>c</sup>

	<sup>a</sup> N. Dearborn.	<sup>b</sup> Twenty-nine specimens.	<sup>c</sup> Nine specimens.		
Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Vera Cruz.....	119	173.2	22.7	35	26.2
Two adult males from Tabasco.....	120	172.2	21.5	35.5	25.7
One adult male from Guatemala.....	127.5	188	20	35	26
One adult male from Honduras.....	122	175.5	20.5	34	26
Seven adult males from Nicaragua.....	119.6	175	19.3	33.6	25
One adult male from Costa Rica.....	121	173	19	33	24.5
Six adult males from western Panama (Chiriqui and Veragua)..	117.4	165.1	19.1	32.7	24.2
Nine adult males from eastern Panama (Canal Zone).....	114.8	161.7	19.6	33.3	24
Three adult males ( <i>T. n. naevia?</i> ) from Colombia.....	116.3	156.2	19.3	32.2	24.3
Four adult males ( <i>T. n. naevia?</i> ) from Venezuela.....	109.1	148.2	18.1	31.4	23
One adult male ( <i>T. n. naevia?</i> ) from Margarita I.....	108.5	132	19.5	32.5	23.5
Two adult males ( <i>T. n. naevia?</i> ) from Trinidad.....	108.7	152	19	30.7	22.5
One adult male ( <i>T. n. naevia?</i> ) from Bolivia.....	119	156.5	18	32	22
One adult male ( <i>T. n. naevia?</i> ) from southwestern Brazil (Chapada, Mattogrosso).....	113	159	17.5	31	21
Two adult males ( <i>T. n. naevia?</i> ) from Uruguay.....	112.7	154.2	17.7	30.5	22.7

Panamá (Lion Hill, Panamá, Sabana de Panamá, and Tabernilla, Canal Zone; Calovévora, Chitra, and Mina de Chorchá, Verágua; Divala, Boquete, and David, Chiriquí), and northward through western Costa Rica (San Mateo; San Lucas; San José; Bebedero; Guaitíl; Alajuela; Bolsón; Volcán de Poás; Turrúcares; Barranca; Pozo Azul de Pirrís), western Nicaragua (León; Sucuyá; San Juan del Sur; Tuma; Chinandega; Jalapa; San Rafael del Norte; Matagalpa), Honduras (San Pedro; San Pedro Sula), Salvadór (Volcán de San Miguél) and Guatemala (Dueñas; Savana Grande) to south-eastern Mexico, in States of Tabasco (Teapa), Oaxaca (Santa Efigénia) and Vera Cruz (Playa Vicente; Tlalcotalpám; Catemaco; San Andrés Tuxtla).

*Diplopterus excellens* SCLATER, Proc. Zool. Soc. Lond., 1857 (pub. Jan. 12, 1858), 229 (s. Mexico; coll. A. Sallé); Cat. Am. Birds, 1862, 321 (s. Mexico).—MOORE, Proc. Zool. Soc. Lond., 1859, 60 (San Pedro, Honduras).—SCLATER and SALVIN, Ibis, 1859, 133 (San Pedro, Honduras).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 300 (Lion Hill, Panama).

*Diplopterus* [excellens] CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1863, 94, footnote (s. Mexico; Honduras).

*Diplopterus nævius* (not *Cuculus nævius* Linnæus) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 366 (Lion Hill, Panama; crit.).—SALVIN, Proc. Zool. Soc. Lond., 1867, 156 (David, Chiriquí, Panama); 1870, 211 (Calovevora, Chitra, and Mina de Chorchá, Panama).—LAWRENCE, Ann. Lyc. N. Y., viii, 1867, 177 (David, Panama); ix, 1868, 128 (Guaitil and San Mateo, Costa Rica); Bull. U. S. Nat. Mus., no. 4, 1876, 33 (Santa Efigénia, Oaxaca).—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 376 (San Juan del Sur, Nicaragua); vi, 1884, 387 (Sucuyá, Nicaragua).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 123 (Pozo Azul and San Mateo, Costa Rica).—CHERRIE, Auk, ix, 1892, 326 (San José, Costa Rica; crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 540, part (San

Footnote—Continued.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
FEMALES.					
One adult female from Nicaragua.....	122	169.5	19.5	34	24.5
Three adult females from Costa Rica.....	116.2	155	17.5	31.2	24.2
Five adult females from eastern Pauama (Canal Zone).....	111.7	158.9	18.7	32.4	24
Four adult females ( <i>T. n. nævia</i> ?) from western Colombia (Cauca).....	108.8	147	18.4	30.6	23.4
Three adult females ( <i>T. n. nævia</i> ?) from Venezuela.....	108.8	147	17.5	31	21.8
Three adult females ( <i>T. n. nævia</i> ?) from Trinidad.....	103.2	135.2	18.2	28.8	22.8
Two adult females ( <i>T. n. nævia</i> ?) from British Guiana.....	100.7	146	17.7	29	23
One adult female ( <i>T. n. nævia</i> ?) from southwestern Brazil (Chapada, Matogrosso).....	103.5	147.5	18.5	31.5	21.5

The South American material is much too scant to give a clear idea of the geographic variations on the southern continent. The limited series indicates, however, the existence of two or more forms south of Panama.

Andres Tuxtla and Playa Vicente, Vera Cruz; Teapa, Tabasco; Santa Efigenia, Oaxaca; Dueñas, and Savana Grande, Guatemala; Volcan de San Miguel, Salvador; San Pedro, Honduras; Chinandega, Matagalpa, etc., Nicaragua; Barranca, etc., Costa Rica; David, etc., Panama).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 16 (Lion Hill, Panama; crit.); iii, 1902, 24 (Boquete, Chiriqui, Panama, 4,000–5,600 ft.).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlv, 1906, 215 (Sabana de Panama).

[*Diplopterus*] *nævius* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107, part (Central America; Mexico).—SHARPE, Hand-list, ii, 1900, 175, part (Mexico to Panama).—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 2, 1898, 46, part (Guatemala).

*Tapera nævia* DEARBORN, Pub. 125, Field Mus. N. H., 1907, 87 (Gualan, Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 567 (San Lucas, Alajuela, Bebedero, Bolson, Volcan de Poas, and Turrucare, Costa Rica; crit.).

### Genus MOROCOCCYX Sclater.

*Morococcyx* SCLATER, Cat. Am. Birds, 1862, 322. (Type, *Coccyzus erythropyga* Lesson.)

Medium-sized or rather small terrestrial Cuculinæ (length about 225–280 mm.) with bill about as long as head or a little shorter, stout, distinctly decurved terminally; tarsus much longer than middle toe with claw (much more than one-third as long as wing) stout; lores partly naked; tail-coverts short, feathers of rump downy, semi-decomposed; the upper parts olive-brownish, the wings dull greenish bronze, the tail dull purplish bronze, the underparts plain buff to tawny-ochraceous.

Bill nearly if not quite as long as head, rather stout, compressed, and distinctly decurved terminally, its depth at anterior end of nostrils greater than its width at same point; exposed culmen about as long as middle toe without claw, more and more decurved toward tip, broadly rounded; gonys decidedly longer than mandibular rami, very faintly concave terminally, rounded; maxillary tomium strongly concave anteriorly, nearly straight but rather strongly deflected for basal half or more, without trace of subterminal notch. Nostril narrowly elliptical, longitudinal, in lower anterior end of nasal fossa. Wing short and much rounded, the longest primaries exceeding distal secondaries by less than half the distance from nostril to tip of maxilla; fourth, fifth, and sixth primaries longest, the third and seventh slightly shorter, the ninth much shorter than distal secondaries, the tenth (outermost) less than half as long as the longest; alulæ longer than primary coverts. Tail less than one and a half times as long as wing, graduated for about one-third its length, the rectrices broadly rounded at tip. Tarsus much longer than middle toe with claw, much more than one-third as long as wing, very stout.

*Plumage and coloration.*—Orbital region and part of loreal region naked; eyelashes strongly developed, the lower eyelid, as well as the upper, with distinct though smaller lashes; no rictal or other antrorse

bristles round base of bill, except at malar apex; plumage in general soft, blended, the feathers of forehead with somewhat thickened shafts, those of the rump soft and downy; tail-coverts rather short, the upper covering about basal two-fifths of tail. Above plain olivaceous, the wings glossed with greenish bronze, the tail with purplish bronze; below plain tawny-ochraceous to pale buff; a black streak above and one below eye, uniting into a single streak behind eye.

*Range*.—Southern Mexico to Costa Rica. (Monotypic.)

### MOROCOCCYX ERYTHROPYGUS ERYTHROPYGUS (Lesson).

#### RUFIOUS-RUMPED CUCKOO.

*Adults (sexes alike)*.—Pileum grayish brown (deep broccoli brown to nearly warm-sepia) the feathers (in part, at least) more or less distinctly edged or margined with paler and with more or less distinct darker shaft-streaks, especially on forehead; a narrow superciliary stripe (usually not well defined, sometimes indistinct) of pale dull buffy or dull grayish buffy white; hindneck, back, scapulars, and wing-coverts plain olive-brown (the back usually slightly browner), the wings and posterior scapulars faintly glossed with bronze-greenish; lower back and rump sooty blackish, the feathers of the former tipped with buff or pale buffy brown, those of the latter tipped olive-brown; upper tail-coverts olive-brown, usually more decidedly brown on margins; tail olive-brown, glossed (more or less distinctly) with purplish bronze and bronze-green (the former mostly on middle rectrices), the lateral rectrices tipped with dull brownish buff to dull brownish white or buffy white, this preceded by a rather indefinite area of dusky; upper portion of auricular region, together with a narrow line along upper margin of bare orbital space and another along lower edge (the two uniting on anterior portion of lores) black; lower portion of auricular region, subauricular region, malar region, and entire under parts, except under tail-coverts, plain cinnamon-ochraceous or clay color to ochraceous-tawny; under tail-coverts dusky suffused (mostly on tips of feathers) with brown; under surface of remiges plain brownish gray, the distal portion (extensively) of outer primaries abruptly dusky; under surface of tail light grayish brown, the lateral rectrices with a well-defined subterminal area of dull black, this more extensive on outer web, especially on outermost rectrix, in which the black on outer web extends nearly to base; upper half (approximately) of mandible black, rest of bill yellowish (yellow in life); bare orbital space yellow in front of and below eye, azure blue behind eye; iris dark brown; legs and feet brownish in dried skins, brownish yellow to flesh color in life.

*Young*.—Similar to adults but feathers of softer texture, lateral rectrices without a blackish subterminal area or well defined buffy or

whitish tip (usually, however, with a more or less distinct median stripe of dusky, mostly on outer web), and in younger individuals, with feathers of back, etc., indistinctly tipped with paler.

*Adult male*.—Length (skins), 226–270 (249); wing, 90.5–109 (98.9); tail, 114.5–140.5 (129.3); exposed culmen, 21–26.5 (23.7); tarsus, 33–38 (35.4); outer anterior toe, 20.5–23.5 (21.7).<sup>a</sup>

*Adult female*.—Length (skins), 235–275 (248); wing, 90.5–101.5 (97); tail, 117–137 (126.7); exposed culmen, 21.5–25 (23.5); tarsus, 31.5–38.5 (35.1); outer anterior toe, 19.5–23.5 (21.8).<sup>b</sup>

Pacific slope of Central America, from Costa Rica (Atenas; Esparta; Pacaca; Liberia; Bebedero; Tenório; Miravalles; Cerro Santa Maria; Alajucla; San José) through Nicaragua (San Carlos; San Gerónimo; Chinandega; Volcán de Chinandega; Grenada; Tres Grenadas; Sucuyá; Matagalpa; Manágua) and Honduras (Yojoa; Santa Ana) to Guatemala (Volcán de Fuego; Gualán, Zacapa; between Subinál and Laguna; Laguna; Rio Montáguá).

*Coccyzus erythropyga* LESSON, Rev. Zool., v, July, 1842, 210 ("San Carlos, Centre Amerique").

[*Coccyzus*] *erythropyga* GRAY, Hand-list, ii, 1870, 212, no. 8938.

*P[iaya] erythropygia* GRAY, Gen. Birds, ii, 1847, 457.—BONAPARTE, Consp. Av., i, 1850, 111.

*Piaya erythropygia* DES MURS, Icon. Orn., livr. 11, 1848, pl. 66, and table of contents (San Carlos; Lesson's type in Paris Mus.).—SCLATER and SALVIN, Ibis, 1859, 133 (between Subinal and Laguna, Guatemala; habits; song; colors of unfeathered parts).—TAYLOR, Ibis, 1860, 118 (Yojoa, Honduras).

[*Pyrhocyx*] *erythropygius* BONAPARTE, Ateneo Italiano, ii, 1854, 121 (Consp. Volucr. Zygod., 1854, 6).

<sup>a</sup> Twelve specimens.

<sup>b</sup> Thirteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Five adult males from Costa Rica.....	101.3	126.5	23.6	35.5	21.9
Five adult males from Nicaragua.....	95.5	128.9	23.1	35.1	21.1
One adult male from Honduras.....	99.5	134	24	34	23
One adult male from Guatemala.....	104	140.5	26.5	38	21.5
Four adult males ( <i>M. e. mexicanus</i> ) from Oaxaca.....	102	138.9	24.1	36.5	22.4
Five adult males ( <i>M. e. mexicanus</i> ) from Guerrero.....	97	129.5	24.5	33.6	23
One adult male ( <i>M. e. mexicanus</i> ) from Colima.....	108	127.5	26	38	22.5
One adult male ( <i>M. e. mexicanus</i> ) from Sinaloa.....	104	134	24.5	35	23
FEMALES.					
Seven adult females from Costa Rica.....	96.9	123.2	23.8	35.2	22.1
Five adult females from Nicaragua.....	97.1	129.4	23.1	34.2	20.9
One adult female from Guatemala.....	97.5	137	23	38.5	23.5
Four adult females ( <i>M. e. mexicanus</i> ) from Oaxaca.....	101.2	131.5	23.9	34.9	21
One adult female ( <i>M. e. mexicanus</i> ) from Guerrero.....	95.5	120	23	33	20.5
Two adult females ( <i>M. e. mexicanus</i> ) from Colima.....	96.2	126.7	24	34.7	22.2
One adult female ( <i>M. e. mexicanus</i> ) from Sinaloa.....	95	132	22.5	34	22.5

- Morococcyx erythropygia* SCLATER, Cat. Am. Birds, 1862, 322 (Central America).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 128 (Pacaca, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., v, 1884, 388 (Sucuya, Nicaragua).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 123 (Liberia, Costa Rica).—UNDERWOOD, Ibis, 1896, 44 (Bebedero to Volcan de Miravalles, Costa Rica).
- [*Morococcyx*] *erythropygia* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.
- M[orococcyx] erythropygus* CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1862, 81 (Ysabal, Guatemala).
- Morococcyx erythropygus* BOUCARD, Proc. Zool. Soc. Lond., 1878, 48 (Atenas, Costa Rica; habits).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 422, part (Laguna and Rio Montagua, Guatemala; Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 538, part (Laguna, Valley of Rio Managua and Volcan de Fuego, Guatemala; Chinandega, and Sucuya, Nicaragua; "Pacuare," i. e. Pacaca, Liberia, and Atenas, Costa Rica).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 87 (Gualan, Guatemala; habits).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 566 (San Jose, Miravalles, Tenorio, Esparta, and Cerro Santa Maria, Costa Rica).
- [*Morococcyx*] *erythropygus* SHARPE, Hand-list, ii, 1900, 174, part.
- M[orococcyx] erythropygus* RIDGWAY, Proc. Biol. Soc. Wash., xxviii May 27, 1915, 105, in text.
- Geococcyx erythropygius* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 42 (San Carlos).

### MOROCOCCYX ERYTHROPYGUS MEXICANUS Ridgway.

#### MEXICAN RUFIOUS-RUMPED CUCKOO.

Similar to *M. e. erythropygus* but larger and paler, the upper parts averaging more grayish olive, the under parts varying from cinnamon-ochraceous<sup>a</sup> to dull light ochraceous-buff or even pale buff; under surface of tail, however, darker, showing, on lateral rectrices, less contrast between the grayish brown of proximal and blackish of sub-terminal portions.

*Adult male*.—Length (skins), 256–280 (267); wing, 92–108 (100.5); tail, 124–142.5 (133.1); exposed culmen, 23–26 (24.5); tarsus, 31–38 (35.2); outer anterior toe, 21–24 (22.7).<sup>b</sup>

*Adult female*.—Length (skins), 238–275 (256); wing, 95–107.5 (99); tail, 120–136 (128.6); exposed culmen, 22.5–25 (23.6); tarsus, 33–35.5 (34.5); outer anterior toe, 20.5–23 (21.4).<sup>c</sup>

Southwestern and western Mexico, in States of Chiapas (Tonalá), Oaxaca (Santa Efigénia; Tehuán-tepec City; Juchitán; Chihuitán; Chimalapa; Sierra de Santo Domingo), Guerrero (Acapulco; Dos Arroyos; Cayacál), Colima (Plains of Colima; Manzanillo), Sinaloa (Mazatlán; Escuinapa), and Territory of Tepic (San Blas).

<sup>a</sup> The darkest examples of the Mexican form are about as dark as the palest ones of the Central American one, or true *M. erythropygus*. There is much individual variation in the depth of color of the under parts in both forms, however.

<sup>b</sup> Eleven specimens.

<sup>c</sup> Eight specimens.

- Morococcyx erythropygia* (not *Coccyzus erythropyga* Lesson) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 293 (Mazatlan, Sinaloa); Bull. U. S. Nat. Mus., no. 4, 1876, 34 (Chihuitan and Tehuantepec City, Oaxaca).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 551 (San Juan del Rio, Oaxaca; Mazatlan).—MILLER (W. DeW.), Bull. Am. Mus. N. H., xxi, 1905, 350 (Escuinapa, s. Sinaloa).
- [*Morococcyx*] *erythropygia* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 108, part.
- Morococcyx erythropygus* SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 422, part (San Blas, Tepic; Plains of Colima; Acapulco and Dos Arroyos, Guerrero; Sierra Santa Domingo and Chimalapa, Oaxaca).—SALVIN and GODMAN, Biol. Centr. Am., Aves, ii, 1896, 538, part (San Juan del Rio, etc., Guerrero; Santa Efigenia, Juchitan, etc., Oaxaca; Tonala, Chiapas).
- [*Morococcyx*] *erythropygus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 202 (Tehuantepec).—SHARPE, Hand-list, ii, 1900, 174, part.
- Morococcyx erythropygus mexicanus* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 105 (Juchitan, Oaxaca, s. w. Mexico; coll. U. S. Nat. Mus.).

### Genus GEOCOCCYX Wagler.

- Geococcyx* WAGLER, Isis, 1831, 524. (Type, *G. variegata* Wagler=*Saurothera californiana* Lesson.)
- Leptostoma* SWAINSON, Classif. Birds, ii, 1837, 325. (Type, *L. longicauda* Swainson=*Saurothera californiana* Lesson.)

Large, long-tailed, long-billed, terrestrial Cuculinæ (length about 385–583 mm.) with culmen (from base) as long as tarsus, pileum crested, and plumage conspicuously streaked.

Bill about as long as head, narrow, moderately compressed terminally, slightly widened basally, its depth at anterior end of nostrils slightly greater than its width at same point; exposed culmen decidedly shorter than tarsus, nearly straight for basal half (more or less), then more and more decurved terminally, the tip of the maxilla distinctly uncinatè, the culmen rounded (in transverse section), more broadly so basally; gonys about as long as mandibular rami or slightly shorter, faintly concave, slightly prominent basally, rounded; maxillary tomium nearly straight for most of its length but abruptly decurved terminally, not distinctly if at all deflected basally. Nostril longitudinal, elliptical, in lower anterior portion of nasal fossa. Wing rather short, much rounded, the longest primaries exceeding distal secondaries by about length of hallux without claw; fourth, fifth, and sixth primaries longest, the third and seventh, successively, slightly shorter, the ninth shorter than first, the tenth (outermost) more than half as long as the longest. Tail more than one and a half times as long as wing, graduated for nearly one-third its length, the rectrices rather narrow, tapering terminally. Tarsus about one and a half times as long as middle toe with claw, equal to length of culmen from base, more than one-third as long as wing, stout.

*Plumage and coloration.*—Plumage in general soft, the feathers distinctly outlined, with edges loosely webbed or semi-decomposed,



that of the lower back, rump, and under parts of body blended, soft hair-like; orbital and post-orbital regions naked; eyelashes strongly developed; feathers of fore part of head with distinct slender bristly, but not antrorse, tips, those immediately above nostrils semi-erect and semi-antrorse, those of chin also semi-antrorse, recurved; occipital feathers elongated, forming a conspicuous erectile crest. Color above mainly bronzy (becoming glossy blue- or violet-black on hindneck and pileum) conspicuously streaked (the feathers edged with white and pale buffy brownish); foreneck and chest pale buffy brownish streaked with black; under parts of body plain dull whitish; lateral rectrices blue-black (under surface of inner web mostly grayish), broadly tipped with white; sexes alike and young not materially different.

*Range*.—More southern arid portions of western United States and southward over dryer parts of Mexico to northern Niaragua. (Two species.)

## KEY TO THE SPECIES OF GEOCOCCYX.

- a. Larger (wing 162-196, tail 260-316), whole foreneck and chest conspicuously streaked; under parts of body dull grayish white, the under tail-coverts similar. (Southwestern United States and southward to States of Jalisco, Mexico, Puebla, and Vera Cruz, Mexico.).....*Geococcyx californianus* (p. 75).
- aa. Smaller (wing 136.5-162, tail 231-305); foreneck and chest unstreaked medially; under parts of body deep buff; under tail-coverts dusky. (Southern Mexico, from States of Sinaloa, Vera Cruz, Yucatan, etc., southward to northern Nicaragua.).....*Geococcyx affinis* (p. 80).

## GEOCOCCYX CALIFORNIANUS (Lesson).

## ROADRUNNER.

*Adults (sexes alike)*.—Feathers of forehead and anterior part of crown black or blue-black mesially, each with a broad lateral spot (extending to edge) of russet or light tawny-brown, often edged with pale grayish buffy or buffy grayish, the rest of pileum (including occipital bushy crest) slightly glossy black or blue-black, mostly uniform, but more or less broken, especially on posterior part of crown by edgings of tawny-brown and pale buffy; hindneck and upper back black or blue-black, the feathers broadly edged with light tawny-brown passing into dull buffy whitish on edges, producing a conspicuously streaked or semi-squamate effect; feathers of lower back, scapulars, and wing-coverts similarly marked, but the central area of each feather olive (more or less dark), glossed with bronzy or bronze-greenish, and edged with black, the paler markings on wing-coverts larger and paler, in form of lateral ovoid longitudinal spots; greater coverts olive glossed with bronze, and with a large terminal spot of white on each web; proximal secondaries olivaceous, glossed with bronze or bronze-greenish edged narrowly with black, and broadly mar-

gined (on both webs) by dull whitish passing into pale brownish next to the broad mesial dark-colored areas; distal secondaries darker and more greenish and much more narrowly edged with whitish; primary coverts olive-dusky broadly margined distally with dull white; primaries blackish, faintly glossed with greenish, margined terminally with dull white and crossed, near middle portion, by a broad band of the same, composed of narrowly ovate or lanceolate longitudinal marginal spots on outer webs only; rump plain grayish brown (nearly hair brown); upper tail-coverts and middle pair of rectrices bronzy olive glossed with purplish and margined with dull white; remaining rectrices glossy blue-black on outer webs, more greenish on inner webs, tipped, and narrowly margined (on outer web) with white, the white tip about 35-40 mm. long on outer pair but decreasing in extent to the second (next to middle) pair, on which it is only about 10 mm. wide;<sup>a</sup> lores dull whitish (sometimes tinged with brownish buffy), the feathers with projecting black bristle-like shafts; suborbital and malar regions mixed dull whitish and pale tawny-brownish, barred and spotted with black; auricular region streaked with black and dull whitish or pale tawny-brownish; chin and throat mostly dull white; foreneck, sides of neck, and chest light ochraceous-buff or clay color passing into whitish on edges of feathers, each feather with a mesial streak of black, these streaks narrow in front, much broader on sides of neck and chest; rest of under parts plain grayish buffy white, the under tail-coverts sometimes decidedly pale dull buffy; inner webs of lateral rectrices pale gray on under surface anterior to the white tip; maxilla dull grayish black or dusky horn color, mandible paler horn color or grayish; iris golden yellow to orange; bare orbital space light blue anteriorly passing into bluish white beneath and behind eye, the posterior portion deep orange or orange-red; legs and feet (in life) pale bluish, the large scutella of tarsus pale yellowish or cream color margined with pale bluish.

*Young*.—Similar to adults but markings less sharply defined, especially the streaks on neck and chest, where the ground color is also duller (more grayish, with less tawny-brownish).

*Adult male*.—Length (skins), 464-583 (540); wing, 164-196 (177.7); tail, 268-316 (290.5); exposed culmen, 48-59 (53.2); tarsus, 54.5-67 (61.1); outer anterior toe, 30-34.5 (32.4).<sup>b</sup>

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<sup>a</sup> Sometimes the middle pair has a small white tip.

<sup>b</sup> Twenty-seven specimens.

*Adult female*.—Length (skins), 485–577 (524); wing, 162–194.5 (173.2); tail, 260–305 (287); exposed culmen, 49–56 (52); tarsus, 57–64 (59.9); outer anterior toe, 29.5–34.5 (31.5).<sup>a</sup>

More southern portions of western United States (chiefly in Lower Sonoran and southern part of Upper Sonoran zones), north to upper Sacramento Valley, California (Fort Reading; Marysville Buttes; Pitt River), southern Utah (St. George), Colorado (El Paso County; Baca County; near Puebla; near Denver; Gaumer's Ranch; Arkansas River; Littleton; Rhinehart Station), and Kansas (Comanche County; Kiowa County; near Ashland, Clark County), east to Gulf coast in Texas (Corpus Christi to Rio Grande); south over northern and central Mexico, in States of Sonora (Guaymas; Bisbee), Chihuahua, Nuevo León (Rodriguez; Rio de Ramos; Montemorelos), Tamaulipas (Sierra Madre above Victoria; Jaumave; Camargo; Xicotencal; Velasco; Tamesí, near Tampico; Soto la Maria; Tenango del Valle); Guanajuato (Silao), Durango (Rio Sestín; Rancho Baillón; Arroyo del Buéy; Rio Campo; Guanaceví), Zacatecas (Plateado), Jalisco

<sup>a</sup> Twenty-one specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Colorado.....	185.5	304	54	67	32
One adult male from Oklahoma.....	183	306	48	64.5	34
Seven adult males from western Texas.....	180.1	286.9	51.5	62.1	32
Three adult males from Arizona and northern Sonora.....	177.4	297.4	54.4	60.9	33
Five adult males from California.....	173.8	288	54.3	60.7	31.3
Two adult males from southern Lower California.....	175.5	284	55	60	33
Two adult males from Michoacan.....	190	315	54	61.7	34
One adult male from Guanajuato.....	188	304	55	64	34
One adult male from Nuevo Leon.....	164	269	54.5	59.5	30.5
Three adult males from Tamaulipas.....	168.8	277.3	51.2	59.8	31.8
One adult male from lower Rio Grande, Texas.....	172	272	56.5	61	31.5
FEMALES.					
One adult female from Colorado.....	173	283	49.5	61	33
One adult female from New Mexico.....	180	294	50	59.5	31.5
Two adult females from Arizona or northern Sonora (boundary line).....	178.2	294	53.5	61	31.5
Three adult females from California and northern Lower Cali- fornia.....	174.2	290.3	53.3	58.3	31.2
Four adult females from southern Lower California.....	171.4	294.7	53	59.5	32
One adult female from southern Sonora.....	166	279	50.5	59.5	30
Two adult females from Chihuahua.....	172.5	282	51	60.7	30.7
One adult female from Zacatecas.....	171.5	285	53.5	58.5	30
One adult female from Nuevo Leon.....	175	270	50	61	31
One adult female from Puebla.....	173.5	291	53	62	31.5
One adult female from Vera Cruz (Las Vigas).....	168	282	49	60	31
One adult female from Tamaulipas.....	164.5	270	51	57	31.5
One adult female from lower Rio Grande Valley, Texas (Hidalgo).....	162	260	53.5	59	32
One adult female from northern Texas (Granbury).....	194.5	310	51.5	64	34.5

(Zapotlán) and Sinaloa (Mazatlán) to Michoacán (Mount Tancítaro; Tinguindín), Mexico (Valley of Mexico) Puebla (San Salvador; Huezotzingo; Piaxtla), Vera Cruz (Jalapa; Las Vigas), and Lower California to Cape San Lucas.

- Saurothera californiana* LESSON, Compl. Buffon, vi, 1829, 420 (California); *Traité d'Orn.*, 1831, 145.—BOTTA, *Nouv. Ann. du Mus.*, iv, 1835, 121, pl. 9 (Cape San Lucas to San Francisco).—[A. WAGNER], *München Gelehrte Anz.*, iii, 1836, 95.—SWAINSON, *Classif. Birds*, ii, 1837, 141, footnote.
- Geococcyx californianus* BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 73; *Rep. U. S. Mex. Bound. Surv.*, ii, pt. 2, 1859, 5 (Ringgold Barracks and El Paso, Texas; Rio Grande, New Mexico; Tamaulipas; Fort Yuma, California; habits); *Cat. N. Am. Birds*, 1859, no. 68; *Proc. Ac. Nat. Sci. Phila.*, 1859, 303 (Cape San Lucas).—KENNERLY, *Rep. Pacific R. R. Surv.*, x, no. 3 (Whipple's Route), 1859, 21 (El Paso and San Antonio, Texas; Fort Conrad, New Mexico; Little Colorado R., Arizona; etc.; habits).—SCHLEGEL, *Mus. Pays-Bas*, i, no. 25, (Cuculi), 1864, 40.—DRESSER, *Ibis*, 1865, 466 (s. Texas; habits).—COUES, *Proc. Ac. Nat. Sci. Phila.*, 1866, 51 (Ft. Whipple, Arizona); *Check List*, 1873, no. 289; 2d ed., 1882, no. 427.—COOPER, *Orn. Calif.*, 1870, 368.—AIKEN, *Proc. Bost. Soc. N. H.*, xv, 1872, 206 (e. Colorado, rare).—RIDGWAY, *Bull. Essex Inst.*, v, 1873, 185 (s. w. Colorado); *Field and Forest*, ii, 1877, 209 (Colorado); *Proc. U. S. Nat. Mus.*, iii, 1880, 190; *Nom. N. Am. Birds*, 1881, no. 385.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 472, pl. 48, fig. 1; iii, 1874, 521 (El Paso Co., Colorado).—YARROW and HENSHAW, *Rep. Orn. Spec. Wheeler's Surv.*, 1874, 24 (St. George, s. Utah).—HENSHAW, *Rep. Wheeler's Surv.*, 1876, 257 (Santa Barbara and Kernville, California; habits).—MCCAULEY, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iii, 1877, 677 (Red R. Cañon, n. Texas; habits).—BENDIRE, *Bull. Nutt. Orn. Club*, iii, 1878, 39 (breeding habits); *Life Hist. N. Am. Birds*, (ii), 1895, 13, pl. 1, fig. 2 (egg).—SENNETT, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iv, no. 1, 1878, 36 (Brownsville, Hidalgo, and Corpus Christi, Texas); v, 1879, 413 (Lomita Ranch, Têxas; habits; descr. nest and eggs).—MERRILL (J. C.), *Proc. U. S. Nat. Mus.*, i, 1878, 150 (Fort. Brown, Texas; habits; descr. nest and eggs).—MILLER (F.), *Bull. Nutt. Orn. Club*, iv, 1879, 109 (San Rafael, California; habits).—BELDING, *Proc. U. S. Nat. Mus.*, i, 1879, 432 (Marysville Buttes, Yuba Co., Murphy, and San Andreas, etc., Calaveras Co., California); v, 1883, 543 (Cape San Lucas district, Lower California).—BROWN (N. C.), *Bull. Nutt. Orn. Club*, vii, 1882, 41 (Kendall Co., Texas).—ABERT, *Journ. Cinc. Soc. N. H.*, v, 1882, 59 (Arkansas R., e. Colorado).—OGLBY, *Sci. Rec. Roy. Dublin Soc.*, iii, 1882, 60 (Navarro Co., Texas, rare; Dallas Co., Texas).—BREWSTER, *Bull. Nutt. Orn. Club*, viii, 1883, 25 (Camp Lowell, Arizona; s. California; New Mexico; Colorado); *Bull. Mus. Comp. Zool.*, xli, 1902, 101 (Cape San Lucas, rare).—HOLTERHOFF, *Bull. Nutt. Orn. Club*, viii, 1883, 182 (San Diego, California; ventri-loqual powers).—DREW, *Auk*, ii, 1885, 17 (vertical range in Colorado).—BECKHAM, *Auk*, ii, 1885, 143 (near Pueblo, Colorado); *Proc. U. S. Nat. Mus.*, x, 1888, 662 (San Antonio, Texas; habits).—EVERMANN, *Auk*, iii, 1886, 93 (Ventura Co., California).—GOSS, *Auk*, iii, 1886, 114 (w. Kansas, occasional).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 385; 2d ed., 1895, no. 385; 3d ed., 1910, 181.—SCOTT [and ALLEN], *Auk*, iii, 1886, 424 (Pinal and Santa Catalina Mountains, Arizona; descr. young).—HANCOCK, *Bull. Ridgw. Orn. Club*, no. 2, 1887, 16 (Corpus Christi, Texas; habits).—TOWNSEND (C. H.), *Proc. U. S. Nat. Mus.*, x, 1887, 204 (Pitt R., n. California).—RHOADS, *Proc. Ac. Nat. Sci. Phila.*, 1892, 106 (Corpus Christi, Texas, common).—ATWATER, *Auk*, ix,

- 1892, 234 (San Antonio, Texas, common resident).—ANTHONY, Auk, ix, 1892, 362 (Hachita, etc., s. w. New Mexico; habits); xii, 1895, 138 (San Fernando, Lower California); xiv, 1897, 217 (a destroyer of caterpillars).—ALLEN, Bull. Am. Mus. N. H., v., 1893, 34 (Bisbee, Sonora).—KELLOGG, Auk, x, 1893, 365 (Comanche Co., Kansas, 1 spec., Aug., 1892).—LOWE, Auk, xi, 1894, 268 (Wet Mountains, Colorado, 8,000 feet, 1 spec.).—SINGLEY, Rep. Geol. Surv. Texas, 1894, 349 (Lee Co., Texas, resident).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 534 (Guaymas, Sonora; Mazatlan, Sinaloa; Guanajuato; Zapotlan, Jalisco; Nuevo Leon; Sierra Madre above Victoria, Xicotencal, Velasco, Tenango del Valle, and Tamesi, near Tampico, Tamaulipas; San Salvador, Puebla; Jalapa, Vera Cruz; Valley of Mexico).—COOKE, Bull. 37, Col. Agric. Coll., 1897, 81 (El Paso Co. and s. Colorado, resident); Bull. 56, 1900, 207 (Arkansas R., above Cañon City; Littleton, Colorado, 1 spec.); Auk, xxvi, 1909, 412 (Colorado localities).—VAN DENBURG, Proc. Am. Philos. Soc., xxxviii, 1899, 162 (Santa Clara Co., California, breeding).—SNOW, Auk, xxi, 1904, 86, in text (west of Ashland, Clark Co., Kansas, 2 specs., summer of 1894; Kiowa Co., Kansas, 1897, 1903).—MILLER (W. DE W.), Bull. Am. Mus. N. H., xxii, 1906, 164 (Rio Sestin, Rancho Baillon, Arroyo del Buey, Rio Campo, and Guanacovi, n. w. Durango; breeding at Rancho Baillon).—GRINNELL (J.), Condor, ix, 1907, 51, 52, with map (California range).—CARY, Auk, xxvi, 1909, 181 (n. w. Baca Co. and Rhinehart Station, Colorado).—FELGER, Auk, xxvii, 1910, 89 (near Denver, Colorado, 1 spec. Dec. 13, 1902).—LACEY, Auk, xxviii, 1911, 209 (Kerrville, Texas, resident; notes, etc.).
- Geococcyx californianus* CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 96 (n. Mexico).—COUES, Key N. Am. Birds, 2d ed., 1884, 474.—RIDGWAY, Man. N. Am. Birds, 1887, 272.
- Geococcyx californianus* COUES, Key N. Am. Birds, 1872, 189.
- Geococcyx californicus* SHUFELDT, Ibis, 1885, 286, pl. 7 (fresh colors of iris and bare orbital space).
- Geococcyx variegata* WAGLER, Isis, 1831, 524 (based on "*Cuculus viaticus* Lichtenst[ein], in Mus. Berol.")
- (?) *Geococcyx variegata* GRAY, Gen. Birds, ii, 1847, 453.
- Cuculus viaticus* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1; Journ. für Orn., 1863, 55 (reprint).—PUCHERAN, Rev. Zool., 1845, 51.
- Diplopterus viaticus* BOIE, Isis, 1831, 541.
- Geococcyx viaticus* HARTLAUB, Rev. Zool., 1844, 215.—MCCALL, Proc. Ac. Nat. Sci. Phila., iii, 1847, 234 (habits); 1851, 220 (w. Texas; middle Mexico).—BAIRD, Rep. Stansbury's Expl. Gt. Salt Lake, 1852, 333 (Texas; New Mexico).—MCCOWN, Ann. Lyc. N. Y., vi, 1853, 11 (Rio Grande, Texas; habits).—HEERMANN, Journ. Ac. Nat. Sci. Phila., ser. 2, iii, 1853, 270 (s. California).—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10 (Colorado R.).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 91 (California, n. to Ft. Reading).
- Geococcyx viaticus* BONAPARTE, Consp. Av., i, 1850, 97; Ateneo Italiano, ii, 1854, 120 (Consp. Volucr. Zygod., 1854, 5).
- Saurothera bottæ* LESSON, Traité d'Orn., 1831, 145 (no locality given); new name for *S. californiana* Lesson; coll. Mus. Rivoli.—BOTTA, Nouv. Ann. d'Mus., 1835, 121, pl. 9.
- Saurothera marginata* KAUP, Isis, xxv, 1832, 991, pl. 26 (Mexico).
- Geococcyx marginatus* GRAY, Hand-list, ii, 1870, 209, no. 8901.
- Cuculus velox* [A. WAGNER], München Gelehrte Anzeig., iii, 1836, 96.
- Geococcyx velox* GRAY, Gen. Birds, ii, 1847, 453.—BONAPARTE, Consp. Av., i, 1850, 97 (California).

- L[eptostoma] longicauda* SWAINSON, *Classif. Birds*, ii, 1837, 325.—GAMBEL, *Proc. Ac. Nat. Sci. Phila.*, ii, 1843, 263 (California).
- Phasianus mexicanus* (not of Gmelin?) WALDEN, *Ibis*, 1869, 338 (crit.).
- Geococcyx mexicanus* (not *Phasianus mexicanus* Gmelin) STRICKLAND, *Ann. and Mag. N. H.*, viii, 1842, 544 (crit.).—CASSIN, *Illustr. Birds Calif., Tex., etc.*, 1855, 213, pl. 36; *Proc. Ac. Nat. Sci. Phila.*, 1863, 320 (California).—HEERMANN, *Rep. Pacific R. R. Surv.*, x, pt. iv, no. 2, 1859, 59 (California; habits).—SCLATER, *Proc. Zool. Soc. Lond.*, 1857, 205 (Jalapa, Vera Cruz); 1864, 177 (City of Mexico); *Cat. Am. Birds*, 1862, 324 (n. Mexico).—SHELLEY, *Cat. Birds Brit. Mus.*, xix, 1891, 419 (Nuevo Leon; Sierra Madre, Xicotencal, Soto la Maria, and near Tampico, Tamaulipas; San Salvador and Huezotzingo, Puebla; Zapotlan, Jalisco).
- G[eococcyx] mexicanus* GRAY, *Gen. Birds*, ii, 1847, 453.—GAMBEL, *Journ. Ac. Nat. Sci. Phila.*, ser. 2, i, 1849, 215 (crit.; habits; food).
- [Geococcyx] mexicanus* BONAPARTE, *Consp. Av.*, i, 1850, 97.—GRAY, *Hand-list*, ii, 1870, 209, no. 8900.—SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 107.—SHARPE, *Hand-list*, ii, 1900, 174.

### GEOCOCCYX AFFINIS Hartlaub.

#### LESSER ROADRUNNER.

Smaller than *G. californianus*, with under parts buff, median portion (broadly) of foreneck and chest unstreaked, and under tail-coverts dusky.

*Adults (sexes alike)*.—Pileum black, slightly glossed with bronze-green, spotted with pale brownish buffy, the spots more numerous and more transverse on forehead and anterior part of crown; hind-neck brownish black, the feathers broadly edged with pale brownish buffy; back and scapulars brown (mummy or prouts brown to nearly seal brown), the feathers darker basally and sharply edged with pale buff or buffy white, producing conspicuous streaks; wing-coverts with a broad median streak of black passing into brown terminally and very broadly edged with white or buffy white, the greater coverts black very broadly tipped with white; proximal secondaries (tertiaries) brown narrowly bordered with black, broadly and sharply edged with white or white and brownish buffy; other secondaries dull blackish glossed with bronze-greenish, edged (except toward base and, on the distal ones, subterminally) with white or buffy white, the outer web with a terminal spot of the same; alulae dull black medially, broadly margined with white; primary coverts dull black basally, terminal half (approximately) white; primaries dull black, obliquely crossed near middle portion by a broad band of white composed of edgings to outer web only (these longer and narrower on inner quills), the outer webs broadly tipped with white; rump brown, the feathers indistinctly tipped with paler, especially on lower part; upper tail-coverts brown glossed with purplish bronze and sharply edged with white; middle pair of rectrices brown glossed with purplish bronze or bronze-purple (more rarely with greenish bronze) and edged with white; next pair dusky olive glossed with greenish bronze and with a small white terminal spot, the outer web narrowly edged with white; remaining rectrices dull black, faintly glossed with greenish and tipped with white, the white tip increasing in width to the outermost,

on which it is about 30–45 mm. in extent; lores buffy whitish, the feathers with projecting black bristle-like tips; auricular region narrowly and rather indistinctly streaked with dusky and pale buffy or dull buffy whitish; under parts buff, deeper on flanks, paler on abdomen, chin, and throat; anterior portion of malar region spotted or barred with dusky; sides of neck and sides of chest broadly streaked with black, the black streaks sometimes margined with tawny-brownish; under tail-coverts dusky, sometimes tipped with tawny or rusty brownish; under surface of inner webs of lateral rectrices light gray, this separated from the white terminal area by a band (more or less broad) of black; maxilla dull horn color, mandible mostly dull yellowish or grayish (said to be bluish gray in life); iris brown, sometimes, at least, with a narrow ring of yellow or orange around pupil, or<sup>a</sup> mostly pearly yellow; bare orbital space blue and white or blue, white, and red;<sup>b</sup> legs and feet livid bluish.<sup>c</sup>

*Young*.—Similar to adults, but markings much less sharply defined, especially those on upper parts, where dull buffy mostly replaces the white streaks and edgings of the adults.

*Adult male*.—Length (skins), 385–515 (471); wing, 136.5–162 (144.2); tail, 231–305 (278.5); exposed culmen, 37–45 (40.5); tarsus, 46–54 (50); outer anterior toe, 27–32 (30.6).<sup>d</sup>

*Adult female*.—Length (skins), 420–505 (469); wing, 138.5–146 (142.1); tail, 242–294 (273.9); exposed culmen, 37.5–41 (39.6); tarsus, 47–50 (48.9); outer anterior toe, 27.5–31 (28).<sup>e</sup>

<sup>a</sup> According to W. DeW. Miller.

<sup>b</sup> According to Sumichrast (Bull. U. S. Nat. Mus., no. 4, 1876, 34) the orbital skin is "blue and red"; according to Dearborn (Pub. 125, Field Mus. Nat. Hist., 1907, 87), the eyelids are white, the bare ocular area varying from lavender near lids to campanula blue on the postocular portion.

<sup>c</sup> Sumichrast.

<sup>d</sup> Thirty-two specimens.

<sup>e</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Ten adult males from western Mexico (Jalisco, Sinaloa, and Tepic).....	144.3	282.1	40.3	51.1	33.9
One adult male from Michoacan.....	154	303	42	52.5	29.5
Four adult males from Oaxaca.....	144	279.2	42	51.1	29.5
Two adult males from Vera Cruz.....	145.2	255.5	41	48.5	30
Seven adult males from Yucatan.....	138.9	256.7	40.5	47.6	27.9
One adult male from Chiapas.....	143	304	40	49	28
Four adult males from Guatemala.....	146.6	289.5	39.2	49.9	29.4
Three adult males from Nicaraagua.....	148	281	40.2	51	29.7
FEMALES.					
Seven adult females from western Mexico.....	143.3	279.9	40.2	48.9	28.9
One adult female from Yucatan.....	142	265	39	47	28
One adult female from Chiapas.....	140.5	273	38	50	31
One adult female from Guatemala.....	146	242	37.5	49.5	29

Southern Mexico, in States of Sonora (Sierra de los Álamos), Sinaloa (Mazatlán; Escuinapa; La Balla; Amatlán de Cañas), Jalisco (San Sebastián; Los Masos; La Laja; Las Canoas; Tuxpán; Wake-nakili Mountains; Zapotilti; La Cienega; Hacienda San Marcos; Volcán de Colima; Río Santa María), Durango (Presidio), Michoacán (Volcán de Jorulla; Morélia; Uruapán), Colima, Guerrero (Xautipa), Oaxaca (Pluma; Cerro San Felipe; Tehuántepec; Juchitán; Duras-nál; Juquila; Sierra de Santo Domingo; Cacoprieto), Vera Cruz (Córdova; Miradór; Jalapa; Los Cerillos; Huatusco), Puebla (Zentla; Soledad; Huehuetlán), Yucatan (Mérida; Xbac; Tekanto; Río Lagartos; Peto; Temax; Progreso; Izalám; Chichen-Itza) and Chiapas (Tonalá; Tuxtla Gutierrez), and Territory of Tepic (Santiago), and southward through Guatemala (Villa Nueva; San Gerónimo; Vera Paz; Dueñas; hills above Quiché; gorge of La Campaña, Río Chixoy; Tolimán; Amatitlán) through Honduras to northern Nicaragua (Ocotál; San Rafael del Norte, Matagalpa).

(?) [*Phasianus*] *mexicanus* GMELIN, Syst. Nat., i, pt. ii, 1789, 741 (based on *Hoitalotl* Hernandez, Nova Anim. Nova-Hisp., app. 25; see Baird, Rep. Pacific R. R. Surv., ix, 1858, 74; Cabanis and Heine, Mus. Hein., iv, Heft i, 1863, 97, footnote).—LATHAM, Index Orn., ii, 1790, 632.

*G[cococcyx] mexicanus* CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 97 (Jalapa, Vera Cruz; excl. syn. part).

*Geococcyx mexicanus* SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 41.—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 205 (Merida, Yucatan); Mem. Bost. Soc. N. H., ii, 1874, 293 (Mazatlan, Sinaloa; habits); Bull. U. S. Nat. Mus., no. 4, 1876, 34 (Juchitan, Oaxaca).

*Geococcyx affinis* HARTLAUB, Rev. Zool., vii, June, 1844, 215 (Guatemala; coll. Bremen Mus.?).—GRAY, Gen. Birds, ii, 1847, pl. 114.—GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1849, 217 (crit.).—SCLATER, Proc. Zool. Soc. Lond., 1858, 305 (Durasnal, Oaxaca); 1859, 368 (Jalapa, Vera Cruz), 387 (Juquila, Oaxaca); Cat. Am. Birds, 1862, 324 (Jalapa).—SCLATER and SALVIN, Ibis, 1859, 134 (Guatemala; habits).—OWEN, Ibis, 1861, 67 (San Gerónimo, Guatemala descr. nest and eggs).—FORBES, Proc. Zool. Soc. Lond., 1877, 307, 311 (anatomical).—BOUCARD, Liste Ois. récol. Guat., 1878, 24; Proc. Zool. Soc. Lond., 1883, 454 (Yucatan; habits).—NEHRKORN, Journ. für Orn., 1881, 69 (Yucatan, descr. eggs).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 162 (Huehuetlan, Puebla).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 205 (Tekanto-Yucatan; habits).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 421 (Sierra de Alamos, Sonora; Presidio, Durango; Hacienda de San Marcos, Zapotlan and Volcan de Colima, Jalisco; Xautipa, Guerrero; Los Cerrillos, Jalapa Zentla, and Huatusco, Vera Cruz; Peto, Temax, Progreso, and Izalám, Yucatan; Sierra Santo Domingo, Oaxaca; Vera Paz, Dueñas, and San Gerónimo, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 536 (Potrero, etc., Vera Cruz; Zentla, Soledad, etc., Puebla; Morelia, Michoacan; Juquila, Cacoprieto, Tehuantepec, etc., Oaxaca; Río Lagartos, Tekanto, etc., Yucatan; hills above Quiché, gorge of La Campaña, Río Chixoy, Toliman, etc., Guatemala; San Rafael del Norte, Matagalpa, Nicaragua; etc.).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 220 (Amatitlan Guatemala).—MILLER (W. DeW.), Bull. Am. Mus. N. H., xxi, 1905, 350 (Escuinapa and La Balla, s. Sinaloa).—COLE, Bull. Mus. Comp. Zool., i, 1906,



- 129 (Chichen-Itza, Yucatan).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 87 (bet. El Rancho and Guatemala City and near Lake Atitlan, Guatemala).  
*[Geococcyx] affinis* GRAY, Gen. Birds, ii, 1847, 453.—BONAPARTE, Consp. Av., i, 1850, 97.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 471.—RIDGWAY, Man. N. Am. Birds, 1887, 273.  
*[Geococcyx] affinis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—SHARPE, Hand-list, ii, 1900, 174.

### Genus NEOMORPHUS Gloger.

*Neomorphus* GLOGER, in Friep's Notizen, xvi, 1827, 278. (Type, *Coua geoffroyi* Temminck.)

*Cultrides* PUCHERAN, Rev. Zool., 1845, 51. (Type, *Coua geoffroyi* Temminck.)

Very large (length about 470–500 mm.), long-tailed, long-legged, crested terrestrial Cuculinæ with bill much deeper than wide, the culmen elevated and narrow, compressed into a narrow ridge basally; nostrils slit-like, overhung by a very broad operculum; longest primaries not longer than longest secondaries, the first (innermost) but little shorter than the longest (second, third, and fourth); color above mostly plain brown or olive, the scapulars, wings, and tail glossed with bronze-green and purple, lateral rectrices without white tips, the under parts light brownish, with a broken band of black across chest.

Bill about as long as or slightly shorter than head, very deep and moderately compressed basally, its depth at anterior end of nostrils equal to about one and a half times its width at same point; culmen (from base) about two-thirds as long as tarsus, strongly decurved from base, narrow, compressed into a narrow ridge basally; gonys shorter than mandibular rami, nearly straight (faintly decurved terminally), rounded, but with a median sulcus for about basal half; maxillary tomium distinctly but moderately concave for anterior half or more, slightly deflected and faintly convex posteriorly. Nostril slit-like, longitudinal, overhung by a very broad, convex, operculum. Wing short, excessively rounded, the longest primaries no longer (sometimes shorter) than longest secondaries; first to fifth or second to fourth primaries longest, the sixth to tenth (outermost) successively shorter, the tenth (outermost) slightly more than half as long as the longest. Tail about one and a half times as long as wing, graduated for about one-third its length or slightly less, the rectrices very broad. Tarsus nearly twice as long as middle toe without claw, more than two-fifths as long as wing, very stout.

*Plumage and coloration.*—Suborbital and postorbital regions naked; eyelashes rather strongly developed; no bristly points to feathers about base of bill; a conspicuous occipital erectile crest, of rather broad, round-tipped, somewhat stiffened feathers, the longest about equal to the bill in length; feathers of foreneck and chest somewhat elongated but broad and with subtruncate tip, forming an erectile

lappet. Upper parts plain brown or olive, the wings and tail glossed with bronze-green and purple; lateral rectrices without white tip; under parts of body light brown passing into chestnut posteriorly, sometimes barred with darker; an interrupted band of black across chest.

*Range*.—Nicaragua to eastern Peru, Brazil, and British Guiana. (Five species.)

NEOMORPHUS SALVINI Sclater.

SALVIN'S GROUND CUCKOO.

*Adults (sexes alike)*.—Forehead and crown plain tawny-brown, paler (light roods brown or verona brown) anteriorly, deeper (mars brown) posteriorly; feathers of occipital crest glossy blue-black terminally, more greenish or bronzy basally, where edged with brown; hindneck, upper back, and wing-coverts bronzy olive-brown or sepia (sometimes tinged with purplish bronze), the lower back and scapulars mixed bronzy olive and bronzy purplish, the latter predominating posteriorly; rump and upper tail-coverts nearly uniform deep purplish brown, strongly glossed (especially on upper tail-coverts) with bronzy purple; tail dusky olive-green, in part overlaid by dusky purple, this sometimes covering whole of the middle rectrices; secondaries bright, metallic dusky olive-green, the primaries much darker, as well as more bluish, dusky green or greenish black; auricular region brown with blackish shaft-streaks, its upper edge, more or less extensively, blackish; suborbital and malar regions lighter brown (much like color of forehead, or paler), the chin and throat pale buffy brown to pale buffy grayish, the feathers sometimes with indistinct mesial streaks of darker; foreneck and chest mixed grayish and tawny-brownish, the feathers broadly tipped with paler, forming transverse spots or bars, the last feathers of the chest with large terminal, mostly broadly deltoid, spots of black, forming a conspicuous, more or less broken, band; breast and abdomen light tawny-brown, or buffy brown, to pale brownish gray suffused with pale brown, the sides similar, but darker and duller; flanks rufescent brown (nearly walnut or cameo brown), the under tail-coverts darker and duller (burnt umber); under surface of remiges wholly uniform dusky (nearest dark quaker drab); under surface of tail blackish, faintly glossed with olive-greenish; bill (in dried skins) pale yellowish distally, darker, or dusky, basally; legs and feet light greenish gray or horn color.

*Adult male*.—Length (skins), 480–505 (490); wing, 167–178 (172.8); tail, 258–271 (261.8); exposed culmen, 43–47 (45.4); tarsus, 71–72.5 (71.5); outer anterior toe, 33–37.5 (36).<sup>a</sup>

<sup>a</sup> Five specimens.

*Adult female*.—Length (skins), 470–503 (486); wing, 164–178 (170.3); tail, 252–280 (265); exposed culmen, 43.5–47 (45.8); tarsus, 68.5–73 (71.2); outer anterior toe, 34–37 (36).<sup>a</sup>

Nicaragua (Chontales; Savala, Matagalpa; Peña Blanca; Rio Tuma) Costa Rica (Volcán de Miravalles; Cerro Santa Maria; La Vijagua; Cariblanco de Sarapiquí; Bonilla; Rio Sicsola, Talamanea), and Panamá (Santiago and Cordillera de Tolé, Verágua; Cascajál, Coclé; Gatún, Canal Zone); Colombia; Ecuador.<sup>b</sup>

*Neomorphus salvini* SCLATER, Proc. Zool. Soc. Lond., 1866, 60, pl. 5 (Veragua, Panama; coll. O. Salvin).—SALVIN, Proc. Zool. Soc. Lond., 1867, 156 (Santiago de Veragua and Cordillera de Tole, Panama); Ibis, 1872, 313, 323 (Chontales, Nicaragua).—LAWRENCE, Ibis, 1873, 291 (monogr.; crit.).—ZELEDÓN, Anal. Mus. Nat., Costa Rica, i, 1887, 123 (Costa Rica).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 417 (Nicaragua; Veragua; Colombia; Rio Cotopaza, Ecuador).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 533, part (Chontales, Nicaragua; Santiago de Veragua; Panama; Colombia; Ecuador).—UNDERWOOD, Ibis, 1896, 445 (Volcan de Miravalles, n. w. Costa Rica; habits).—RIDGWAY, Condor, vii, 1905, 156, in text (Bonilla, Costa Rica).—BANGS, Proc. Biol. Soc. Wash., xxii, 1909, 30 (La Vijagua and Cerro Santa Maria, n. Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 566 (Bonilla, Cariblanco de Sarapiquí, and Rio Sicsola, Costa Rica; habits). [*Neomorphus*] *salvini* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—SHARPE, Hand-list, ii, 1900, 174.

#### Genus DROMOCOCCYX Maximilian.

*Dromococcyx* MAXIMILIAN, Beitr. Naturg. Bras., iv, 1832, 351. (Type, *Macropus phasianellus* Spix.)

*Geo-tacco* VERREAUX, Rev. et Mag. d'Zool., i, 1849, 277. (Type, *G. macrourus* Verreaux = *Macropus phasianellus* Spix.)

*Macropus*<sup>c</sup> (not of Latreille, 1802) SPix, Av. Bras., i, 1824, 53. (Type, *M. phasianellus* Spix.)

*Geophilus*<sup>d</sup> BERTONI, Aves Nuevas del Paraguay, 1901, 43. (Type, *G. jasijatere* Bertoni = *Macropus phasianellus* Spix.)

<sup>a</sup> Three specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from Nicaragua.....	172.8	256.7	46.5	71.8	35.5
One adult male from Costa Rica.....	172	268	45.5	71	36.5
One adult male from eastern Panama (Gatun).....	173.5	271	43	71	37
FEMALES.					
One adult female from Nicaragua.....	164	252	43.5	73	37
Two adult females from Costa Rica.....	173.5	271.5	47	70.2	35.5

<sup>b</sup> I have not seen specimens from Colombia nor Ecuador.

<sup>c</sup> Μακρός, long; πόδος, foot. (Richmond.)

<sup>d</sup> Γῆ, ground, earth; φίλος, loving. (Bertoni.)

Medium-sized Cuculinæ (length about 345–395 mm.) with relatively very small, conspicuously crested, head; slender, nearly straight, bill; long, strongly graduated tail with very broad rectrices, and with feathers of rump and upper tail-coverts greatly elongated, the longest of the latter reaching to tip of tail.

Bill relatively small, slender and weak, very little decurved terminally, its depth at anterior end of nostrils decidedly less than at base of gonys, not greater than its width at same point, and equal to less than one-third the distance from nostril to tip of maxilla; exposed culmen shorter than middle toe without claw, straight or even slightly depressed basally, gently decurved terminally, rather narrowly rounded; gonys about as long as mandibular rami, straight, slightly ascending terminally, prominent basally from narrowing of the rami; maxillary tomium gently concave anterior to nostril, faintly convex beneath nostrils, without trace of subterminal notch. Nostril linear, longitudinal, along lower side of nasal fossa, overhung by a distinct operculum. Wing rather long and pointed, the longest primaries exceeding secondaries by combined length of tarsus and basal phalanx of middle toe, or by more than one-fourth the length of wing; fifth and sixth primaries longest, the fourth and seventh decidedly shorter and about equal, the eighth slightly longer than third, the ninth about equal to first, the tenth (outermost) less than half as long as the longest—the three outer primaries strongly bowed or incurved. Tail about one-fourth longer than wing, graduated for nearly half its length, the rectrices extremely broad (width of lateral ones equal to distance from point of bill to anterior angle of eye). Tarsus more than one and a half times as long as middle toe without claw, nearly one-fourth as long as wing, slender.

*Plumage and coloration.*—Orbital region naked immediately in front of and behind eye, feathered above and below; eyelashes inconspicuous; no trace of bristles about base of bill; a conspicuous, pointed, erectile occipital crest; plumage of under parts full, soft, blended; feathers of back, etc., distinctly outlined, those of rump, together with upper tail-coverts very long, rather narrow, with edges semi-decomposed, the longer coverts reaching to tip of tail. Color dusky above, with pale margins to feathers, these broader and more whitish on wing-coverts; rump, upper tail-coverts, and tail more grayish; rectrices (except middle pair) tipped with white, dusky subterminally; underparts of body plain white; a broad white post-ocular streak and beneath this a dusky brown auricular streak.

*Range.*—Southeastern Mexico to Cayenne, southern Brazil, Bolivia, and Paraguay. (Two species.)

This is perhaps the most distinct of any of the American genera of the Cuculinæ, and it is difficult to determine its nearest relative. In the slender and nearly straight bill, small head, thin neck and large

broad tail there is a superficial resemblance to the Sun Bitterns (*Eurypyga*) and the Sun Grebes (*Heliornis*).

## KEY TO THE SPECIES OF DROMOCOCCYX.

- a. Rectrices tipped with white and crossed by a subterminal area of blackish; scapulars, interscapulars, and wing-coverts margined with paler; pileum more or less rufescent brown, especially posteriorly (on crest). (*Adults*.)
- b. Chest (usually more or less of throat also) spotted or streaked with dusky on a buff or buffy whitish ground; wing-coverts, etc., narrowly margined with pale brownish or brownish buffy; blackish subterminal area of rectrices much broader; larger (wing 159-189, tail 193-234). (Southeastern Mexico to Bolivia and southwestern Brazil.) . . . . . *Dromococcyx phasianellus*, adults (p. 87).
- bb. Chest and throat immaculate light tawny or ochraceous; wing-coverts, etc., broadly margined with light gray and whitish; blackish subterminal areas of rectrices much narrower; smaller (wing 137-139.7, tail 139.7-172.7). (Guianas to Argentina and eastern Peru.)
- Dromococcyx pavoninus*, adults (extralimital).<sup>a</sup>
- aa. Rectrices without white tips or blackish subterminal area; scapulars, interscapulars, and wing-coverts without paler margins; pileum wholly dark sooty brown. (*Young*.)
- b. Throat and chest immaculate light tawny or ochraceous; a conspicuous postocular stripe of ochraceous or deep buff; wing-coverts with small terminal spots of brownish buffy. . . . . *Dromococcyx phasianellus*, young (p. 88).
- bb. Throat and chest immaculate pale grayish; an inconspicuous postocular stripe of pale grayish; wing-coverts with broad mesial streaks of brownish buffy.
- Dromococcyx pavoninus*, young (extralimital).

## DROMOCOCCYX PHASIANELLUS (Spix).

## PHEASANT CUCKOO.

*Adults (sexes alike)*.—Pileum deep sooty brown more or less tinged with rusty brown, especially on longer feathers of crest, which is sometimes uniform rufescent brown (burnt umber or vandyke), the feathers of forehead and crown with more or less distinct mesial streaks of blackish brown; general color of upper parts dark sooty brown, faintly glossed with purplish bronze, the scapulars, interscapulars, and smaller lesser wing-coverts margined with pale grayish buffy, these markings broader and often dull whitish on the larger lesser wing-coverts; middle and greater coverts tipped with dull white or dull brownish buffy white; secondaries narrowly and indistinctly margined distally with paler brownish, the tip more distinctly margined with dull whitish or pale brownish or buffy; middle portion of longer primaries margined (at sinuations) with dull whitish or pale

<sup>a</sup> *Dromococcyx pavoninus* Pelzeln, Orn. Bras., iii Abth., 1870, 270 (Aráguay, Engenho do Gama, and Arimani, Brazil; coll. Vienna Mus.; ex *Coccyzus pavoninus* Natterer, manuscript); Shelley, Cat. Birds Brit. Mus., xix, 1891, 427.—*Dromococcyx pavonicus* Dabbene, Orn. Argent., 1910, 425 (Parana and Misiones, Argentina).—*Dromococcyx gracilis* Ridgway, Proc. U. S. Nat. Mus., viii, sig. 35, Oct. 26 1885, 559 (Demerara, Brit. Guiana; coll. U. S. Nat. Mus.).

dull buffy, all the primaries (except one or two outermost) with a small terminal, more or less triangular, spot of the same; rump and upper tail-coverts dark grayish olive, inclining to fuscous-black on upper rump, faintly glossed with bronze, broadly (but not sharply) edged with light hoary gray, the upper tail-coverts (especially the longer ones) with a small terminal spot of white; tail dusky grayish brown distally passing into lighter brown (nearly seal brown or light seal brown) basally, faintly glossed with bronze (purplish bronze on proximal portion), and broadly margined terminally with white, the under surface of rectrices light gray with a broad subterminal area of blackish or dusky; a rather indistinct loreal streak and a conspicuous postocular (supra-auricular) stripe of white; auricular region blackish brown, the lower portion streaked with whitish; suborbital region, malar region, and under parts white, the first two, together with more or less of throat, narrowly and rather sparsely streaked with blackish, the foreneck more broadly streaked, the chest spotted, with blackish, both foreneck and chest more or less tinged with buffy; axillars and under wing-coverts immaculate white; under surface of remiges grayish brown or brownish slate-gray, the outermost with proximal half of inner web abruptly white, the next with proximal half mostly white, the third, fourth, and fifth (from outside) with a broad white bar across middle portion, the sixth with a transverse spot of pale grayish, the innermost primaries, together with secondaries, with inner webs very pale gray in middle portion, this passing into darker gray on distal portion and dusky gray or brownish slate-gray on sub-basal portion—all the remiges being white at base; maxilla blackish or dusky horn color, paler on tomia; mandible pale plumbeous in life;<sup>a</sup> iris white,<sup>a</sup> yellow,<sup>b</sup> whitish brown,<sup>c</sup> or brown;<sup>d</sup> bare orbital space yellowish green;<sup>a</sup> legs and feet (in life) pale plumbeous,<sup>a</sup> grayish brown,<sup>b</sup> or brownish slate.<sup>c</sup>

*Immature.*—Similar to adults but lacking the white terminal spots to upper tail-coverts and (in younger specimens) pileum wholly dark sooty brown, or with very little rufescent tinge.

*Young.*—Essentially like adults but differing in absence of white tips and blackish subterminal areas to rectrices, absence of pale margins to scapulars, interscapulars, and wing-coverts (the last having small terminal spots or dots of brownish buffy or pale tawny instead), absence of white terminal spots to upper tail-coverts, and in having the pileum (including crest) wholly dark sooty brown and the post-ocular stripe, together with suborbital and malar regions, chin, throat, and chest deep cinnamon-buff (paler on chin and throat).

<sup>a</sup> José C. Zeledón.

<sup>b</sup> Hellmayr.

<sup>c</sup> Chubb.

<sup>d</sup> C. Sartorius.

*Adult male*.—Length (skins), 348–388 (368); wing, 159.5–189 (170.5); tail, 193–238 (219.4); exposed culmen, 20.5–25.5 (23.8); tarsus, 30.5–37 (34.1); outer anterior toe, 21–24.5 (22.8).<sup>a</sup>

*Adult female*.—Length (skins), 360–395 (377); wing, 163–182 (173.5); tail, 220.5–232 (224.8); exposed culmen, 23–26 (24.5); tarsus, 34–37 (35.5); outer anterior toe, 22–24.5 (23.2).<sup>b</sup>

Southeastern Mexico, in States of Vera Cruz (Miradór; Jalapa; Córdoba; Potrero), Oaxaca (Santa Efigénia; Cacoprieto), and Yucatan (Buctzotz; Izamál) and southward through Guatemala (Choc-túm; Cobán; Cajabón; Mirandilla), Salvadór (Volcán de San Miguél), Honduras (Chasnúguas), Nicaragua (Jalapa; Volcán de Chinandega), and Costa Rica (Santa Maria de Dota; Boruca; Buenos Aires; Pozo Azul de Purrís; Bebedero; Bolsón; La Estrella de Car-tago) to Panamá (Boquete; Lion Hill; Paraiso); western (cis-Andean) South America south to Bolivia (lower Rio Beni), southern Brazil (Chapada, Mattogrosso; Arroio Grande, Rio Grande do Sul; São Paulo; etc.), and Paraguay (upper Rio Paraná; Sapucáy).

*Macropus phasianellus* SPFX, Av. Bras., i, 1824, 53, pl. 42 (forests of Rio Tonantins, Amazon Valley, Brazil).

*Coccyzus phasianellus* STEPHENS, in Shaw's Gen. Zool., xiv, 1826, 206.

[*Coccyzus*] *phasianellus* HARTLAUB, Verz. Mus. Bremen, 1844, 95.

*Dromococcyx phasianellus* MAXIMILIAN, Beitr., iv, 1832, 353.—CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 95 (Brazil).

*Dromococcyx phasianellus* BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 260.—SCLATER, Cat. Am. Birds, 1862, 321 (Brazil).—CABANIS, Journ. für Orn., 1862, 172 (Costa Rica; crit.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 128 (Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—PELZELN, Orn. Bras., iii Abth., 1870, 270; iv Abth., 1871, 449.—BOUCARD, Liste Ois. récol. Guat., 1878, 25; Proc. Zool. Soc. Lond., 1883, 455 (Yucatan).—BER-

<sup>a</sup> Twelve specimens.

<sup>b</sup> Six specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Vera Cruz (Mirador).....	165.5	.....	24	34	24
One adult male from Honduras.....	176	220	25	37	24.5
One adult male from Nicaragua.....	169	203	24	35.5	23.5
Three adult males from Costa Rica.....	176	215	25.7	34.8	22.8
Four adult males from Panama.....	170	222.1	24.2	34	22.1
Two adult males from southwestern Brazil (Chapada, Mattogrosso).....	161.7	238	20.5	31.2	21.5
FEMALES.					
One adult female from Guatemala.....	163	220.5	23.5	34.5	22
One adult female from Honduras.....	175	224	23	37	23
One adult female from Nicaragua.....	174	219	24	34	24.5
Three adult females from Costa Rica.....	176.3	228.3	25.5	35.8	23.3

While smaller in most of their measurements than specimens from Central America and Mexico, the Chapada example appears to be not different in coloration.

- LEPSCH and IHERING, Zeitschr. Orn., 1885, 161 (Arroio Grande, Rio Grande do Sul, s. Brazil).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 123 (Santa Maria de Dota, Costa Rica).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 103 (lower Rio Beni, Bolivia); v, 1893, 140, part (Chapada, Mattogrosso, s. w. Brazil; deser. of supposed young is of young *D. pavoninus*).—KOENIGSWALD, Journ. für Orn., 1896, 378 (São Paulo, s. Brazil).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 542 (Cordova, Jalapa, and Potrero, Vera Cruz; Santa Efigenia and Cacoprieto, Oaxaca; Buetzotz and Izamal, Yucatan; Coban, Cajabon, Choctum, and Mirandilla, Guatemala; Volcan de San Miguel, Salvador; Santa Maria de Dota, Costa Rica; Lion Hill, and Paraiso, Panama; Colombia to s. Brazil).—IHERING, Rev. Mus. Paulista, iii, 1899, 303 (São Paulo); iv, 1900, 161 (Cantagallo, s. Brazil); vi, 1904, 335 (Paraguay).—BANGS, Proc. New Engl., Zool. Club, iii, 1902, 24 (Boquete, Panama, 7,000 feet).—HELLMAYR, Abh. K. B. Akad. Wiss., ii Kl., xxii, iii Abth., 1906, 600 (crit.); Novit. Zool., xiv, 1907, 398 (Borba, Rio Maderia, Brazil).—REISER, Denkw. Mat.-Nat. Kaiserl. Ak. Wiss. Wien, 1910, 59 (Paranagua, etc., n. e. Brazil).—DABBENE, Orn. Argent, 1910, 273 (Sapucay, Paraguay).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 568 (Bolson, Bebedero, Cerro de Santa Maria, Pozo Azul de Pirris, and Buenos Aires de Terraba, Costa Rica; habits).
- [*Dromococyx phasianellus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—SHARPE, Hand-list, ii, 1900, 175.
- [*Diplopterus phasianellus* BONAPARTE, Consp. Av., i, 1850, 110 (Brazil).
- Geococcyx phasianellus* SCHLEGEL, Mus. Pays-Bas, i, no. 25, livr. 5 (Cuculi), 1864, 41.
- Cuculus macrourus* VERREAUX and DES MURS, Rev. et Mag. de Zool., i, 1849, 277 (Brazil; Bogota, Colombia).
- Dromococcyx mexicanus* BONAPARTE, Compt. Rend., xlii, May, 1856, 957 (Cordova, Vera Cruz, Mex.; coll. A. Sallé).—SCLATER, Proc. Zool. Soc. Lond., 1856, 308 (Cordova, Vera Cruz; crit.); 1859, 368 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 321 (Vera Paz, Guatemala).—SCLATER and SALVIN, Ibis, 1859, 133 (Cajabon, Guatemala).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 300 (Lion Hill, Panama).
- Dromococcyx phasianellus mexicanus* RIDGWAY, Proc. U. S. Nat. Mus., iv, Nov. 25, 1881, 193.
- Dromococcyx rufigularis* LAWRENCE, Proc. Ac. Nat. Sci. Phila., 1867, 233 (Guatemala; coll. G. N. Lawrence;=young).
- Geophilus jasijatere* BERTONI, Aves Nuev. Paraguay, 1901, 43 (Alto Parana, Paraguay).—LYNCH-ARRIBÁLZAGA, Ap. Crit. Av. Parag. Bertoni, 1902, 342 (crit.).

### Genus CROTOPHAGA Linnæus.

*Crotophaga* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 105. (Type, *C. ani* Linnæus.)

Cuculidæ (Crotophaginæ) with only 8 rectrices, excessively deep and compressed bill with elevated, strongly convex or arched and sharply ridged culmen, wholly naked lores, and wholly blackish (partly metallic) plumage.

Bill about as long as head, nearly to decidedly more than twice as deep as wide at anterior end of nostril, its greatest depth equal to much more than length of gonys (usually exceeding distance from nostril to tip of maxilla); culmen elevated, excessively compressed and sharply ridged basally, arched or strongly decurved, in one species (*C. major*) abruptly elevated for basal half; gonys about as long as mandibular rami, nearly straight, ascending terminally,



narrowly rounded to distinctly ridged; maxillary tomium more or less strongly concave anteriorly, nearly straight for basal two-thirds (more or less). Nostril narrowly oval or broadly elliptical, wholly exposed. Wing rather long, the longest primaries exceeding distal secondaries by nearly to decidedly more than length of tarsus; sixth and seventh primaries longest, the ninth about equal to third or fourth, the tenth (outermost) slightly more than half as long as the longest primary. Tail about one-fifth longer than wing, graduated for about one-fourth its length, the rectrices relatively broad, widening terminally with tip broadly rounded. Tarsus decidedly to much longer than middle toe with claw, about one-fourth as long as wing.

*Plumage and coloration.*—Loral region wholly naked, the orbital region partly so; eyelashes strongly developed; feathers of head and neck more or less narrow, distinctly outlined, rather stiff; plumage in general hard and compact, with feathers of back, etc., very broad and sharply outlined, those of rump and under parts of body softer, more blended. Coloration entirely blackish, the wings and tail (at least) glossed with violet or blue, the scapulars, interscapulars, and wing-coverts margined with metallic greenish or bronzy, the feathers of head and neck broadly edged with dull bronzy. Sexes alike, and young not materially different.

*Range.*—The whole of tropical America, except Galapagos Islands and part of Lesser Antilles. (Three species.)

This remarkable genus is so distinct in appearance and habits from other Cuculidæ that, judging from the living birds only, no one would suspect its relationship. The Anis are gregarious and live in open districts, feed much about cattle, often alighting on these animals for the purpose of getting the ticks which infest them and which constitute a favorite and important part of their diet. Even in their nesting they are social birds, several females laying their eggs in the same nest.

KEY TO THE SPECIES OF CROTOPHAGA.

- a. Larger (wing 182-316, tail 235-277); elevated ridge of culmen restricted to basal two-thirds, or less, highest anteriorly; general color glossy blue-black, with lunulate subapical markings of scapulars, etc., bright greenish bronze or bronze-green, the tail strongly violaceous. (Eastern Panama to Peru, Argentina, Paraguay, southern Brazil, the Guianas, and Trinidad.).. *Crotophaga major* (p. 92).
- aa. Smaller (wing 128-161, tail 160-201); elevated ridge of culmen extending for whole length of maxilla, highest posteriorly; general color dull black or brownish black, with lunulate subapical markings of scapulars, etc., dull greenish bronze, the tail not strongly violaceous.
- b. Sides of maxilla with several very distinct and regular grooves and ridges, parallel with curve of culmen. (Southern Texas, southern Arizona, etc., southward to Ecuador and Peru.)..... *Crotophaga sulcirostris* (p. 94).
- bb. Sides of maxilla smooth, or with irregular or indistinct transverse wrinkles along sides of knife-like process of culmen. (Southern Florida, southern Louisiana, etc., through West Indies, and along coast district from Yucatan to southern Brazil.)..... *Crotophaga ani* (p. 97).

## CROTOPHAGA MAJOR Gmelin.

## GREATER ANI.

*Adults (sexes alike).*—Bill much longer than deep, with the elevated ridge of culmen restricted to basal two-thirds or less, highest anteriorly; sides of maxilla with several more or less distinct longitudinal ridges and alternating grooves; general color glossy blue-black or blackish steel-blue,<sup>a</sup> passing into a more greenish hue on proximal portion of primaries and into dark violet or violet-blue on tail (especially the middle rectrices); feathers of pileum and sides of head edged with dull bronzy, those of neck (all round) and throat more broadly edged with bright greenish bronze or bronze-green, the scapulars, interscapulars, lesser wing-coverts, and feathers of upper chest broadly submargined with the same; under surface of remiges glossy greenish blue (steel blue) or bluish green, of rectrices glossy dark violet; bill, naked loreal space, legs, and feet black; iris light green with a narrow yellow ring round pupil,<sup>b</sup> pale Naples yellow,<sup>c</sup> sulphur yellow,<sup>d</sup> or yellowish white to pea green.<sup>e</sup>

*Adult male.*—Length (skins), 425–492 (459); wing, 184–216 (199.1); tail, 235–277 (262.4); culmen, 42–48 (45.5); tarsus, 41.5–48.5 (44.4); outer anterior toe, 27.5–33 (30.5).<sup>f</sup>

*Adult female.*—Length (skins), 405–453 (436); wing, 183–200.5 (193.6); tail, 245–265 (255.4); exposed culmen, 38.5–45 (43.2); tarsus 40–47 (43.3); outer anterior toe, 26–31 (28.4).<sup>g</sup>

<sup>a</sup> The color is more pronouncedly blue in fresh plumage, becoming duller (more nearly black) when the feathers are old.

<sup>b</sup> According to Maximilian.

<sup>c</sup> C. H. B. Grant.

<sup>d</sup> Berlepsch and Hartert.

<sup>e</sup> Chubb.

<sup>f</sup> Fourteen specimens.

<sup>g</sup> Nine specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from eastern Panama.....	203.5	265	48	47.2	33
Three adult males from Colombia.....	185.8	248	44.7	43.7	30
Three adult males from Venezuela.....	196.7	262.7	46.2	43.5	30.2
Three adult males from British Guiana.....	201.8	261.7	42.5	44.5	29.3
One adult male from southwestern Brazil (Mattogrosso).....	206.5	272	47	46	31
Two adult males from Bolivia.....	210.2	276.5	46.7	43.2	31
FEMALES.					
Two adult females from northern Colombia (Rio Atrato).....	186.2	251	40.2	41.2	28
Four adult females from Venezuela.....	195.2	254.2	43.9	44.4	30
One adult female from eastern Brazil (Ceará).....	194.5	260	43	44.5	26
One adult female from southwestern Brazil (Mattogrosso).....	197.5	255	44.5	40	27
One adult female from Bolivia.....	196.5	265	45	45	26.5

Eastern Panamá (Laguna del Pita; Rio Indio) and southward over whole of South America east of Andes to eastern Peru (Rio Ucayali; Sarayacu; Santa Cruz; Samaria; Yquitos), Argentina (Santa Ana and La Candelaria, Misiones; Pilcomayo; Barracas al Sud, Buenos Aires) and Paraguay (Lambaré; Sapucáy; Villa Pilar).

[*Crotophaga*] *major* Gmelin, Syst. Nat., i, pt. 1, 1788, 363 (Cayenne; based on *Le Grand Bout-de-Petun* Brisson, Orn., iv, 180; Daubenton, Pl. Enl., pl. 102, fig. 1).—LATHAM, Index Orn., i, 1790, 148.—GRAY, Hand-list, ii, 1870, 210, no. 8912.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—SHARPE, Hand-list, ii, 1900, 175.

*Crotophaga major* TEMMINCK, Cat. Syst., 1807, 39.—VIEILLOT, Nouv. Dict. d'Hist. Nat., i, 1816, 551; Enc. Méth., iii, 1823, 1356.—LESSON, Man. d'Orn., ii, 1828, 133; Traité d'Orn., 1831, 129.—DESCOURTILZ, Orn. Brés., 1854-56, pl. 15, upper fig.—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 253.—SCLATER, Proc. Zool. Soc. Lond., 1857, 268 (Rio Javari, Brazil); Cat. Am. Birds, 1862, 320 (Trinidad; Para, Brazil).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 72, footnote.—TAYLOR, Ibis, 1864, 93 (Trinidad).—SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 47.—LÉOTAUD, Ois. Trinidad, 1866, 358.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 195 (Rio Ucayali, e. Peru); 1867, 585 (Rio Capim, Brazil); 1873, 296 (lower Rio Ucayali and Santa Cruz, e. Peru); 1879, 536 (Neche, Colombia).—PELZELN, Orn. Bras., Abth. iii, 1870, 268, 449.—FINSCH, Proc. Zool. Soc. Lond., 1870, 587 (Trinidad; crit.).—WYATT, Ibis, 1871, 378 (Lago Paturia, Colombia).—ALLEN, Bull. Essex Inst., viii, 1876, 80 (Rhomes, lower Amazon); Bull. Am. Mus. N. H., v, 1893, 141 (Chapada, Mattogrosso, s. w. Brazil).—SALVIN, Cat. Strickland Coll., 1882, 443 (S. Am.; Trinidad).—TACZANOWSKI, Orn. du Pérou, iii, 1886, 180.—BERLEPSCH, Journ. für Orn., 1887, 23 (Lambare, Paraguay; crit.), 121 (Paraguay); 1889, 309 (Sarayacu and Ucayali, e. Peru); Novit. Zool., xv, 1908, 283 (Cayenne).—RIKER and CHAPMAN, Auk, viii, 1891, 159 (Santarem, Brazil).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 428 (Nichi and Medellin, Antioquia, Colombia; Sarayacu, e. Ecuador; Aunai, Brit. Guiana; Trinidad; Rio Capim, Bahia, and Mattogrosso, Brazil; upper Ucayali, Samiria, Santa Cruz, and Yquitos, e. Peru).—CHAPMAN, Bull. U. S. Nat. Mus., vi, 1894, 64 (Trinidad).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1896, 543 (Rio Atrato, Colombia; Colombia to Peru, Guiana, Brazil, and Argentina).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, 8 (Laguna del Pita, Panama); xv, 1900, 22 (Valle del Zamora, e. Ecuador).—IHERING, Rev. Mus. Paulista, iv, 1900, 80 (descr. eggs), 263 (measurements of eggs).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 93 (Altigracia, Caicara, and Suapure, Venezuela).—BEEBE, Zoologica, i, 1909, 88 (Rio Guarapiche and Caño Guanaco, n. e. Venezuela; habits; notes).—HARTERT and VENTURI, Novit. Zool., xvi, 1909, 231 (La Candelaria, Misiones, Argentina; descr. eggs).—REISER, Denkw. Mat.-Nat. Kaiserl. Ak. Wiss. Wien, 1910, 59 (Rio San Francisco, etc., n. e. Brazil).—CHUBB, Ibis, 1910, 273 (Sapucay, Paraguay).—DABBENE, Orn. Argent., 1910, 273 (Misiones; Pilcomayo; Santa Ana, Misiones; Barracas al Sud, Buenos Aires).—GRANT (C. H. B.), Ibis, 1911, 323 (near Villa Pilar, Paraguay).

*Crotophaga major* TSCHUDI, Wiegmann's Archiv für Naturg., x, pt. i, 1844, 299 (Peru).—GRAY, Gen. Birds, ii, 1847, 458.—CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 712.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 487.

*Crotophaga mayor* TSCHUDI, Fauna Peruana, Aves, 1844-46, 40, 256.

*C[rotophaga] maior* CABANIS and HEINE, Mus. Hein., iv, Heft 1, 1863, 99 (Guiana; Brazil).

[*Crotophaga maior* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 204 (Guiana; Brazil).

*Crotophaga ani* (not of Linnæus) VIELLOT, Gal. Ois., i, 1825, 35, pl. 43.

CROTOPHAGA SULCIROSTRIS Swainson.

GROOVE-BILLED ANI.

*Adults (sexes alike).*—Maxilla with several distinct curved grooves and ridges, parallel with curve of culmen; general color dull black, faintly glossed with violet or violet-blue on wing-coverts, remiges, and middle rectrices, still more faintly glossed with greenish on primaries and under parts; feathers of head and neck rather broadly edged with dull purplish bronze, the scapulars, interscapulars, and smaller wing-coverts with a broad lunulate or U-shaped submarginal mark of dull greenish bronze or bronze-green, the terminal margin of each feather and a narrow anterior border to the bronzy submarginal mark black; feathers of chest with similar but narrower and less distinct markings; under surface of remiges and rectrices glossy greenish or bluish black; bill black or brownish black, often partly grayish brown or horn color, especially on upper half (more or less) of maxilla; naked skin of loreal and orbital regions dull black; iris dark brown; legs and feet black.

*Young.*—Uniform brownish black, the secondaries and tail faintly glossed with violet, the primaries with greenish or greenish blue.

*Adult male.*—Length (skins), 280–342 (303); wing, 128–157 (142.5); tail, 160–197 (180.2); culmen, 25–30 (28.1); tarsus, 31–36 (34.1); outer anterior toe, 22–25.5 (24.2).<sup>a</sup>

*Adult female.*—Length (skins), 280–320 (301); wing, 128–142 (133.9); tail, 160–182 (167.7); culmen, 25–29 (26.1); tarsus, 31–35.5 (33.6); outer anterior toe, 21–25.5 (23.3).<sup>b</sup>

<sup>a</sup> Twenty-five specimens.

<sup>b</sup> Fifteen specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Lower California.....	155.5	197	27	35	24.5
Five adult males from western Mexico (Sinaloa, Tepic, and Colima).....	144.7	187.5	28.1	34.3	24.6
One adult male from Oaxaca.....	143	178	26.5	34.5	22
Four adult males from Tamaulipas (1), Vera Cruz (1), and Tabasco (2).....	157	179	27	33	25
One adult male from Yucatan.....	138.6	173.7	29	34.2	23.6
One adult male from British Honduras.....	154	184	30	35	25
Two adult males from Honduras.....	144	187	28.5	34	23
Five adult males from Nicaragua.....	132.5	166.5	27.7	32.5	24.7
Four adult males from Costa Rica.....	140	175.8	28.7	34	24.3

The whole of Mexico and Central America, including Holbox, Mugeris, and Cozumél islands, Yucatan, and southward to western Peru (Lima; Tambo Valley; Callao; Payta; Guajango; Cutervo), and Venezuela (Altagracia, Pullus, and Caicarà, Orinoco Valley), British Guiana, Trinidad, and Curaçao, Dutch West Indies; north regularly (breeding) to Rio Grande Valley in Texas (Brownsville; Lomita Ranch) and southern Lower California (San José del Cabo; La Paz; Santiago; San Pedro, near Todos Santos), casually to Corpus Christi, Tom Green County, and Concho County, Texas, Louisiana (New Orleans, 1 specimen, about 1890), Florida (Jupiter Inlet, 1 specimen, January, 1891), Kansas (near Emporia, 1 specimen, November, 1904), and southern Arizona (Batterman Ranch, Huachuca Mountains, 1 specimen, May, 1888).

*Crotophaga sulcirostris* SWAINSON, Philos. Mag., n. s., i, 1827, 440 (Mexico).—SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz); 1859, 59 (Omoa, Honduras), 368 (Jalapa, Vera Cruz), 388 (Oaxaca); 1860, 285 (Babahoyo, w. Ecuador; crit.), 297 (Esmeraldas, w. Ecuador); 1869, 148 (Lima, Peru); Cat. Am. Birds, 1862, 320 (Mexico; Babahoyo).—SCLATER and SALVIN, Ibis, 1859, 135 (Dueñas, Guatemala; Omoa, Honduras; habits); Proc. Zool. Soc. Lond., 1867, 280 (Bluefields, Nicaragua); 1868, 175 (Tambo Valley, w. Peru), 569 (w. Peru).—MOORE, Proc. Zool. Soc. Lond., 1859, 59 (Omoa, Honduras).—TAYLOR, Ibis, 1860, 118 (Honduras; habits).—CABANIS, Journ. für Orn., 1862, 171 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., viii, 1863, 489 (Lion Hill, Panama); ix, 1868, 128 (San José, Costa Rica); ix, 1869, 205 (Merida, Yucatan), 238 (Puna I., w. Ecuador); Mem. Bost. Soc. N. H., ii, 1874, 292 (Mazatlan, Sinaloa; Tepic; Plains of Colima; habits; descr. nest and eggs); Bull. U. S. Nat. Mus., no. 4, 1876, 33 (Juchitan, Oaxaca).—SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 47.—FRANTZIUS, Journ. für Orn., 1869, 361 (Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 211 (Calovevora and Castillo, Veragua, Panama); 1883, 426 (Callao and Payta, w. Peru); Ibis, 1886, 63 (Brit. Guiana); 1889, 372 (Holbox, Mugeris, and Cozumel islands, Yucatan; range).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 548 (Lima, Peru); 1877, 753 (w. Peru; descr. eggs); 1879, 240 (Guajango, Peru); 1880, 210 (Cutervo, Peru); Orn. du Pérou, iii, 1886, 181.—BOUCARD,

Footnote—Continued.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
FEMALES.					
Two adult females from western Mexico.....	138	170	26.7	33.7	23.7
One adult female from Yucatan.....	128	180	26	32	21
One adult female from British Honduras.....	136	168	28.5	35.5	23
One adult female from Guatemala.....	144	182	26.5	33	23
Two adult females from Honduras.....	129.5	171.2	27	33.2	22.5
Six adult females from Nicaragua.....	133.2	167.7	27.2	33.7	23.6
One adult female from Costa Rica.....	136.5	164	25	33	25
One adult female from western Panama (Veragua).....	131	166	27	31	23

- Liste Ois. récol. Guat., 1878, 25; Proc. Zool. Soc. Lond., 1878, 47 (San Jose Valley, Costa Rica; habits); 1883, 454 (Yucatan; habits).—COUES, The Country, July 13, 1878, 184 (Lomita Ranch, Texas); Check List N. Am. Birds, 2d ed., 1882, no. 426.—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 411 (Lomita Ranch, Texas; synonymy; description; habits).—SALVIN and GODMAN, Ibis, 1880, 175 (Sierra Nevada de Santa Marta, Colombia; habits); Biol. Centr.-Am., Aves, ii, 1896, 545.—RIDGWAY, Proc. U. S. Nat. Mus. iii, 1880, 190; x, 1888, 582 (Truxillo, Honduras), 591 (Rio Segovia, Honduras); Nom. N. Am. Birds, 1881, no. 390.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 401 (La Palma de Nicoya, Costa Rica; habits), 498 (Volcan de Irazu, Costa Rica); vi, 1883, 376, 387, 395 (San Juan del Sur, Sucuya, and Ometepe, Nicaragua).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 546 (San Jose del Cabo and La Paz, Lower California; descr. nest and eggs; habits).—TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 118 (Bahahoy, Esmeraldas, and Puna I., w. Ecuador).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 384; 2d ed., 1895, no. 384; 3d ed., 1910, 180.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 162 (Izucar de Matamoras, Puebla; Plan del Rio, Vera Cruz).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 122 (Alajuela; San Jose; Cartago).—LLOYD, Auk, iv, 1887, 190 (Tom Green Co., w. Texas, 1 spec., Oct., 1885).—COOKE, Bird Migr. Miss. Val., 1888, 134 (Concho and Tom Green counties, w. Texas).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 205 (Yucatan).—PACKARD, Auk, viii, 1891, 313 (Jupiter Inlet, Florida, Jan., 1891).—POLING, Auk, viii, 1891, 313 (Batterman Ranch, Huachuca Mts., Arizona, May, 1888).—SHELLEY, Cat. Birds Brit. Mus., xix, 1891, 432.—CHERRIE, Auk, ix, 1892, 325 (San Jose, Costa Rica; habits; descr. nest and eggs); Expl. Zool. Merid. Costa Rica, 1893, 48 (Boruca).—HARTERT, Bull. Brit. Orn. Club, no. iii, 1892, p. xii (Curaçao, Dutch West Indies); Ibis, 1893, 320 (Curaçao; food); Novit. Zool., ix, 1902, 303 (Curaçao).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1892, 106 (near Corpus Christi, Texas; 2 specs.).—BENDIRE, Life Hist. N. Am. Birds, ii, 1895, 9, pl. 1, fig. 7 (egg).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 285 (Chichen-Itza, Yucatan); x, 1898, 35 (Jalapa, Vera Cruz).—UNDERWOOD, Ibis, 1896, 444 (Volcan de Miravalles, Costa Rica).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 133 (Santa Marta, Colombia).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1898, 386; crit.; descr. eggs).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 22 (Savana de Guayaquil, Vincés, Balzar, and Foreste del Rio Peripa, w. Ecuador).—BEYER, Proc. La. Soc. Nat. for 1897-'99 (1900), 102 (New Orleans, Louisiana; 1 spec.).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 134 (Santa Marta and Bonda, Colombia).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 98 (Altagracia, Pullus, and Caicara, Orinoco Valley, Venezuela).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 100 (Cape San Lucas district; habits, etc.; descr. nest and eggs).—SNOW, Auk, xxiii, 1906, 106 (near Emporia, Kansas, 1 spec., about Nov. 1, 1904).—COLE, Bull. Mus. Comp. Zool., I, 1906, 130 (Chichen-Itza, Yucatan).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 86 (Gualan, etc., Guatemala; habits).—BEYER, ALISON, and KOPMAN, Auk, xxv, 1908, 444 (New Orleans; 1 spec., about 1890).—CONY, Pub. 137, Field Mus. N. H., 1909, 206 (Curaçao).—FERRY, Pub. 146, Field Mus. N. H., 1910, 261 (Guayabo, Coliblanco, and Turrialba, Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 569 (Costa Rica; habits; descr. nest and eggs).—PHILLIPS, Auk, xxviii, 1911, 75 (Alta Mira, Guiaves, and Matamoras, Tamaulipas).
- C[rotophaga] sulcirostris* BONAPARTE, Consp. Av., i, 1850, 99.—CABANIS and HEINE, Mus. Hein., iv, Heft i, 1863, 101 (Mexico).—BAIRD, BREWER, and

- RIDGWAY, Hist. N. Am. Birds, ii, 1874, 487.—COUES, Key N. Am. Birds, 2d ed., 1884, 472.—RIDGWAY, Man. N. Am. Birds, 1887, 272.
- [*Crotophaga sulcirostris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—SHARPE, Hand-list, ii, 1900, 175.
- Crotophaga sulcirostra* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 115 (Guatemala).—SWAINSON, Anim. in Menag., 1838, 322, fig. 65c.—CASSIN, Proc. Ac. Nat. Sci. Phila., iv, 1848, 91 (Puente Nacional, Mex.).
- [*Crotophaga sulcirostra* GRAY, Gen. Birds, ii, 1847, 458.
- [*Crotophaga sulcirostra* GRAY, Hand-list, ii, 1870, 210, no. 8913.
- Crotophaga cassasi* LESSON, Voy. 'Coquille,' i, 1830, 619 (Lima, Peru); Cent. Zool., 1830, pl. 11; Traité d'Orn., 1831, 130.—TSCHUDI, Fauna Peruana, Aves, 1844-'46, 41, 256.
- [*Crotophaga casasi* TSCHUDI, Wiegmann's Archiv für Naturg., x, pt. i, 1844, 299 (Peru).
- Crotophaga casasi* LESSON, Man. d'Orn., ii, 1828, 134.
- Crotophaga semisulcata* SWAINSON, Anim. in Menag., 1838, 346 ("South America").
- [*Crotophaga semisulcata* GRAY, Gen. Birds, ii, 1847, 458.—BONAPARTE, Consp. Av., i, 1850, 99.
- (?) *Crotophaga* —————? BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 333 (New Orleans).

## CROTOPHAGA ANI Linnæus.

## ANI.

*Adults (sexes alike).*—Maxilla smooth, or with a few irregular or indistinct transverse wrinkles along sides of the knife-like, proximally arched, process of culmen; general color brownish black, faintly glossed with violet (the violet gloss more distinct on secondaries); feathers of head and neck broadly edged with dull brownish bronze, the scapulars and interscapulars broadly submargined with more greenish or olivaceous bronze, the lesser and middle wing-coverts and feathers of chest more narrowly margined with the same; under surface of remiges and rectrices glossy blue-black or violaceous black; bill and naked loreal and orbital space dull black, the former becoming paler or horn color on culminal ridge and tip of maxilla; iris brown; legs and feet black.

*Young.*—Uniform sooty black or very dark sooty brown, the remiges and rectrices dull black slightly glossed with violet.

*Adult male.*—Length (skins), 296–368 (360); wing, 142.5–161 (150.5); tail, 161–199 (186.1); culmen, 28–35 (31.2); tarsus, 34–40.5 (37.1); outer anterior toe, 25–30 (26.1).<sup>a</sup>

<sup>a</sup> Thirty-four specimens.

*Adult female*.—Length (skins), 300–346 (328); wing, 141–155.5 (147.6); tail, 165.5–201 (185); culmen, 28.5–32 (30.5); tarsus, 33.5–39 (36.5); outer anterior toe, 24–28 (26.1).<sup>a</sup>

West Indies in general; South America, mostly east of Andes but occurring in western Ecuador (Babahoyo; San Pedro; Vinces; Santo Domingo), south to Paraguá (Villa Concepción; Lambaré; Sapucá; Desaguadero), Argentina (Rio Pilcomayo; San Lorenzo; Orán, Salta; Mocoví; Posadas; Tucumán; La Rioja), and Bolivia (Mapiri; Tatarenda); in Mexico and Central America only recorded from Cozumél and Holbox islands near Yucatan, Honduras (Ruatán Island; Comayagua), and Panamá (Divala and Mina de Chorcha, Verágua; Lion Hill, Obispo, Gatún, Rio Indio, Punta Sabana and Sabana de Panamá, Canal Zone; San Miguél and Saboga Islands, Bay of Panamá); occurring irregularly (mostly casually?) in southern Florida

<sup>a</sup> Thirty specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from southern Florida.....	156	191.2	31.3	37.5	28.2
Three adult males from Rum Cay, Bahamas.....	153.3	186.7	30.5	36	28.8
Four adult males from Cuba.....	158.7	196.2	32.1	38.9	29
One adult male from Grand Cayman.....	150	180	30.5	37.5	28
One adult male from Cozumel Island.....	160	185.5	31	38	28.5
One adult male from Haiti.....			28	34.5	24
Two adult males from Jamaica.....	149	185.2	30.2	34.5	27
Ten adult males from Porto Rico.....	154	189.2	32.7	37.4	27.7
One adult male from Anegada.....	146	180	32	38	30
One adult male from Grenada.....	147.5	179.5	32.5	37	27
Two adult males from eastern Panama.....	152.5	185.5	33.7	37.7	28.5
One adult male from central Colombia (Bogota).....	161	198.5	30	38	25.5
Two adult males from lower Amazon.....	146.2	161	29.7	36.5	25.7
One adult male from southern Brazil.....	145	185.5	28	36	25.5
One adult male from Paraguay.....	150.5	176	32	38	26.5
One adult male from Peru (Chanchamayo).....	148.5	174	28.5	35.5	23
FEMALES.					
One adult female from southern Florida.....	144.5		30.5	36.5	26
One adult female from New Providence I., Bahamas.....	151.5	196	30.5	34	25
Two adult females from Rum Cay, Bahamas.....	145.2	176.7	29.2	34.5	25.7
Five adult females from Cuba.....	149.9	187.7	29.7	37.4	26.9
One adult female from Grand Cayman.....	153.5	184.5	30.5	36.5	28
One adult female from Haiti.....	149	175	32	36	26
One adult female from Jamaica.....	150	194	30	36	26.5
Ten adult females from Porto Rico.....	146.4	183.2	30.7	35	25.9
One adult female from St. John.....	142.5	187	30	36.5	26
One adult female from St. Vincent.....	152	180	30	36	27
One adult female from Grenada.....	140	165.5	31	39	26.5
Three adult females from eastern Panama.....	148.5	180.2	31.5	36.2	26.5
One adult female from northern Brazil.....	154	179	32	34.5	25
One adult female from Paraguay.....	142	180.5	30	36	24



(Lake Worth; Brevard County; Key West; Tortugas) and southern Louisiana (Plaquemine and St. Bernard counties, "common"); accidental near Philadelphia and in North Carolina (Edenton).

West Indian records embrace the following islands:

**Bahamas.**—Great Bahama; Abaco; Little Abaco; Biminis; Berry Island; Eleuthera; New Providence; Andros; Watling Island; Rum Cay; Long Island; Fortuna; Acklin Island; Caicos Islands; Current Island; Inagua.

**Greater Antilles.**—Cuba; Isle of Pines; Grand Cayman; Cayman Brac; Jamaica; Haiti; Porto Rico; St. Johns; Tórtola; Virgin Gorda; Anegada; St. Croix.

**Lesser Antilles.**—Guadeloupe; Martinique; Petit Martinique; Santa Lucia; St. Vincent; Bequia; Canonán; Unión; Carriacou; Mustique; Ile Rondé; Grenada.

**Other Caribbean Islands.**—Swan Island; Margarita Island, Venezuela; Trinidad.

[*Crotophaga ani* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 105 (based on *Le Bout-de-Petun* Brisson, Orn., iv, 177, pl. 18, fig. 1; *Razor-billed Blackbird* Catesby, Nat. Hist. Carolina, ii, App., 3, pl. 3); ed. 12, i, 1766, 154.—GMELIN, Syst. Nat., i, pt. i, 1788, 362.—LATHAM, Index Orn., i, 1790, 148.—GRAY, Hand-list, ii, 1870, 210, no. 8911.—PELZELN, Orn. Bras., iv Abth., 1871, 449.—COUES, Key N. Am. Birds, 1872, 189.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 107.—CORY, List Birds West Ind., 1885, 18.—SHARPE, Hand-list, ii, 1900, 175.—GOELDI, Ibis, 1903, 498 (Rio Capim, n. e. Brazil).

*Crotophaga ani* VIEILLOT, Nouv. Dict. d'Hist. Nat., i, 1816, 551 (Cayenne); Enc. Méth., iii, 1823, 1356; Gal. Ois., i, 1825, 35, pl. 43.—LESSON, Man. d'Orn., ii, 1828, 133; Traité d'Orn., 1831, 130, pl. 26, fig. 1.—D'ORBIGNY, in La Sagrá's Hist. Nat. Cuba, Ois., 1839, 116.—GOULD, Zool. Voy. 'Beagle,' pt. iii, 1841, 114 (Rio de Janeiro, Brazil).—DES MURS, Mag. de Zool., 1843, pl. 36 (eggs).—GOSSE, Birds Jamaica, 1847, 282.—BURMEISTER, Journ. für Orn., 1853, 174 (Brazil; descr. nest and eggs); Syst. Ueb. Th. Bras., ii, 1856, 254.—CABANIS, Journ. für Orn., 1856, 105 (Cuba; habits); 1874, 226 (Brazil).—SALLÉ, Proc. Zool. Soc. Lond., 1857, 234 (Santo Domingo).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 72; ed. 1860 (Birds of North America), 72, pl. 84, fig. 2; Cat. N. Am. Birds, 1859, no. 66.—NEWTON (A. and E.), Ibis, 1859, 148, pl. 12, fig. 5 (St. Croix, Greater Antilles; habits).—SCLATER, Proc. Zool. Soc. Lond., 1860, 285 (Babahoyo, w. Ecuador; habits); 1861, 79 (Jamaica); 1871, 273 (Santa Lucia); 1889, 395 (Santa Lucia); Cat. Am. Birds, 1862, 320 (Jamaica; Bogota, Colombia; Babahoyo, Ecuador; Para, Brazil); Revised List Birds Jam., 1910, 11.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 377 (St. Thomas, Greater Antilles).—GUNDLACH, Journ. für Orn., 1861, 415 (Cuba; crit.); 1874, 159 (Cuba; habits), 312 (Porto Rico); 1878, 160, 185 (Porto Rico); Orn. Cubana, ed. 1895, 148.—ALBRECHT, Journ. für Orn., 1862, 203 (Jamaica).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 301 (Lion Hill, Panama); Proc. U. S. Nat. Mus., i, 1878, 193 (St. Vincent, introduced); i, 1879, 273 (Grenada; habits), 450 (Guadeloupe).—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 153 (Jamaica).—SCHLEGEL, Mus. Pays-Bas, i, no. 25 (Cuculi), 1864, 47.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 366 (Lion Hill, Panama); 1866, 195 (Nauta, e. Peru); 1867, 585 (Mexiana I., Brazil); 1869, 598 (Cosnipata, e. Peru); 1873, 296 (Nauta, Rio Ucayali, and Santa Cruz, e. Peru); 1876, 17

(Maranura and Potrero, Peru); 1879, 536 (Retiro and Medellin, Antioquia, Colombia; descr. nest).—TAYLOR, *Ibis*, 1864, 92 (Trinidad; Venezuela; St. Thomas; Porto Rico; habits), 170 (St. Thomas; Porto Rico).—BRYANT, *Journ. für Orn.*, 1866, 190 (Porto Rico); *Proc. Bost. Soc. N. H.*, x, 1866, 255 (Porto Rico; crit.); xi, 1867, 95 (Santo Domingo).—EULER, *Journ. für Orn.*, 1867, 219 (Brazil; descr. nest and eggs).—SUNDEVALL, *Öfv. k. Vet.-Ak. Förh.*, 1869, 600 (Porto Rico).—REINHARDT, *Ved. Med. Nat. Förh.*, 1870, 96 (Brazil).—SALVIN, *Proc. Zool. Soc. Lond.*, 1870, 211 (Mina de Chorca, Panama); *Ibis*, 1886, 63 (Bartica Grove, Brit. Guiana); 1889, 372 (Ruatan I., Honduras; Cozumel I., Yucatan; range).—PELZELN, *Orn. Bras.*, iii Abth., 1870, 269.—HAMILTON, *Ibis*, 1871, 307 (São Paulo, s. Brazil; habits).—WYATT, *Ibis*, 1871, 379 (Ocaña, Colombia).—SEMPER, *Proc. Zool. Soc. Lond.*, 1872, 651 (Santa Lucia; habits).—LAYARD, *Ibis*, 1872, 337; 1873, 392 (Para, Brazil).—COVES, *Check List*, 1873, no. 288; 2d ed., 1882, no. 425.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 488, pl. 48, fig. 2.—ALLEN, *Bull. Essex Inst.*, viii, 1876, 80 (Rhomes, lower Amazon); *Bull. Nutt. Orn. Club*, v, 1880, 169 (Santa Lucia); *Bull. Am. Mus. N. H.*, ii, 1889, 103 (Mapiri, Bolivia; habits); v, 1893, 140 (Chapada, Matogrosso, s. w. Brazil).—RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, 1880, 190; vii, 1884, 172 (St. Thomas); viii, 1885, 577 (Cozumel I.); x, 1888, 574 (Grand Cayman); *Nom. N. Am. Birds*, 1881, no. 389; *Auk*, viii, 1891, 335 (New Providence, Bahamas), 338 (Rum Cay).—CORY, *Birds Bahama Is.*, 1880, 118 (New Providence; Inagua); *Birds Haiti and San Dom.*, 1885, 100; *Auk*, iii, 1886, 361 (West Indian references and localities), 502 (Grand Cayman I.); iv, 1887, 96 (Martinique); vi, 1889, 32 (Cayman Brac); vii, 1890, 374 (Anegada), 375 (Tortola; Virgin Gorda); viii, 1891, 48 (St. Croix), 291 (Cuba; New Providence), 295 (Berry Islands), 296 (Biminis), 297 (Caicos Islands), 298 (Abaco); x, 1893, 220 (Tobago); *Ibis*, 1886, 473 (St. Vincent); *Birds West Ind.*, 1889, 156; *Cat. West Ind. Birds*, 1892, 102; *Pub. 137, Field Mus. N. H.*, 1909, 244 (Margarita Is., Venezuela).—FORBES, *Ibis*, 1881, 350 (n. e. Brazil; habits).—WHITE, *Proc. Zool. Soc. Lond.*, 1882, 619 (Salta, Argentina).—BERLEPSCH, *Ibis*, 1884, 435 (Angostura, Venezuela); *Journ. für Orn.*, 1884, 316 (Bucaramanga, Colombia); 1887, 23 (Lambare, Paraguay), 121 (Paraguay); 1889, 4 (Fonteboa, Tonantins, n. w. Brazil), 100 (Fonteboa); *Novit. Zool.*, xv, 1908, 283 (Cayenne).—TACZANOWSKI and BERLEPSCH, *Proc. Zool. Soc. Lond.*, 1885, 108 (Yaguachi, Ecuador; crit.).—BERLEPSCH and IHERING, *Zeitschr. Orn.*, ii, 1885, 161 (Taquara, etc., Rio Grande do Sul, s. Brazil).—TACZANOWSKI, *Orn. du Pérou*, iii, 1886, 180.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886 (and ed. 2, 1895), no. 383; 3rd ed., 1910, 180.—WELLS, *Proc. U. S. Nat. Mus.*, ix, 1887, 621 (Grenada; habits; descr. nest and eggs); *Auk*, xix, 1902, 345 (Carriacou; habits; descr. nest and eggs).—SCLATER and HUDSON, *Argentine Orn.*, ii, 1889, 31.—SHELLEY, *Cat. Birds Brit. Mus.*, xix, 1891, 429.—KERR, *Ibis*, 1892, 139 (Rio Pilcomayo, Argentina; habits); 1901, 229 (Villa Concepcion, Paraguay).—CHUBB, *Ibis*, 1890, 274 (Sapucay, Paraguay; descr. nest).—NORTHROP, *Auk*, viii, 1891, 74 (Andros I., Bahamas).—RIKER and CHAPMAN, *Auk*, viii, 1891, 159 (Santarem, Brazil).—SCOTT, *Auk*, ix, 1892, 273 (Jamaica, below 1,000 ft.), 369 (Jamaica; habits; descr. nest and eggs).—CHAPMAN, *Bull. Am. Mus. N. H.*, iv, 1892, 299 (near Trinidad, s. Cuba; habits); *Bull. Am. Mus. N. H.*, vi, 1894, 64 (Trinidad).—BOUCARD and BERLEPSCH, *The Humming Bird*, ii, 1892, 42 (Porto Real, Brazil).—LEVERKÜHN, *Journ. für Orn.*, 1894, 76 (habits).—STONE, *Birds E. Penn. and New Jersey*, 1894, 93 (accidental near Philadelphia).—FIELD, *Auk*, xi, 1894, 124 (Port Henderson, Jamaica; descr. nest and eggs).—BENDIRE, *Life Hist. N. Am. Birds*, (ii), 1895, 6, pl. 1, fig. 6 (egg).—CHERRIE, *Contr. Orn. San Dom.*,

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- (?) [*Crotophaga*] *ambulatoria* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 155 (Surinam).
- Crotophaga ambulatoria* VIEILLOT, Nouv. Dict. d'Hist. Nat., i, 1816, 549.
- Crotophaga rugirostra* SWAINSON, Anim. in Menag., 1838, 321, fig. 65*b* (s. Brazil).—JARDINE and SELBY, Illustr. Orn., n. s., 1843, pl. 41.—CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 713.
- C[rotophaga] rugirostra* GRAY, Gen. Birds, ii, 1847, 458.—CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 713.
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- Crotophaga rugirostris* BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 255.—SCLATER, Proc. Zool. Soc. Lond., 1858, 359 (Comayagua, Honduras).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 71; ed. 1860 (Birds N. Am.), 71, pl. 84, fig. 1; Cat. N. Am. Birds, 1859, no. 67.—LAWRENCE, Ann. Lyc. N. Y., vii, 1860, 270 (Cuba; crit.).—ALBRECHT, Journ. für Orn., 1861, 213 (Cuba).—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 296.
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- Crotophaga lævirostra* SWAINSON, Anim. in Menag., 1838, 321, fig. 65*a* (Brazil;= young).
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## Order PSITTACIFORMES.

## PARROT-LIKE BIRDS.

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- = *Psittaciformes* FUERBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1567 (Inter-Suborder).—SHARPE, Rev. Recent At. Classif. Birds, 1891, 83 (Order); Hand-list, ii, 1900, 1.
- = *Prehensores* BLAINVILLE, Bull. Soc. Phil., 1816, 110; Journ. de Phys., lxxxiii, 1816, 252.
- > *Cuculiformes* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 300 (includes Cuculi+Musophagi); Classif. Vertebr., 1893, xv, 36.—KNOWLTON, Birds of the World, 1909, 50, 441.

Zygodaetylous birds with the bill hooked and furnished with a cere, the rostrum freely movable by means of hinge-like articulation with the skull; dorsal vertebræ opisthocœlous; feet prehensile, perfectly adapted for grasping and climbing; expansor secundariorum muscle absent; rectrices usually 12 (14 in genus *Oreopsittacus*); secondaries aquinto-cubital; downs very complex, covering both pteryla and apteria; young ptilopædic or semi-ptilopædic.

Additional characters are as follows:

Bill relatively short and deep, strongly hooked, "raptorial" in general aspect; maxilla strongly uncinatè, freely articulated with (not suturally joined to) the frontal bones, furnished, on upper-basal portion, with a well-defined "cere" or area of soft integument in which the nostrils are situated (though this is sometimes densely covered with short feathers), the distal palatal surface usually finely grooved, transversely or obliquely, producing a file-like corrugation; symphysis of mandible broad and obtuse (often truncate), the tip of mandible transversely truncate and chisel-shaped. Tongue short, usually thick and fleshy, sometimes with tip brush-like or fringed. Feet permanently zygodaetylous through reversion of the fourth toe (which articulates by a double facet), used, together with the bill,

for climbing, as well as for holding food when eating; tarsus never transversely scutellate, but covered with small granular scales or papillæ, always shorter than longest toe. Palate desmognathous; nares holorrhinal, the nasal septum extensively ossified; orbital ring frequently complete by union of the lachrymal bones with the post-frontal or post-orbital process; basipterygoid processes absent; dorsal vertebræ opisthocœlous; metasternum usually fenestrated or indented; furculum weak, sometimes defective or wanting; spina interna sterni absent. Syrinx with three pairs of intrinsic muscles, peculiarly constructed; deep plantar tendons of type I (galline); myological formula  $AXY+ \text{ or } -$ , the ambiens present and normal or present and incomplete; intestinal convolutions of type IV (telogyrous); expensor secundariorum muscle absent; carotid arteries, both present, running deep into the vertebrararterial canal, or the right one deep and the left superficial, or (in genus *Cacatoes*) only the left present; crop present, well-developed; no cæca; gall-bladder usually absent. Contour feathers with an aftershaft; spinal pteryla well-defined on the neck by lateral apteria, forked on upper back; oil-gland (when present) tufted; rectrices usually 12 (14 in genus *Oreopsittacus* only). Young nidicolous, ptilopædic or semi-ptilopædic (said to be at first gymnopædic in some forms). Eggs immaculate white, usually deposited in boles of trees, etc.

The accomplished author of the "Catalogue of the Psittaci, or Parrots, in the collection of the British Museum,"<sup>a</sup> Count Salvadori, admits his inability to present a satisfactory classification of the Psittaci. The late Professor Alfred Newton, in his review<sup>b</sup> of attempts to define the family groups of birds truly remarks that "the systematic treatment of this very natural group has long been a difficult subject, and almost the only approach to unanimity among those who have made it their study, lies in the somewhat general belief which has grown up in the last half of this century that the Parrots should be regarded as forming a distinct Order," and he, significantly, adds that "it is a reproach to ornithologists that so little satisfactory progress has been made in this direction, and the result is all the more disheartening, seeing that there is no group of exotic birds that affords equal opportunities for anatomical examination, since almost every genus extant, and more than two-thirds of the species, have within recent times been kept in confinement in one or another of our zoological gardens, and at their death have furnished subjects for dissection."

Apparently no better scheme of classification has been presented than that of Count Salvadori in the work cited, which is given below,

<sup>a</sup> Catalogue | of the | Birds | in the | British Museum. | Volume XX. | London: | Printed by order of the Board of Trustees. | 1891. | (Pp. i-xvii, 1-658; 18 colored plates.)

<sup>b</sup> Dictionary of Birds, 1894, 688-690.

the arrangement of the "key" being slightly modified to conform to the style adopted for the present work.

## KEY TO THE FAMILIES OF PSITTACIFORMES.

- a. Hook of maxilla nearly smooth beneath, or with only superficial longitudinal ridges; tongue fringed or brushed at tip (except in *Cyclopsittacidae*?).
- b. Bill longer than deep, much compressed; mandible with gonyes nearly straight, or slanting in a gentle curve toward the tip.
- c. Tongue fringed at tip; culmen grooved medially. . . . . *Nestoridæ* (extralimital).<sup>a</sup>
- cc. Tongue brushed at tip; culmen not grooved . . . . . *Loriidæ* (extralimital).<sup>b</sup>
- bb. Bill deeper than long, much swollen laterally; gonyes strongly curved and ascending abruptly toward tip. (Character of tongue unknown.)
- Cyclopsittacidæ* (extralimital).<sup>c</sup>
- aa. Hook of maxilla transversely or obliquely ridged, in two lateral series; tongue simple.
- b. Sternum with a well-developed keel.
- c. Orbital ring complete and with a process bridging the temporal fossa; left carotid normal; head always crested. . . . . *Cacatoidæ* (extralimital).<sup>d</sup>
- cc. Orbital ring usually incomplete or if complete without a process bridging the temporal fossa; left carotid superficial; i. e., in *Palæornis* (= *Conurus*); head without a crest (except in one genus, *Nymphicus*). . . . . *Psittacidæ* (p. 106).
- bb. Sternum with only a rudimentary keel. (Orbital ring complete),
- Strigopidæ* (extralimital).<sup>e</sup>

<sup>a</sup> > *Nestorinæ* Bonaparte, Consp. Gen. Av., i, 1850, 8 (includes *Dasyptilus*!). = *Nestoridæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 4; Sharpe, Rev. Rec. At. Classif. B., 1891, 83; Hand-list, ii, 1900, 1. > *Strigopidæ* Bonaparte, Consp. Gen. Av., i, 1850, 8 (includes *Stringopidæ*).

(Comprising only the Genus *Nestor* Wagler, of four existing and two extinct species, peculiar to New Zealand.)

<sup>b</sup> = *Lorinæ* Bonaparte, Prodr. Syst. Orn., 1840, 2. = *Loriinæ* Bonaparte, Consp. Gen. Av., i, 1850, 4. = *Loriidæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 11; Sharpe, Rev. Rec. At. Classif. Birds, 1891, 83; Hand-list, ii, 1900, 1. < *Trichoglossinæ* Bonaparte, Consp. Gen. Av., i, 1850, 3. < *Trichoglossidæ* Reichenow, Vög. Zool. Gart., ii, 1884, 34.

(Comprising fourteen genera and nearly ninety species, all peculiar to the Australian Region.)

<sup>c</sup> = *Cyclopsittacidæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 86; Sharpe, Rev. Rec. At. Classif. Birds, 1891, 83; Hand-list, ii, 1900, 8.

(Consisting of two genera and about twenty-three species, peculiar to the Papaun Subregion of the Australian Region.)

<sup>d</sup> > *Plyctolophinæ* Bonaparte, Prodr. Syst. Orn., 1840, 1; > Consp. Gen. Av., i, 1850, 6 (includes *Nasiterna*, *Mascarinus*, and *Coracopsis*, belonging to *Psittacidæ*). = *Plissolephidæ* Reichenow, Vög. Zool. Gart., ii, 1884, 8. = *Cacatuidæ* Selater, Ibis., 1880, 403; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 101; Sharpe, Rev. Rec. At. Classif. Birds, 1891, 83; Hand-list, ii, 1900, 9. = *Cacatwinæ* Gadow, Bronn's Thier-Reichs, Vög., ii, 1893, 222, 300. < *Calopsittacinæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 135; Sharpe, Hand-list, ii, 1900, 11.

<sup>e</sup> > *Strigopidæ* Bonaparte, Consp. Gen. Av., i, 1850, 8 (includes *Nestoridæ*!). = *Strigopinæ* Bonaparte, Consp. Gen. Av., i, 1850, 8. = *Stringopidæ* Selater, Ibis., 1880, 403; Reichenow, Vög. Zool. Gart., ii, 1884, 5; Stejneger, Science Record, ii, 1884, 155; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 599; Sharpe, Rev. Rec. At. Classif. Birds, 1891, 93; Hand-list, ii, 1900, 1. = *Stringopinæ* Gadow, Bronn's Thier-Reichs, Vög., ii, 1893, 222, 300.

## Family PSITTACIDÆ

## TYPICAL PARROTS.

- > *Psittacidæ* BONAPARTE, *Consp. Gen. Av.*, i, 1850, 1 (includes *Loriidæ* and *Cacatoidæ*).—BEDDARD, *Struct. and Classif. Birds*, 1898, 269 (includes *Nestoridæ*).  
 = *Psittacidæ* SALVADORI, *Cat. Birds Brit. Mus.*, xx, 1891, 137.—SHARPE, *Rev. Rec. At. Classif. Birds*, 1891, 83; *Hand-list*, ii, 1900, 12.—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, ii, 1897, 563.  
 < *Plyctolophinae* BONAPARTE, *Consp. Gen. Av.*, i, 1850, 6 (genera *Nasiterna*, *Mascarinus* and *Coracopsis*).  
 = *Psittacinae* GADOW, *Bronn's Thier-Reichs*, *Vög.*, ii, 1893, 222.

Psittaci having the anterior palatal surface of the maxilla distinctly grooved, transversely or obliquely, in two parallel lateral series, producing a file-like corrugation; the tongue without fringed or brush-like processes; the orbital ring incomplete, or if complete without a process bridging the temporal fossa; sternum with the keel normally developed.

As has already been remarked by Count Salvadori,<sup>a</sup> "it is extremely difficult to define the Psittacidæ by positive characters. They are separated from the Stringopidæ by having a complete sternum, from the Nestoridæ, Loriidæ, and Cyclopsittacidæ by the file-like surface of the palatine portion of the hook of the bill, and from the Cacatuidæ by the absence of a crest (except in *Nymphicus*)."

The Psittacidæ occur throughout the tropical and most of the subtropical portions of both hemispheres, though wanting in certain remote island groups (such as the Galapagos and Hawaiian archipelagos). They are the only Psittaci found in America or in Africa; in the south-eastern portion of the Indo-Malayan or Oriental Region they come in contact with members of the Cacatoidæ, while in the Australian Region they are associated with all the other families of the suborder.

The species of Psittacidæ are very numerous, more than four hundred and twenty, referred to fifty-seven genera, being known at the time Count Salvadori's monograph was published (1891), of which number, however, only sixteen genera and one hundred and twenty-two species are American. Of the latter considerably less than half the species are represented in the geographic area of the present work, though three-fourths of the genera are represented.

Since only two of the six subfamilies of Psittacidæ recognized by Count Salvadori are represented in America, it seems desirable, in order to give a better understanding of their characters and relationships, to reproduce (with slight modifications) the key to the subfamilies given in the Catalogue of Birds in the British Museum (xx, 1891, 137).

<sup>a</sup> *Cat. Birds Brit. Mus.*, xx, 1891, 137.



## KEY TO THE SUBFAMILIES OF PSITTACIDÆ.

- a. Rectrices with spiny tip.....*Nasiterninæ* (extralimital).<sup>a</sup>  
 aa. Rectrices not spine-tipped.  
 b. Furcula present (except in genera *Psittacula* and *Agapornis*).  
 c. Left carotid superficial.  
 d. Orbital ring often complete; plumage mostly green.  
 e. Tail rather long, generally graduated or cuneate; cere sometimes feathered.....*Arinæ*.<sup>b</sup>  
 ee. Tail moderate or short, truncated or slightly rounded; cere always naked.....*Pioninæ*.<sup>c</sup>  
 dd. Orbital ring always incomplete; plumage gray or black, sometimes partly red.....*Psittacinæ* (extralimital).<sup>d</sup>  
 cc. Left carotid normal (running, like the right one, in the hypoapophysial canal).....*Conurinæ* (extralimital).<sup>e</sup>  
 bb. Furcula absent; orbital ring complete.....*Platycercinæ* (extralimital).<sup>f</sup>

<sup>a</sup> = *Nasiterninæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 138; Sharpe, Hand-list, ii, 1900, 12.

Includes a single genus and twelve species of very small parrots, peculiar to the Papuan Subregion.

<sup>b</sup> = *Macrocerinæ* Bonaparte, Prodr. Syst. Orn., 1840, 1; Consp. Gen. Av., i, 1850, 1. = *Arinæ* Scater, Cat. Am. Birds, 1862, 345; Scater and Salvin, Nom. Av. Neotr., 1873, 111; Beddard, Struct. and Classif. Birds, 1898, 270. = *Conurinæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 147; Sharpe, Hand-list, ii, 1900, 13. > *Conurinæ* Salvin and Godman, Biol. Centr.-Am., Aves, ii, 1897, 563 (includes, doubtless by inadvertence, *Pioninæ*!).

An exclusively American group, comprising sixteen genera and more than one hundred and twenty species.

<sup>c</sup> = *Psittacinæ* Scater, Cat. Am. Birds, 1862, 352; Scater and Salvin, Nom. Av. Neotr., 1873, 113. = *Pioninæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 267; Sharpe, Hand-list, ii, 1900, 20. > *Conurinæ* Salvin and Godman, Biol. Centr.-Am., Aves, ii, 1897, 563 (evidently by inadvertence!). = *Chrysothinæ* Beddard, Struct. and Classif. Birds, 1898, 270.

A group of ten genera and more than one hundred species, of which nine genera and eighty-three species are found only in America, the remainder being peculiar to Africa.

<sup>d</sup> = *Psittacinæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 376; Sharpe, Hand-list, ii, 1900, 26.

A small group consisting of three genera and ten species (one of them extinct) peculiar to Africa, including Madagascar and neighboring islands.

<sup>e</sup> < *Platycercinæ* Bonaparte, Consp. Gen. Av., i, 1850, 2 (genera *Polytelis*, *Palæornis* = *Conurus*, and *Aprosmictus*). = *Palæornithinæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 386; Sharpe, Hand-list, ii, 1900, 27.

An extensive group of seventeen genera (two extinct) and one hundred and thirty-seven species (two extinct), confined to the Australian, Indo-Malayan, and African Regions.

<sup>f</sup> (=?) *Pezoporinæ* Bonaparte, Prodr. Syst. Orn., 1840, 2; Consp. Gen. Av., i, 1850, 1 (genus *Pezoporus* only). < *Platycercinæ* Bonaparte, Consp. Gen. Av., i, 1850, 2 (genera *Melopsittacus*, *Euphema*, *Psephotus*, and *Platycercus*). = *Platycercinæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 539; Sharpe, Hand-list, ii, 1900, 37. > *Platycercinæ* Beddard, Struct. and Classif. Birds, 1898, 270 (includes *Psittacula*!).

A group of eleven genera and about fifty-eight species, confined to Australia, New Zealand, New Caledonia, and the Society Islands.

From the nature of the characters upon which the above arrangement is based, it is obvious that the classification presented can be considered merely tentative and that a more careful study of the subject is required. It is true that characters additional to the above are given in Count Salvadori's "key," but they do not contrast and therefore only serve to obscure or complicate the diagnoses.

KEY TO THE AMERICAN GENERA OF PSITTACIDÆ.<sup>a</sup>

- a. Tail distinctly graduated, with rectrices narrowing or tapering terminally, or else (*Psittacula*) the middle rectrices distinctly acuminate, the others subacuminate.
- b. Tail more (usually much more) than half as long as wing, distinctly graduated, or else middle rectrices distinctly longer than the rest and outermost primary with tip not attenuated; sexes alike in coloration; furcula present; larger (length more—usually very much more—than 150 mm.).
- c. More than orbital region and chin naked.
- d. Larger (length more, usually very much more, than 380 mm.); bill more compressed, the width of maxilla at base equal to not more (usually less) than half the length of culmen, the greatest width of mandible less than length of gonys; the maxillary unguis thicker and more obtuse or else (*Anodorhynchus*, part) distinctly compressed, or (*Ognorhynchus*) a broad post-mandibular naked area, and lores feathered; tail not shorter (usually longer) than wing; cheeks partly naked.
- e. Tip of mandible extremely broad, its width equal to more than half the length of gonys; loreal and suborbital regions normally feathered, a broad feathered space separating the naked orbital space from that behind base of mandible; unicolorous (wholly blue or bluish).  
*Anodorhynchus* (p. 117).
- ee. Tip of mandible much narrower, its width equal to not more (usually less) than one-third the length of gonys; loreal and suborbital regions naked or else (*Ognorhynchus*) maxillary unguis slender and acute terminally, chisel-like tip to mandible very short, and forehead, suborbital region, and auricular region yellow; part-colored (plumage with red, yellow, or green, besides blue, the latter sometimes absent).
- f. Loreal and suborbital regions naked; maxillary unguis not attenuated nor acute; tip of mandible more produced; forehead and auricular region not yellow.
- g. Bill much larger, the culmen much longer than outer hind toe without claw (usually longer than outer front toe without claw, sometimes longer than tarsus and outer front toe without claw); anterior lateral outline of cere more or less strongly sinuated (convex above, concave below); excision of mandibular tomiom relatively shallow and broad; corrugations of palatal surface of maxillary unguis distinct; sides of forehead feathered.....*Ara* (p. 119).

<sup>a</sup> The only American genus of the group not examined in the present connection is *Cyanopsitta* Bonaparte (Rev. et Mag. de Zool., (2) vi, 1854, 149; type, *Sittace spixii* Wagler)—the name emended to *Cyanopsittacus* by Salvadori (Cat. Birds Brit. Mus., xx, 1891, 150). This genus has usually been placed next to *Anodorhynchus*, probably on account of its wholly bluish coloration; but judging from descriptions and colored figures it seems not to be closely related to the latter, though its real relationships can be determined only by examination and comparison with other genera. It is probably most nearly related to some of the smaller forms here referred to *Ara*, or possibly to *Orthopsittaca*.

gg. Bill much smaller, the culmen very slightly if at all longer than outer hind toe without claw; anterior lateral outline of cere straight or faintly concave (without convexity in front of nostril); excision of mandibular tomium deep and narrow; corrugations on palatal surface of maxillary unguis obsolete; sides of forehead naked.

*Orthopsittaca* (extralimital).<sup>a</sup>

ff. Loral and suborbital regions feathered, separating the rather small orbital from the large post-mandibular naked space; maxillary unguis attenuated and acute; tip of mandible very short; forehead, suborbital region, and auricular region yellow.

*Ognorhynchus* (extralimital).<sup>b</sup>

dd. Smaller (length less than 300 mm.); bill much broader, more swollen laterally, the width of maxilla at base equal to much more than half the length of culmen, the greatest width of mandible equal to length of gonys; maxillary unguis extremely attenuated and acute (but lores naked and no exposed naked post-mandibular area, and no yellow on head); tail shorter than wing; cheeks normally feathered.

*Diopsittaca* (extralimital).<sup>c</sup>

cc. Only the orbital region and chin naked.

d. Cere densely feathered to anterior margin.

e. Bill very large and much compressed; maxillary unguis deep (vertically) and narrow (transversely), its lateral width at base about twice its transverse diameter, its palatal surface with corrugations indistinct or obsolete; width of chisel-like tip of mandible equal to only one-fifth the length of gonys, the latter with a distinct median groove; tail less than three-fourths as long as wing.....*Rhynchopsitta* (p. 140).

ee. Bill relatively much smaller, not compressed; maxillary unguis relatively shallow and broad, its lateral width at base little if any greater than its transverse diameter, its palatal surface with corrugations distinct; width of chisel-like tip of mandible equal to one-third the length of gonys, the latter without any median groove; tail more than three-fourths as long as wing.

<sup>a</sup> *Orthopsittaca* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 99. (Type, *Psittacus manilatus* Boddaert.) (Ορθός, straight; ψιττάκη, a parrot; with reference to the straight vertical outline of base of the maxilla.)

<sup>b</sup> *Ognorhynchus*, Bonaparte, Remarques Obs. Blanchard Psittacides, 1857, 6. (Type, *Conurus icterotis* Souancé.)—*Gnathopsittaca* Cabanis, Journ. für Orn., xii, Nov., 1864, 415. (Type, *G. heinei* Cabanis=*Conurus icterotis* Souancé.) (Γνάθος, Kinnlade, σιττάκη=*Psittacus*; Cabanis.) Colombia and Ecuador. (Monotypic.)

<sup>c</sup> *Diopsittaca* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 99. (Type, *Psittacus nobilis* Linnæus.) (Δίος, noble; ψιττάκη, a parrot.) Includes also *Diopsittaca hahni* (Souancé).

Trinidad and Guiana to Southern Brazil. (Two species.)

The two species of this very strongly characterized genus further agree in their almost wholly green coloration relieved by red under wing-coverts and yellowish olive under surface of remiges and rectrices, the green of the head becoming more bluish on forehead. The form of the bill is very much as in *Ognorhynchus*, but the maxillary unguis is even more attenuated terminally and the mandible relatively shorter, with its chisel-like tip more produced; besides, the cere is naked, fully exposing the nostrils, that of *Ognorhynchus* being very densely feathered to the extreme anterior edge.

- f.* Tail as long as wing; tenth (outermost) primary shorter than seventh; tarsus as long as outer front toe without claw; rump yellow, primaries greenish blue, tail greenish olive. . . . . *Cyanolyseus* (extralimital).<sup>a</sup>
- ff.* Tail shorter than wing; tenth (outermost) primary longer than seventh; tarsus much shorter than outer front toe without claw; rump and primaries green, tail green or dull red.
- g.* Prefrontal feathers shorter, softer; loreal feathers smaller, less dense; culmen flattened, more or less distinctly ridged laterally; tail dull red; pileum barred or spotted with black.
- h.* Maxilla elongated, the tip (unguis) much produced (as long as or longer than rest of maxilla), less strongly decurved, the culmen as long as outer front toe with claw.
- Enicognathus*** (extralimital).<sup>b</sup>
- hh.* Maxilla not elongated, its tip (unguis) short and strongly decurved (much shorter than rest of maxilla), the culmen shorter than middle toe without claw. . . . . ***Microsittace*** (extralimital).<sup>c</sup>
- gg.* Prefrontal feathers longer, stiffer, more erect; loreal feathers larger, more dense; culmen rounded; tail green; pileum without black.
- Conuropsis*** (p. 143).
- dd.* Cere incompletely feathered.
- e.* Seventh primary attenuated terminally.
- f.* Maxilla swollen laterally, much wider than deep at base, broadly arched in transverse section, its tip attenuated, acute, and ridged; feathers of cheeks narrow, distinctly outlined; cere naked behind nostrils; inner web of rectrices mostly red. . . . . ***Thectocercus*** (extralimital).<sup>d</sup>

<sup>a</sup> *Cyanolyseus* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 150. (Type, *Psittacus cyanolyseos* Molina=*Psittacus (Aratinga) byroni* Children MS.).—*Cyanolyseus* (emendation) Bonaparte, Ann. Soc. Nat., (4), i, 1854, 108.—*Cyanolyseos* (emendation) Gray, List Birds Brit. Mus., Psitt., 1859, 34.—*Cyanolyseos* (emendation) Sclater, Cat. Am. Birds, 1862, 346.

Southern Argentina and Chile. (Two species?; possibly monotypic, the two recognized forms differing chiefly in size.)

<sup>b</sup> *Enicognathus* Gray, Gen. Birds, 1840, 51. (Type, *Psittacara leptorhyncha* King.)—*Henicognathus* (emendation) Agassiz, Nom. Zool. Index Univers., 1846, 178.—*Stylorhynchus* Lesson, L'Echo du Monde Savant, 1844, 184. (Type, *Arara erythrofrons* Lesson=*Psittacara leptorhyncha* King.)—*Hylorhynchus* Gray, Cat. Gen. and Subgen. Birds, 1855, 87. (Type, *Psittacara leptorhyncha* King.)

Chile. (Monotypic.)

This genus differs from *Microsittace* only in the remarkable form of the bill, even the coloration being practically the same. The bill resembles very much that of the Australian Cacatuine genus *Licmetis*.

<sup>c</sup> *Microsittace* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 150. (Type, *Psittacus smaragdinus* Gmelin=*P. ferrugineus* Müller.)

Southern Chile and Argentina. (Monotypic.)

<sup>d</sup> *Thectocercus* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 99. (Type, *Psittacus acuticaudatus* Vieillot.) (θηκρός, sharp; κέρκος, tail.)

Middle Brazil to Bolivia, Paraguay, Uruguay, and northern Argentina. (Two species.)

The bill in this genus closely resembles that of *Ognorhynchus* and *Diopsittaca*, especially the latter, in its attenuated and acute maxillary unguis, but the maxilla is more swollen laterally, the culmen more rounded, and the maxilla relatively shorter from rictus to tip and truncate or even slightly concave at base beneath (instead of slightly convex).

- ff.* Maxilla not swollen laterally, little wider than deep at base, compressed toward the broadly flattened culmen, subpyramidal or truncate-subconical in transverse section, its tip neither attenuated, acute, nor ridged; cere feathered behind nostrils; rectrices without any red.
- g.* Tail not longer than wing (usually decidedly shorter), graduated for not more (usually less) than half its length; depth of bill much greater than length of culmen, the maxillary unguis much shorter and thicker, more strongly decurved; pileum green, blue, yellow, or red.
- h.* Tip of mandible less produced, strongly rounded (transversely), the obtuse edge deeply concave above; under surface of remiges and rectrices olive-yellowish; no blue on remiges. . . . *Aratinga* (p. 150).
- hh.* Tip of mandible more produced (more chisel-like), flattened, the more acute terminal edge straight or very slightly concave above; under surface of remiges and rectrices blackish or slaty; distal secondaries and distal portion of proximal primaries deep blue.  
*Eupsittula* (p. 161).
- gg.* Tail longer than wing, graduated for more than half its length; depth of bill at base equal to less than length of culmen, the maxillary unguis relatively long, narrow, and slightly decurved; pileum black. . . . *Nandayus* (extralimital).<sup>a</sup>
- ee.* Seventh primary not attenuated terminally.
- f.* Culmen flattened (at least basally, where sometimes grooved medially); tenth (outermost) primary shorter than seventh; orbital region more extensively naked; tail brownish red or blackish brown, at least on under surface; orbital ring of skull complete<sup>b</sup>; ambiens muscle wanting.<sup>b</sup>
- g.* Upper portion of cere less produced, less extensively naked; tail longer than wing; chisel-like tip of mandible flat, its width equal to only one-third the length of gonys; auricular feathers narrow, elongated, yellow, forming a conspicuous tuft.  
*Leptosittaca* (extralimital).<sup>c</sup>
- gg.* Upper portion of cere much produced, more extensively naked; tail not longer (usually shorter) than wing; chisel-like tip of mandible strongly rounded (transversely), its width much more than one-third the length of gonys; auricular feathers normal, never yellow.  
*Pyrrhura* (p. 175).
- ff.* Culmen not flattened; tenth (outermost) primary much longer than seventh; tail green (no red in plumage); orbital ring complete; ambiens muscle present.

<sup>a</sup> *Nandayus* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 150. (Type, *Psittacus nenday* Vieillot.)

Paraguay. (Monotypic.)

<sup>b</sup> At least in *Pyrrhura*; not known as to *Leptosittaca*.

<sup>c</sup> *Leptosittaca* Berlepsch and Stolzmann, Ibis, 6th ser., vi, July, 1894, 402. (Type, *L. branickii* Berlepsch and Stolzmann.)

Central Peru. (Monotypic.)

This genus presents a rather close superficial resemblance to *Ognorhynchus*, especially in the narrow and elongate yellow auricular feathers, but the bill is very differently shaped, and the cheeks, instead of showing a very large naked area next to the base of the mandible are covered with rather large feathers which completely hide the very narrow bare post-mandibular space and even overlap the base of the mandible itself.

- g. Maxilla broader, much swollen laterally, its width at base equal to at least two-thirds the length of culmen, the unguis short and broad, its width at base equal to or greater than its length; depth of mandible at base equal to length of gonys, much greater than that of maxilla at base, the rami relatively short, the base of mandible underneath more shallowly concave; cere much broader and more convex in front of nostril, the lower part strongly receding, more or less tumid, or else (*Myiopsitta*) with anterior outline nearly straight and nearly covered by flattened antrorse feathers; oil-gland present, tufted.
- h. Prefrontal feathers antrorse, forming a flattened fringe covering cere (except anterior margin) and concealing nostrils; anterior outline of cere nearly straight; tarsus much longer than outer front toe without claw; inner webs of eighth and ninth primaries conspicuously toothed, that of the tenth (outermost) excised, subterminally.....*Myiopsitta* (extralimital).<sup>a</sup>
- hh. Prefrontal antrorse fringe absent, the cere naked (except, sometimes, on top, at base of culmen) the nostrils fully exposed; anterior outline of cere strongly convex or the cere nearly circular, with nostril near center, and more or less tumid; tarsus not longer (sometimes shorter) than outer front toe without claw; inner webs of all the primaries normal.
- i. Cere very tumid, circular; tail nearly four-fifths as long to longer than wing, graduated for more than half its length; tarsus nearly to quite as long as outer front toe without claw; ninth primary longest, the tenth (outermost) little if any longer than eighth; plumage with gray or yellow.
- j. Feathers of cheeks long, full, semiantrorse, concealing sides of mandible; tail longer than wing; bill smaller and broader, the culmen much shorter than tarsus, not much longer than width of maxilla at base, the tip of maxilla (unguis) very broad and rounded; forehead and crown grayish brown, cheeks, throat, chest, etc., pale gray, primaries green.

*Amoropsittaca* (extralimital).<sup>b</sup>

<sup>a</sup> *Myiopsitta* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 150. (Type, *Psittacus murinus* Gmelin=*P. monachus* Boddaert.)—*Myiopsittacus* (emendation) Salvadori, Cat. Birds Brit. Mus., xx, 1891, 231.

Bolivia, Argentina, and Uruguay. (Two species, of which only *M. monachus* has been examined in the present connection.)

The species of this genus are, apparently, entirely unique in their nesting habits, the nest being suspended from the extremity of a branch, successive nests being added until the accumulated material sometimes weighs as much as a quarter of a ton, each nest consisting of two chambers, a porch or exterior shelter, and a separate room for the eggs, several of these nests being sometimes built in one tree. (See "Argentine Ornithology," ii, 45.) So far as known, all other parrots deposit their eggs in cavities of trees or rocks or excavations in earth banks.

<sup>b</sup> *Amoropsittaca* Richmond, Proc. Biol. Soc. Washington, xxviii, Nov. 29, 1915, 183. (Type, *Arara aymara*, D'Orbigny.)

Bolivia, Argentina, and Chilean Andes. (Monotypic?)

The above characters are based on *A. aymara* exclusively. In general form and size, and especially in the small, short bill with the sides of the mandible covered (overlaid) by feathers of the cheeks, this genus presents a remarkable general resemblance to the Australian genus *Melopsittacus* (Subfamily Platycercinæ), though the coloration is very different.

jj. Feathers of cheeks short (normal), not covering sides of mandible; tail shorter than wing; bill longer and narrower, the length of culmen nearly equal to that of tarsus and much greater than width of maxilla at base, the tip of maxilla (unguis) narrow, obtusely pointed; no gray on cheeks, throat, etc., nor brown on pileum, the latter green, the primaries blue.....*Psilopsiagon* (extralimital).<sup>a</sup>

ii. Cere only slightly tumid, broadly subfusiform (by encroachment of frontal feathering on posterior portion); tail not more than two-thirds as long as wing (sometimes but little more than half as long), graduated for much less than half its length; tarsus much shorter than outer front toe without claw; plumage with neither gray nor yellow (green, sometimes barred or spotted with black).....*Bolborhynchus* (p. 178).

gg. Maxilla much narrower, less swollen laterally (sometimes compressed toward culmen, its width at base equal to little if any more (sometimes less) than half the length of culmen, the unguis relatively long and narrow, its width (transversely) at base much less than its length; depth of mandible at base less than length of gonys, not greater than that of maxilla, the rami relatively long, the base of mandible beneath deeply concave; cere narrower or else with anterior outline nearly straight, the lower part well forward, not tumid; oil-gland absent.<sup>b</sup>

h. Tail more than two-thirds as long as wing, graduated for nearly to more than half its length, the rectrices very narrow, attenuated distally.....*Tirica* (extralimital).<sup>c</sup>

hh. Tail less than two-thirds (usually less than half) as long as wing, graduated for much less than half its length, the rectrices not attenuated distally (though pointed at tip) ..*Brotogeris* (p. 182).

bb. Tail not more (usually a little less) than half as long as wing, or else tip of outermost primary abruptly attenuated; sexes different in coloration (the males with more or less blue, the females with none; furcula absent; size very small (length less than 140 mm.).....*Psittacula* (p. 187).

aa. Tail not distinctly if at all graduated, the rectrices usually not distinctly if at all acuminate or subacuminate,<sup>d</sup> or else (*Pionopsitta*, *Pyrilia*, and *Hapalopsittaca*), wing more than 130 mm. and tip of outermost primary not attenuated.

<sup>a</sup> *Psilopsiagon* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 100. (Type, *Trichoglossus aurifrons* Wagler.) (ψιλός, naked; σιαγών, jaw bone.)

Peru, Bolivia, Chile, and western Argentina. (Three species?)

I have not seen *Conurus rubrirostris* Burmeister nor *Myiopsitta orbygnesia* Bonaparte, referred by Count Salvadori and others (together with *Psittacus aurifrons* Lesson) to "*Bolborhynchus*," but, judging from descriptions, they seem much more likely to belong here than to *Amoropsittaca*. The above characters are taken from *aurifrons* exclusively.

<sup>b</sup> This not determined as to *Nannopsittaca panychlora*.

<sup>c</sup> *Tirica* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 151. (Type, *Psittacus tirica* Gmelin.) Amazon Valley to southeastern Brazil. (Three species.)

<sup>d</sup> In some species of *Pionopsitta*, *Pyrilia*, and *Hapalopsittaca* the tail is not essentially different in shape and relative length and in form of the rectrices from that of *Psittacula*; but the birds are very much larger, have the tip of the outermost primary not attenuated, and differ materially in other respects.

- b. Maxilla much broader than deep, swollen laterally, its tomia strongly produced, shallowly excised distally, a broad angular lobe overhanging base of palatal surface of unguis, the latter very deeply excavated or concave and as wide at base as it is long; nostrils near top of cere, opening as much vertically as laterally; claw of outer anterior toe very broad, its inner edge strongly produced..... *Graydidascalus* (extralimital).<sup>a</sup>
- bb. Maxilla much narrower, not wider (usually not as wide) as deep, not swollen laterally, its tomia not strongly produced, usually notched and "toothed," the palatal surface of the unguis not deeply excavated and (usually at least) longer than broad;<sup>b</sup> nostrils farther from top of cere, opening laterally, relatively smaller; claw of outer anterior toe normal.
- c. Smaller (wing less than 125 mm.); maxilla narrower, less strongly decurved and less compressed terminally, its tomia not notched nor "toothed," but with a long terminal concavity or sinus and a slight angle or lobe near middle, or else with the post-ungual notch and angle very slight; palatal surface of unguis deeply concave; lateral outline of cere not strongly situated (sometimes nearly straight), the lower portion well forward; nostrils posterior to middle of cere; under tail-coverts extending nearly (sometimes quite) to tip of tail.
- d. Bill more slender, the depth of maxilla at base equal to much less than half the length of culmen, the latter less strongly decurved; tarsus as long as outer front toe without claw; tenth (outermost) primary with inner web emarginate near tip; orbital region mostly feathered; rectrices wholly green; smaller (wing less than 95 mm.) . . . *Nannopsittaca* (extralimital).<sup>c</sup>
- dd. Bill stouter, the depth of maxilla at base equal to half the length of culmen, the latter more strongly decurved; tarsus much shorter than outer front toe without claw; tenth (outermost) primary with inner web not emarginate; orbital region wholly naked; rectrices (except middle pair) purple, red, golden, or yellowish, usually with a black terminal or subterminal bar; larger (wing more than 100 mm.)..... *Urochroma* (p. 196).

<sup>a</sup> *Graydidascalus* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 147. (Type, *Psittacus viridissimus* Swainson = *P. brachyurus* Temminck.)—*Graydidactylus* (emendation) Bonaparte, Naumannia, 1856, Consp. Psittacorum, genus 27.—*Pachynus* Reichenow, Journ. für Orn., 1881, 352. (New name to replace *Graydidascalus* on grounds of purism.)

Upper Amazon Valley. (Monotypic.)

It is very difficult to fit this peculiar form into the "key" satisfactorily, its exact relationships not being very evident. In the nearly straight lateral outline of the cere it resembles *Brotogeris*, *Urochroma*, etc., but the bill is otherwise very different, not only from that of the genera mentioned but from all others.

<sup>b</sup> While perfectly obvious to the eye, it is nevertheless exceedingly different to formulate terms clearly indicating the many differences in the form of the bill in this group of genera as compared with *Graydidascalus*.

<sup>c</sup> *Nannopsittaca* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 100. (Type, *Brotogeris panychlorus* Salvin and Godman.) (νάνος, dwarf; ψιττάκη, a parrot.)

British Guiana. (Monotypic.)

The type and only known species of this genus has usually been placed in *Bolborhynchus*, though sometimes in *Psittacula*; but why, in either case, is quite beyond my comprehension. It is evidently related to both *Brotogeris* and *Urochroma*, but is very distinct from either. In size and general form, and especially in the form of the bill, there is a remarkable resemblance to the Indo-Malayan genus *Loriculus* Blyth, a member of the Palæornithinæ (= Conurinae).



- cc. Larger (wing not less than 135 mm.); maxilla broader, more strongly decurved and more compressed terminally, its tomia distinctly notched and "toothed"; palatal surface of unguis not deeply hollowed, usually nearly (sometimes quite) flat; lateral anterior outline of cere strongly sinuated, the upper (pre-nasal) portion strongly convex, the lower portion drawn backward nearly if not quite to the loreal feathering; nostrils anterior to middle of cere; under tail-coverts falling far short of tip of tail.
- d. Tail less than two-thirds as long as wing.
- e. Smaller (wing less than 150 mm.; or else not more than 170 mm., with under wing-coverts red, and under tail-coverts without red).
- f. Depth of mandible at base greater than length of gonys; tail more than half as long as wing, nearly truncate; inner webs of remiges wholly slate-blackish and tail wholly green. *Pionites* (extralimital).<sup>a</sup>
- ff. Depth of mandible at base less than half the length of gonys; tail not more than half as long as wing (or else lores densely feathered and auricular feathers narrow and somewhat elongated), more or less strongly rounded (sometimes almost graduated); inner webs of remiges (except near shaft) blue, greenish blue, or bluish green and inner webs of rectrices partly yellow or red (or else, in *Pionopsitta*, tail mostly blue).
- g. Tail half as long as wing or slightly more, graduated for at least length of gonys, the rectrices distinctly narrowed terminally; inner webs of rectrices not distinctly different in color from outer web.
- h. Bill much broader, the maxilla swollen laterally, its width at base much greater than length of gonys and equal to three-fourths the length of culmen; maxillary tomium with distinct post-ungual notch and "tooth"; base of mandible beneath broad and shallowly concave; tenth (outermost) primary much longer than seventh; lores scantily feathered; tail blue and green; sexes different in color, the adult male with forehead, crown, postocular region and part of auricular region red, the adult female without any red. . . . . *Pionopsitta* (extralimital).<sup>b</sup>
- hh. Bill much narrower, the maxilla compressed laterally, its width at base equal to but little more than length of gonys and much less than three-fourths the length of culmen; maxillary tomium without distinct, if any, post-ungual notch or "tooth"; base of mandible beneath narrowly and deeply concave; tenth (outermost) primary equal to seventh; lores densely feathered; auricular feathers narrow, somewhat elongated; tail dusky blue distally, dusky red proximally; sexes alike in color.

*Hapalopsittaca* (extralimital).<sup>c</sup>

<sup>a</sup> *Caica* (not of Lesson, 1847) Bonaparte, *Consp. Gen. Av.*, i, 1850, 5. (Type, *Psittacus melanocephalus* Linnæus.)—*Pionites* Heine, *Nom. Mus. Hein. Orn.*, 1890, 231. (Type, *Psittacus melanocephalus* Linnæus.)

Guiana and Amazon Valley. (Four species.)

<sup>b</sup> *Pionopsitta* Bonaparte, *Rev. et Mag. de Zool.*, (2) vi, 1854, 152. (Type, *Psittacus pileatus* Scopoli.)—*Pionopsittacus* (emendation) Sundevall, *Met. Nat. Av. Disp. Tent.*, 1872, 69.

Paraguay and southeastern Brazil. (Monotypic.)

<sup>c</sup> *Hapalopsittaca* Ridgway, *Proc. Biol. Soc. Wash.*, xxv, May 4, 1912, 100. (Type, *Psittacus amazoninus* Des Murs.) ('Απαλος, delicate; ψιττάκη, a parrot.)

Colombia and Ecuador. (Two species, one of which, *H. pyrrophops* (Salvin), I have not seen.)

- gg. Tail less than half as long as wing, slightly rounded, the rectrices not narrowed terminally (though subacuminate at tip); inner webs of rectrices yellow or red, the outer webs green (both webs blue terminally).
- h. Head normally flattened (only the orbital region naked and lores scantily feathered).....*Pyralia* (p. 201).
- hh. Head (all round) naked as far back as ears, scant short bristles replacing feathers.....*Gypsopsitta* (extralimital).<sup>a</sup>
- ee. Larger (wing more than 150 and if less than 170 mm. the under wing-coverts not red but under tail-coverts with red.
- f. Tail less than half as long as wing, slightly double-rounded or faintly emarginate, the rectrices narrowly rounded or subacuminate at tip; under tail-coverts red; feathers of lower neck smaller (normal).  
*Pionus* (p. 206).
- ff. Tail not less than half as long as wing, more or less (usually slightly) rounded, the rectrices broadly rounded at tip; under tail-coverts without any red; feathers of lower neck (especially hindneck) larger and broader, sometimes developed into a distinct erectile ruff.  
*Amazona* (p. 217).
- dd. Tail at least two-thirds as long as wing.
- e. Mandible as in *Amazona* but relatively deeper and with tip emarginate instead of rounded; orbital region extensively naked; feathers of sides of head acicular, those on nape very long and broad, forming a very conspicuous erectile ruff; tenth (outermost) primary equal to fourth; tail more strongly rounded, the rectrices very broad; coloration varied (under parts and nuchal crest purplish red, the feathers tipped with blue, head brown streaked with whitish, the forehead dull whitish).  
*Deroptyus* (extralimital).<sup>b</sup>
- ee. Mandible unique in its flattened sides margined beneath by a distinct curved ridge, the under side with a distinct median ridge, the tip recurved almost at a right-angle with the axis; orbital region mostly feathered; feathers of head and neck normal, those of nape rather short; tenth (outermost) primary longer than sixth; tail less strongly rounded, the rectrices rather narrow; coloration simple (plain green with violet on abdomen).....*Triclaria* (extralimital).<sup>c</sup>

<sup>a</sup> *Gypsopsitta* Bonaparte, Naumannia, 1856, Consp. Psittacorum, genus 25. (Type, *Psittacus vulturinus* Kuhl.)—*Gypsopsittacus* (emendation) Salvadori, Cat. Birds Brit. Mus., xx, 1891, 349.

Lower Amazon Valley. (Monotypic.)

Except in its naked head this genus agrees perfectly in details of structure as well as in style of coloration with *Pyralia*.

<sup>b</sup> *Deroptyus* Wagler, Mon. Psitt., 1832, 492. (Type, *Psittacus accipitrinus* Linnæus.) *Derotypus* (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 5.

Amazon Valley and Guiana. (Monotypic.)

<sup>c</sup> *Triclaria* Wagler, Mon. Psitt., 1832, 499. (Type, *Psittacus cyanogaster* Vieillot.)—*Maximilicus* "Less[on]" Gray, List Gen. Birds, 1840, 51.

Southeastern Brazil. (Monotypic.)

## Genus ANODORHYNCHUS Spix.

*Anodorhynchus* SPIX, Av. Bras., i, 1824, 47. (Type, *Psittacus hyacinthinus* Latham.)

*Aodorhynchus* (typographical error) SPIX, Av. Bras., i, 1824, in index.

*Anadorhynchos* (emendation) BREHM, Mon. Papag., Heft ii, 1843, 5.

*Anodotorhynchus* (emendation) AGASSIZ, Nom. Zool. Index Univ., 1846, 24.

*Anodorynchus* (emendation) LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 73.

*Anadorhynchus* (emendation) FINSCH, Die Papag., i, 1867, 387.

*Anoplorhynchus* (emendation) SUNDEVALL, Met. Nat. Av. Disp. Tent., 1872, 70.

Very large, long-tailed Psittacidæ (length about 750 mm.) of wholly blue or bluish coloration, exposed nostrils, completely feathered lores, and with chisel-like tip of mandible extremely broad (its width equal to more than half the length of gonys).

Bill enormously large and strong, its depth at base at least nearly equal to length of culmen (sometimes greater), and nearly twice its greatest width; culmen nearly equal to (sometimes greater than) length of head from nostril, regularly and very strongly decurved, broadly rounded; maxilla compressed laterally toward culmen, the hooked tip (unguis) very long, compressed, acute (though broader and flattened transversely), the length of its transversely corrugated palatal surface nearly (sometimes quite) equal to depth of maxilla at base; maxillary tomium not distinctly if at all incised subterminally, but with slight sinuations; mandible exceedingly broad (much wider than maxilla), its greatest width nearly to quite equal to length of gonys, broadly rounded beneath, its lower basal outline nearly straight or even slightly convex, its chisel-like tip extremely broad (its width equal to more than half the length of gonys), slightly concave medially, more or less convex or rounded laterally; mandibular tomium with a more or less distinct subterminal notch. Wing rather long and pointed, the longest primaries exceeding distal secondaries by about two-fifths the length of wing, or more; eighth or ninth primary longest, the tenth (outermost) longer than sixth (sometimes longer than seventh). Tail as long as wing, graduated for more than half its length, the rectrices tapering terminally but rounded at tip. Tarsus not longer (sometimes decidedly shorter) than outer hind toe without claw.

*Plumage and coloration.*—Head normally feathered except orbital region and around base of mandible, where the skin is completely naked; cere naked in front of nostrils and at base of culmen (sometimes with short feathers or bristles in front of nostrils), the nostrils exposed. Color wholly bluish (ranging from violet-blue or ultramarine, the head, neck, and under parts lighter, more cobalt blue to decidedly greenish blue, with head, neck, and under parts much

duller, more grayish, blue), the under surface of remiges and rectrices blackish.<sup>a</sup>

*Range*.—Existing species, Brazil, south of Amazon River, to Paraguay and Uruguay; two extinct species, formerly existing on the Lesser Antillean islands of Guadeloupe and Martinique have been referred to this genus, but it is by no means certain that they may not have belonged to *Ara* or were even generically distinct from both *Ara* and *Anodorhynchus*.

KEY TO THE SPECIES OF ANODORHYNCHUS.

a. General color violet. (Guadeloupe Island; extinct.)

*Anodorhynchus purpurascens* (p. 119).

aa. General color blue.

b. Violet-blue (smalt blue), the head, neck, and under parts cobalt blue; larger (culmen 85-93 mm.). (Central Brazil.)

*Anodorhynchus hyacinthinus* (extralimital).<sup>b</sup>

bb. Dull greenish blue or bluish green (terre verte to gobelin blue), the head, neck, and under parts dull grayish green (artemisia green); smaller (culmen about 65 mm.). (Paraguay, Uruguay, and southern Brazil.)

*Anodorhynchus glaucus* (extralimital).<sup>c</sup>

<sup>a</sup> One extinct species, from the island of Guadeloupe, doubtfully referred to this genus, was entirely violet, while another, formerly existing on the island of Martinique, was blue above, the under parts orange. The last (*A. martinicus* Rothschild) may, however, have been an *Ara*, and Count Salvadori (Ibis, 1906, 451) suggests that it may have been *A. ararauna*?

<sup>b</sup> [*Psittacus*] *hyacinthinus* Latham, Index Orn., i, 1790, 84 (no locality mentioned; coll. D. Parkinson).—*Macrocerus hyacinthinus* Vieillot, Nouv. Dict. d'Hist. Nat., ii, 1816, 260.—*Sittace* *hyacinthina* Wagler, Mon. Psitt., 1832, 676.—*Sittace hyacinthina* Finsch, Die Papag., i, 1867, 389; Reichenow, Vogelbild, 1879, pl. 9, fig. 2; Consp. Psitt., 1882, 153.—*Anodorhynchus hyacinthinus* Gray, List Gen. Birds, 1840, 51.—*Anodorhynchus hyacinthinus* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 147.—*Arara hyacinthinus* Brehm, Mon. Papag., 1842, 4.—*Arara hyacinthina* Schlegel, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 2.—*A[ra] hyacinthina* Gray, Gen. Birds, ii, 1845, 412.—*Ara hyacinthinus* Hartlaub, Journ. für Orn., 1859, 247.—*Psittacus augustus* Shaw, Mus. Lever., i, no. 2, 1792, 57, with plate (Brazil?).—*Macrocerus ? augustus* Stephens, Shaw's Gen. Zool., xiv, 1826, 113.—*Anodorhynchus maximiliani* Spix, Av. Bras., i, 1824, pl. 11.—*Aodorhyncho maximiliani augusti* Spix, Av. Bras., i, 1824, 25, in text.—*Anodorhynchus maximiliani* Brehm, Mon. Papag., Heft iii, 1842, 11.—*Psittacara cobaltina* Bourjot, Perr., 1837-38, pl. 16.

<sup>c</sup> *Macrocerus glaucus* Vieillot, Nouv. Dict. d'Hist. Nat., ii, 1816, 259 (Paraguay; based on *Guacamayo bleu* Azara, Apunt., i, 402); Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 160.—*Sittace glauca* Wagler, Mon. Psitt., 1832, 676.—*Sittace glauca* Wagler, Mon. Psitt., 1832, pl. 26; Finsch, Die Papag., i, 1867, 391; Pelzeln, Orn. Bras., 1871, 254, footnote; Reichenow, Vogelbild., 1879, pl. 9, fig. 1; Consp. Psitt., 1882, 154.—*Psittacara glauca* Bourjot, Perr., 1837-38, pl. 14.—*Psittacus glaucus* Küster, Orn. Atlas, Papag., 1840, 97, pl. 76.—*A[ra] glauca* Gray, Gen. Birds, ii, 1845, 412.—[*Macrocerus*] *glaucus* Bonaparte, Rev. et Mag. de Zool., 1854, 149 (Consp. Psitt., p. 6).—[*Anodorhynchus*] *glaucus* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 3.—*Anodorhynchus glaucus* Souancé, Icon. Perr., 1857, pl. 1, fig. 2; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 149.—*Arara glauca* Schlegel, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 2.

## ANODORHYNCHUS PURPURASCENS Rothschild.

## GUADELOUPE VIOLET MACAW.

“Entirely violet. Native name of the Caribes ‘Onécouli.’”<sup>a</sup>  
Island of Guadeloupe, Lesser Antilles. (Extinct.)

*Anodorhynchus purpurascens* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 13 (Guadeloupe, Lesser Antilles; ex Don de Navaret, Rel. Voy. Christ. Colombe, ii, 1838, 425).

*Anodorhynchus purpurascens* ROTHSCHILD, Extinct Birds, 1907, 55, pl. 13.—SALVADORI, Ibis, 1906, 451.

## Genus ARA Lacépède.

*Ara* LACÉPÈDE, Tabl. Ois., 1799, 1. (Type, *Psittacus macao* Linnæus.)

*Paracus* RAFINESQUE, Analyse de Nature, 1815, 65. (New name for “*Ara Lacép[ède]*.”)

*Paranus* GRAY, Hand-list, ii, 1870, 144. (Error for *Paracus* Rafinesque.)

*Macroccrcus* <sup>b</sup> VIEILLOT, Analyse, 1816, 70. (Type, *Psittacus macao* Linnæus.)

*Macrocircus* (emendation) SWAINSON, Classif. Birds, ii, 1837, 299.

*Sittace* WAGLER, Mon. Psitt., 1832, 499. (Type, *Psittacus ararauna* Linnæus.)

*Arara* SPIX, Av. Bras., i, 1824, 25. (Type, *Psittacus macao* Linnæus.)

*Araclanga* <sup>c</sup> GLOGER, Gem. Hand-u. Hilfsbuch der Naturg., Bd. 1, 1842, 193. (New name for *Ara* Cuvier on ground of purism.)

*Ararauna* BONAPARTE, Rev. et Mag. de Zool., 1854, 149. (Type, *Psittacus ararauna* Linnæus.)

*Aracanga* BONAPARTE, Rev. et Mag. de Zool., 1854, 149. (Type, *Psittacus aracanga* Gmelin=*P. macao* Linnæus.)

*Primolius* BONAPARTE, Compt. Rend., xlv, 1857, 596. (Type, *Sittace primoli* Bonaparte=*Arara auricollis* Cassin.)

*Macao* S. D. W., Analyst, iii, no. xiv, Jan., 1836, 212. (Type, *M. splendens*=*Psittacus ararauna* Linnæus?.)

Medium-sized to very large long-tailed Psittacidæ (length about 390–800 mm.) with sides of head mostly naked, width of chisel-like tip to mandible equal to not more than one-third the length of gonys, and with parti-colored plumage (at least yellow or red, usually green also, being present in addition to blue).

Bill moderate to enormously large, its depth at base equal to nearly the length of culmen <sup>d</sup> (sometimes more), its greatest width equal to more than half its depth at base; culmen nearly as long as to much longer than middle toe with claw, very regularly and strongly decurved from base, broadly rounded or (sometimes) slightly flattened proximally; maxillary unguis variable, sometimes rather thick and obtuse, sometimes compressed, attenuated, and acute (though

<sup>a</sup> Rothschild, Bull. Brit. Orn. Club, xvi, 13.

<sup>b</sup> “Μακρόκερκος, praelongam caudam habens.” (Vieillot.)

<sup>c</sup> Ἄρά (*Ara*); κλαγγή, screaming. (Richmond.)

<sup>d</sup> In all cases, measurements of curved surfaces or lines represent the *chord* and not the curve; that is to say the distance in a straight line between the extreme points, as when taken by dividers.

slightly flattened and subtruncate transversely at tip); maxillary tomium more or less incised subterminally, but not distinctly notched nor toothed; depth of mandible at base very slightly to decidedly less than length of gonys, slightly greater than its extreme width; mandible with under side very broadly rounded, sometimes with a median sulcus, sometimes with a more or less distinct median ridge, on proximal portion, the width of its chisel-like, flattened, and truncate tip equal to not much if any more than one-third the length of gonys. Wing rather long and pointed, the longest primaries exceeding distal secondaries by two-fifths to nearly half the length of wing; seventh, eighth, and ninth, or eighth and ninth, primaries longest, the tenth (outermost) longer than sixth (sometimes equal to seventh); tip of seventh primary sometimes more or less distinctly attenuated (*A. maracana* and *A. auricollis*). Tail as long as or longer than wing, graduated for more than half its length, the rectrices tapering terminally, but with tip rounded. Tarsus much shorter than outer hind toe without claw.

*Plumage and coloration.*—Cere usually covered with dense, short, erect feathers, wholly or partially concealing nostrils (wholly naked, the nostrils fully exposed, in *A. ararauna*); orbital and suborbital regions, more or less of loreal region, and greater part of malar region, together with chin, naked, sometimes with narrow lines of small, short feathers across cheeks. Tail red or reddish, tipped (more or less extensively) with blue, or else wholly blue above; primaries and their coverts blue; rump and upper tail-coverts blue or green; rest of plumage mostly red or green, or (*A. ararauna* and *A. caninde*) upper parts blue, under parts orange-yellow.

*Range.*—Southern Mexico to western Ecuador, eastern Peru, Bolivia, Paraguay, central Brazil, Guiana, and Trinidad; also Cuba, and formerly Jamaica, Guadeloupe, Dominica, and Martinique, in the West Indies. (Twelve existing species; three or four additional West Indian species have become extinct.)<sup>a</sup>

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<sup>a</sup> Of the existing species, the following have not been examined in connection with the preparation of this article: *A. caninde* (Wagler), *A. rubrigena* Lafresnaye, and *A. couloni* Sclater. The first is closely related to *A. ararauna*; the second and last are small species, more or less resembling *A. severa* and *A. maracana*.

While nearly convinced that the group containing the smaller species with relatively small bill and narrower rectrices (*A. severa*, *A. rubrigena*, *A. maracana*, *A. couloni*, and *A. auricollis*) should be separated generically from *Ara* proper, containing the very large, crass-billed species with broader rectrices (*A. ararauna*, *A. caninde*, *A. macao*, *A. chloroptera*, *A. militaris*, and *A. ambigua*), I have not been able to find satisfactory characters on which to base such separation, especially with several of the species not available for comparison. Better results may, perhaps, attend the efforts of some one who may be able to take the matter up with all the species before him.

KEY TO THE SPECIES AND SUBSPECIES OF *ARA*.<sup>a</sup>

- a. Under parts of body red, orange, or yellow.
- b. Under parts of body orange-yellow or orange; pileum blue, sometimes passing into yellowish green on forehead.
- c. Tail blue.
- d. Under parts of body orange-yellow.
- e. Forehead green; upper throat and lines of feathers on face dull black. (Panama to Guianas, Amazon Valley, and Bolivia). . . . . *Ara ararauna* (p. 122).
- ee. Forehead blue; upper throat and lines of feathers on face green. Paraguay). . . . . *Ara caninde* (extralimital).<sup>b</sup>
- dd. Under parts of body orange or orange-red. (Martinique; extinct.)  
*Ara martinica* (p. 125).
- cc. Tail red. (Unknown island in the West Indies; extinct.)  
*Ara erythrura* (p. 125).
- bb. Under parts of body red; pileum red or yellow.
- c. Hindneck red; larger (wing more than 350 mm.).
- d. Greater wing-coverts blue; middle coverts green or green and blue; naked loreal and suborbital regions crossed by lines of small red feathers; red of plumage darker. (Panama to the Guianas, Amazon Valley, and Bolivia.)  
*Ara chloroptera* (p. 125).
- dd. Greater and middle wing-coverts yellow; naked loreal and suborbital regions without lines of small feathers; red of plumage lighter.
- e. Three lateral rectrices, on each side, blue. (Southern Mexico to the Guianas, Amazon Valley, and Bolivia). . . . . *Ara macao* (p. 128).
- ee. Whole of tail red. (Guadeloupe, Lesser Antilles; extinct.)  
*Ara guadeloupensis* (p. 131).
- cc. Hindneck yellow; smaller (wing less than 300 mm.).
- d. Forehead and crown orange-red; back dull red, the feathers margined with greenish yellow; tail brownish red and blue. (Cuba; extinct.)  
*Ara tricolor* (p. 136).
- dd. Forehead and crown yellow; back scarlet; tail red and yellow. (Jamaica; extinct). . . . . *Ara gossei* (p. 137).
- aa. Under parts of body green.
- b. Rump and upper tail-coverts light blue; under wing-coverts wholly green; larger (wing more than 350 mm.).
- c. Bill smaller (culmen 53-63); rump and tail-coverts turquoise blue; general green color darker, less yellowish. (*Ara militaris*.)

<sup>a</sup> Besides the six extinct West Indian species characterized in the "Key," another species of *Ara* formerly existed on the island of Dominica. This has been named *Ara atwoodi* by Mr. Austin H. Clark (Auk., xxv, July, 1908, 310, in text), but so little is known of the bird that the characters mentioned are exceedingly vague, and I am therefore unable to place it in the "Key." It is mentioned in "The History of the Island of Dominica" (1791), by Thomas Atwood, after whom the species is named.

<sup>b</sup> *Sittace caninde* Wagler, Mon. Psitt., 1832, 674 (ex *Canindé* Azara, Apunt. Parag., i, 400).—*Sittace caninde* Finsch, Die Papag., i, 1867, 413.—*A[ra] caninde* Gray, Gen. Birds, ii, 1845, 412.—[*Macrocerus*] *caninde* Bonaparte, Rev. et Mag. de Zool., 1854, 149 (Consp. Psitt., p. 6).—*Ara caninde* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 153.—*Sittace azarae* Reichenow, Journ. für Orn., 1881, 267 (new name for *S. caninde* Wagler, on grounds of purism); Consp. Psitt., 1882, 155; Vogelbild., 1883, Nachtr. 73.

d. Smaller (wing averaging 366.7 in male, 373 in female; culmen averaging 56.4 in male, 56.5 in female). (Colombia to Peru and Bolivia.)

*Ara militaris militaris* (extralimital).<sup>a</sup>

dd. Larger (wing averaging 385.5 in male, 375.3 in female; culmen averaging 62.7 in male, 59.3 in female). (Western Mexico.)

*Ara militaris mexicana*. (p. 132).

cc. Bill larger (culmen 68-75); rump and tail-coverts pale turquoise or Nile blue; general green color lighter, more yellowish. (Southern Nicaragua to western Ecuador.).....*Ara ambigua* (p. 134).

bb. Rump and tail-coverts green; under wing-coverts mostly red or orange-yellow; smaller (wing less than 250 mm.).<sup>b</sup>

c. Head green (tinged with blue on pileum), the forehead, narrowly, dark brownish red; under wing-coverts mostly red; tail green, blue, and dull brownish red, its under surface dull red. (Panama to the Guianas, Amazon Valley, and Bolivia.).....*Ara severa* (p. 138).

cc. Head (all round) red; under wing-coverts orange-yellow; tail red and blue above, orange-yellow on under surface. (Jamaica; extinct.)

*Ara erythrocephala* (p. 140).

### ARA ARARAUNA (Linnæus).

#### BLUE AND YELLOW MACAW.

*Adults (sexes alike)*.—General color of upper parts turquoise blue to deep Nile blue, passing into apple green or oil green on forehead and sides of crown and occiput, the tail usually bluer (less greenish), nearer cerulean blue; remiges dull cobalt blue; under parts and under wing-coverts rich orange-yellow or yellow-orange,<sup>c</sup> sometimes slightly lighter (nearly cadmium yellow) anteriorly; under tail-coverts dull Nile blue to dull turquoise blue; under surface of rectrices and remiges chrome yellow, changing (with different inclination to light) to olivaceous; bare gular and malar area bordered posteriorly by a broad band of dull olive-blackish, the feathered lines on loreal, suborbital, and auricular regions the same color; bill, legs, and feet dusky (in dried skins); iris light yellow to grayish yellow.

*Immature*.—Essentially like adults, but some of the wing-coverts and upper tail-coverts pale brownish gray with a faintly defined

<sup>a</sup> [*Psittacus*] *militaris* Linnæus, Syst. Nat., ed. 12, i, 1766, 139 (no locality mentioned and no references given; but Chubb, in Birds S. Am., i, Dec., 1912, 80, suggests Colombia as type locality).—*Psittacus militaris* Bechstein, Latham's Uebers. Vög., i, 1793, 177, 697; Kuhl, Consp. Psitt., 1820, 17; Hahn, Orn. Atl., Papag., 1834, 26, pl. 11; Brehm, Mon. Papag., 1842, pl. 5.—*Ara militaris* Perry, Arcana, 1810, pl. 20 and text; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 158, part (Bogota, Colombia; "South America").—*Macrocerus militaris* Vieillot, Nouv. Dict. d'Hist. Nat., ii, 1816, 261 ("Guiana"); Selby, Naturalists' Libr., Parrots, 1836, 87, part, pl. 5.—*Macrocerus [Aracanga] militaris* Bonaparte, Rev. et Mag. de Zool., 1854, 119.—*Sittace militaris* Wagler, Mon. Psitt., 1832, 668, 723, part.—*Sittace militaris* Finsch, Die Papag., i, 1867, 396, part; Reichenow, Journ. für Orn., 1881, 268, part (monogr.); Consp. Psitt., 1882, 156, part; Vogelbild., 1878, pl. 1, fig. 1.

<sup>b</sup> Dimensions of *A. erythrocephala* unknown, however.

<sup>c</sup> Exactly the "orange" of the author's "Nomenclature of Colors" (1886).



broad subterminal band of pale dull greenish blue or bluish green, middle rectrices with one or more indistinctly defined subterminal bands of pale brownish gray, and under tail-coverts much paler and duller blue, margined terminally with dull orange-yellow. (First plumage probably with the blue largely replaced by pale brownish gray.)

*Adult male*.—Length (skins), 768–900 (835); wing, 365–400 (382); tail, 450–580 (523.7); culmen, 61–72 (65.7); tarsus, 30.5–36 (33.3); outer anterior toe, 40.5–49.5 (45.6).<sup>a</sup>

*Adult female*.—Length (skins), 762–807 (785); wing, 367–392 (376.3); tail, 470–525 (503); culmen, 60.5–66 (62.8); tarsus 33–34 (33.7); outer anterior toe, 41–45.5 (43.3).<sup>b</sup>

Eastern Panamá (Chepo) and southward through Colombia (mouth of Rio Atrato; Gulf of Urabá; Puerto Niña, Rio Magdalena; Trojas de Cataca, Fundación, and Arihueca, Santa Marta; La Murélia, Rio Bodoquera, Coqueta), eastern Ecuador (Rio Napo; Gualaquiza), eastern Peru (Chamicuro; Yurimáguas), Venezuela (Rio Orinoco; La Céiba; Rio Guarapiche), British Guiana (Corentyna River; Georgetown), and Dutch Guiana (Paramaribo; Surinám) to Brazil (Pernambuco; Mexiana Island; Santarém; Rio Juruá; Lagoa de Seco; Fazenda Esperança; Chapada, Mattogrosso) and Bolivia (Province del Sara; Santa Cruz de la Sierra; lower Rio Beni).

[*Psittacus*] *ararauna* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 96 (South America; <sup>c</sup> based on *Psittacus maximus cyano-croceus* Aldrovandi, Orn., l. 11, c. 2; Willughby, Orn., 110, pl. 15; etc.); ed. 12, i, 1766, 139.—GMELIN, Syst. Nat., i, pt. 1, 1788, 313.—LATHAM, Index, Orn., i, 1790, 83.

*Psittacus ararauna* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 178, 697.—TEMMINCK, Cat. Syst., 1807, 22, and app., p. 6.—SHAW, Gen. Zool., viii, 1811, 391.—KUHLE, Consp. Psitt., 1820, 17.—LEAR, Parrots, 1832, pl. 8.—HAHN, Orn. Atlas, Papag., 1834, 12, pl. 2.—DUBOIS, Orn. Gal., 1839, pl. 36.

<sup>a</sup> Eleven specimens.

<sup>b</sup> Three specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Six adult males from Colombia.....	384	533.3	65.7	32.9	45.3
Two adult males from Guianas (Surinam and British Guiana).....	376	540	68.5	33.7	47.7
Two adult males from Bolivia.....	377.5	475	63.5	33.7	44.5
One adult male from western Brazil (Chapada, Mattogrosso)....	390	540	64.5	34	45
FEMALES.					
Two adult females from Bolivia.....	381	492.5	63.2	33.5	44.5
One adult female from western Brazil (Chapada, Mattogrosso)....	367	525	62	34	41

<sup>c</sup> According to Hellmayr (Spix's Types, p. 577) the type locality is Pernambuco, e. Brazil, ex Marcgrave.

- Psittacus ararauna* BECHSTEIN, Kurze Uebers., 1811, 65.
- P[sittacus] ararauna* MAXIMILIAN, Beitr. Naturg. Bras., iv, 1832, 153.
- Macrocerus ararauna* VIEILLOT, Nouv. Dict. d'Hist. Nat., ii, 1816, 260 (Brazil); Enc. Méth., iii, 1823, 1417.—LESSON, Traité d'Orn., 1831, 185.—SELBY, Nat. Libr., Parrots, 1836, 90, pl. 6.—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 157.
- M[acrocerus] ararauna* CABANIS, in Schomburgk's Reise Brit. Guiana, iii, 1848, 730.
- S[itace] ararauna* WAGLER, Mon. Psitt., 1832, 673, 734.
- Sittace ararauna* FINSCH, Die Papag., i, 1867, 410; ii, 1868, 943.—PELZELN, Orn. Bras., 1870, pp. 255, lii.—REICHENOW, Vogelbild., 1878, pl. 2, fig. 1.
- [*Sittace*] *ararauna* PELZELN, Orn. Bras., 1870, 445.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 235 (Guiana).
- A[ra] ararauna* GRAY, List Gen. Birds, 1840, 51; Gen. Birds, ii, 1845, 412.—HARTELAUB, Syst. Verz., 1844, 85 (Brazil).
- Ara ararauna* DESCOURTILZ, Orn. Brés., 1854-'56, pl. 6, upper fig.—HOMMEYER, Journ. für Orn., 1859, 360.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 26 (Brit. Guiana).—CASSIN, Proc. Ac. Nat. Sci. Phila., xii, 1860, 137 (mouth of Rio Atrato, Colombia).—TAYLOR, Ibis, 1864, 93 (Rio Orinoco, Venezuela).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 587 (Mexiana I., lower Amazon); 1873, 299 (Chamicuros, e. Peru); 1879, 634 (Santa Cruz de la Sierra, Bolivia).—SALVIN, Ibis, 1871, 90 (mouth of Rio Atrato, Colombia; Chepo, Panama); 1886, 67 (Brit. Guiana).—GARROD, Proc. Zool. Soc. Lond., 1874, 587 (anatomy).—ALLEN, Bull. Essex Inst., v, 1876, 81 (Santarem, lower Amazon); Bull. Am. Mus. N. H., ii, 1889, 103 (lower Rio Beni, Bolivia; habits); v, 1893, 140 (Chapada, Mattogrosso, s. w. Brazil).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1882, 46 (Yurimaguas, e. Peru); Orn. du Pérou, iii, 1886, 193.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 152 (Chepo, Panama; etc.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 564 (Chepo, Panama; Colombia; Amazon Valley; Guiana; Bolivia).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 24 (Gualaquiza, e. Ecuador).—IHERING, Rev. Mus. Paulista, iv, 1904, 448 (Rio Juruá, Amazonas, Brazil).—(?) CLARK (A. H.), Auk, xxii, 1905, 346 (Jamaica?).—HELLMAYR, Abh. K. Ak. Wiss. Wien, ii kl., xxii bd., iii abt., 1905, 577 (crit.); Novit. Zool., xv, 1908, 88 (Faz. Esperança, Brazil).—BEEBE, Zoologica, i, 1909, 82 (La Ceiba and Rio Guarapiche, Venezuela).—REISER, Denkschr. Mat.-Nat. Kaiserl. Ak. Wiss. Wien, 1910, 56 (Lagoa de Saco, n. e. Brazil).
- [*Ara*] *ararauna* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 8).—GRAY, Hand-list, ii, 1870, 144, no. 8075.—SALVIN, Ibis, 1871, 87 (Panama; Darien; South America).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111.—SHARPE, Hand-list, ii, 1900, 13.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10.
- Arara araravuna* BREHM, Mon. Papag., 1842, pl. 7.—SCHLEGEL, Mus. Pays-Bas, no. 22 (Psittaci), 1864, 4 (Surinam); no. 38 (Revue), 1874, 2 (Surinam).
- Macrocerus (Ararauna) ararauna* BONAPARTE, Rev. et Mag. de Zool., 1854, 149.—SOUANCÉ, Rev. et Mag. de Zool., 1856, 57.
- [*Psittacus*] *caeruleus* GMELIN, Syst. Nat., i, pt. 1, 1788, 314 ("Jamaica, Guiana, Brasilia, Surinamo;" based on *Psittacus maximus caeruleus varius, cauda producta*, Brown, Jam., 272; *Ara jamaicensis cyaneo-croceo* Brisson, Orn., iv, 191; *Blue Maccau* Albin, Av., iii, pl. 10; Latham, Synopsis Birds, i, i, 205).
- Psittacus araravuna, caeruleus* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 179.
- Psittacus ar[aravuna] coeruleus* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 697.

*Sittace caerulea* REICHENOW, Journ. für Orn., 1881, 266 (*ararauna* rejected on grounds of purism); Consp. Psitt., 1882, 154; Vogelbild., 1883, Bericht. pl. 2, fig. 1.

*Ara macao* (not *Psittacus macao* Linnæus) PRÉVOST, Ois. Exot., [1861], pl. 30.

*Ara militaris* (not *Psittacus militaris* Linnæus) SALVIN and GODMAN, Ibis, 1880, 176 (Arihueca, Santa Marta, Colombia).

*Ara arauana* IHERING, Rev. Mus. Paulista, iii, 1899, 311 (Rio Claro, Rio Tietê, Rio Verde, etc., Brazil).

#### ARA MARTINICA (Rothschild.)<sup>a</sup>

##### MARTINIQUE MACAW.

“Upper surface and head blue, chest and rest of under surface orange.” (Rothschild.)

Island of Martinique, Lesser Antilles. (Extinct.)

*Anadorhynchus martinicus* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 14 (Martinique, Lesser Antilles; ex Père Jacques Bouton, Rel. de l'établiss. d. Français dep. 1635, en l'île Martinique, 1640, 71, 72).—SALVADORI, Ibis, 1906, 451.

*Ara ararauna* (not *Psittacus ararauna* Linnæus?) SALVADORI, Ibis, 1906, 451 (crit.).

*Ara martinicus* ROTHSCHILD, Extinct Birds, 1907, 53, pl. 14.

#### ARA ERYTHRURA Rothschild.

##### RED-TAILED BLUE AND YELLOW MACAW.

Head, hindneck, and back “satiny sky blue;” under parts (including under wing-coverts) yellow; tail red.

One of the West Indian Islands, but the particular one unknown. (Extinct.)

*Anadorhynchus coeruleus* (not *Psittacus caeruleus* Gmelin) ROTHSCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 15 (“Jamaica”).

*Ara erythrura* ROTHSCHILD, Extinct Birds, 1907, 54, pl. 15 (“one of the West Indian Islands;” based on DeRochefort, Hist. Nat. & Mor. des Isles Antilles, etc., 1658, 154, Art. ix, Des Arras).

#### ARA CHLOROPTERA Gray.

##### RED, BLUE, AND GREEN MACAW.

Much like *A. macao* but larger (especially the bill); bare loreal and suborbital regions with lines of short feathers; middle wing-coverts and posterior scapulars green instead of yellow; remiges greenish cerulean blue instead of violaceous cobalt blue; rump and upper tail-coverts light greenish blue; red of head, neck, etc., darker, and distal portion of rectrices, together with greater part of lateral rectrices, greenish blue.

*Adults (sexes alike).*—Head, neck, and under parts bright poppy red (nearly carmine on under parts); back, anterior scapulars, and lesser wing-coverts dull crimson, the feathers more or less distinctly margined terminally with yellowish green; posterior scapulars, middle wing-coverts, and proximal greater coverts yellowish green

<sup>a</sup> This is evidently related to and possibly identical with *A. ararauna*.

(apple green to oil green); distal greater coverts, alula, and primary coverts deep Nile blue, or between turquoise blue and beryl green, the secondaries similar but rather deeper, the innermost ones (tertiaries) tinged with yellowish green; primaries bright deep turquoise blue, tinged on distal portion with cobalt blue, their shafts black; rump and upper tail-coverts uniform light greenish blue (changing from Nile blue to light cerulean according to inclination of the light); middle rectrices brownish red for greater part, the distal portion greenish blue, the concealed base dull light blue; next pair similar but with the inner web mostly greenish blue, the red of outer web darker; next pair mostly greenish blue; fourth pair greenish blue, the outer web becoming greenish basally, where broadly edged with dark reddish brown, the inner web broadly edged with same for most of its length; fifth and sixth pairs blue with inner portion of inner web (broadly) very dark reddish brown; shafts of rectrices black distally, more brownish basally, those of middle pair dull white for proximal third (more or less); maxilla dull brownish whitish, ivory white, or pale brownish buffy, with a triangular area of black on lower-basal portion; mandible black; naked skin of face pale flesh color (in life); iris yellow; legs and feet grayish dusky.

*Adult male*.—Length (skins), 770–858 (813); wing, 375–410 (399.4); tail, 475–543 (497.4); culmen, 73.5–86 (82.2); tarsus, 35–39 (37); outer anterior toe, 45–50 (48.1).<sup>a</sup>

*Adult female*.—Length (skins), 785–873 (823); wing, 392–405 (399.3); tail, 480–539 (502.5); culmen, 77.5–81 (79.2); tarsus, 33.5–36.5 (35.3); outer anterior toe, 43.5–51 (46.9).<sup>b</sup>

Eastern Panamá (Lion Hill, Canal Zone) and southward, through Colombia (Turbo; Santa Marta, Dibulla, Fundación, and Valle de Uparé, Santa Marta), eastern Ecuador (Sarayacu), Venezuela (Orope, Zulía; El Hacho; Rio Yuruán), British Guiana (Quenza; Bartica Grove; Camacusa), Brazil (Pará; Diamantina on lower

<sup>a</sup> Eight specimens.

<sup>b</sup> Six specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Panama (Lion Hill).....	410	522	85.5	37	49
Two adult males from Colombia (Santa Marta).....	392.5	485	79.7	36.5	45.7
Four adult males from Venezuela.....	401.5	497.8	82.4	36.7	48.6
One adult male from Bolivia.....	395	503	83	39	49.5
FEMALES.					
One adult female from Panama (Lion Hill).....	400	515	81	35	51
One adult female from Colombia (Santa Marta).....	402	488	78.5	35.5	48
Two adult females from Venezuela.....	394.5	480	80	36	45.5
Two adult females from w. Brazil (Chapada, Matto Grosso).....	402.5	514	77.7	34.7	45.7

Amazon; Santarém; Goyatazas; Maranhao; Paranaguá; Rio Capím; Aramatheusa, Rio Tocantins; São Paulo; Chapada, Mattogrosso), and Bolivia (Rio Yapacani; Santa Cruz de la Sierra) to Paraguay (Guacamayo; Alta Paraná) and northern Argentina (southern Chaco; Misiones).

*Psittacus macao* (not of Linnæus) BECHSTEIN, Lath. Ueb. Vögel, i, 1793, 175, 697; Kurze Uebers., 1811, 64.—KUHLE, Consp. Psitt., 1820, 15, part.—HAHN, Orn. Atlas, Papag., 1834, 21, pl. 12.—SELBY, Nat. Libr., Parrots, 1836, 93.—DUBOIS, Orn. Gal., 1839, pl. 91.—BREHM, Mon. Papag., 1842, pl. 1.—THIENEMANN, Fortpflanz. d. ges. Vög., 1846, 75, pl. 14, fig. 7 (egg).

*P[sittacus] macao* MAXIMILIAN, Reise Bras., i, 1820, 99, 131, 206, 250; ii, 1820, 230, 237; Beitr. Naturg. Bras., iv, 1832, 138.

*Arara macao* SPIX, Av. Bras., i, 1824, 27 (Goyatazas, Maranhao and Pará, Brazil).

*Macrocerus macao* LESSON, Traité d' Orn., 1831, 185.—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 155; Proc. Zool. Soc. Lond., 1878, 77, in text (descr. tongue).

[*Macrocerus*] *macao* BONAPARTE, Consp. Gen. Av., i, 1850, 1 (cites "Levaillant, Perr. tab. 1"); Naumannia, 1856 (Consp. Psitt., no. 6).

*M[acrocerus] macao* CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 730.

*S[ittace] macao* WAGLER, Mon. Psitt., 1832, 671, 734.

*A[ra] macao* GRAY, Gen. Birds, ii, 1845, 412.

[*Macrocerus*] *macao* BONAPARTE, Rev. et Mag. de Zool., 1854, 149 (Consp. Psitt., p. 6).

*Ara macao* HARTLAUB, Index Azara's Apunt., 1847, 17.—GULLIVER, Proc. Zool. Soc. Lond., 1875, 489 (blood corpuscles).

*Macrocerus (Aracanga) macao* SOUANCÉ, Rev. et Mag. de Zool., 1856, 57.

*Ara chloropterus* GRAY, List Birds Brit. Mus., pt. iii, sec. ii, Psittacidae, 1859, 26 (British Guiana; coll. Brit. Mus.; no descr., but based on *Macrocerus macao* Vieillot, Nouv. Dict. d'Hist. Nat., ii, 262, etc.).—HOLMBERG, Segundo Censo Argent., i, 1898, 513.

*Ara chloroptera* SCLATER, Proc. Zool. Soc. Lond., 1859, 433 (Guiana).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 367 (Panama); 1879, 634 (Santa Cruz de la Sierra, Bolivia).—SALVIN, Ibis, 1871, 99 (Middle American range); 1886, 66 (Bartica Grove and Camacusa, Brit. Guiana).—GARROD, Proc. Zool. Soc. Lond., 1875, 343 (plantar tendons).—SALVIN and GODMAN, Ibis, 1880, 176 (Valle de Upare, Sierra Nevada de Santa Marta, Colombia); Biol. Centr. Am., Aves, ii, 1897, 566 (Lion Hill, Panama; Colombia; Ecuador; Bolivia; Amazon Valley; Guiana).—SCHMIDT, Proc. Zool. Soc. Lond., 1880, 310 (longevity in captivity).—BERLEPSCH, Journ. für Orn., 1887, 121 (Paraguay).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 156 (Panama; Valle de Upare, Colombia; Bartica Grove, etc., Brit. Guiana; Sarayacu, e. Ecuador); Ibis, 1906, 452 (crit.).—RIKER, Auk, viii, 1891, 159 (Santarém, lower Amazon).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 140 (Chapada, Mattogrosso, Brazil).—KOENIGSWALD, Journ. für Orn., 1896, 379 (São Paulo, s. Brazil).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 132 (Santa Marta, Colombia).—IHERING, Rev. Mus. Paulista, iii, 1899, 312 (São Paulo); vi, 1904, 335 (Paraguay).—GOELDI, Ibis, 1903, 498 (Rio Capim, n. e. Brazil).—(?) CLARK (A. H.), Auk, xxii, 1905, 347 (Antilles?).—HELLMAYR, Abh. k. Ak. Wiss., ii Kl., xxii Bd., iii, Abt., 1905, 577 (crit.).—SNETHLAGE, Journ. für Orn., 1908, 537 (Aramatheusa, Rio Tocantins, Brazil).—REISER, Denk. Mat.-Nat. Kaiserl. Ak. Wiss. Wien, 1910, 56 (Paranaguá, n. e. Brazil).—DABBENE, Orn. Argent., 1910, 256 (s. Chaco and Misiones, Argentina).

- [*Ara chloroptera* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111.—SHARPE, Hand-list, ii, 1900, 13.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10 (Brazil).  
*Macrocerus chloropterus* FINSCH, Nederl. Tijdschr. Dierk., i, 1863, p. ix (Brazil).  
*Arara chloroptera* SCHLEGEL, Mus. Pays-Bas, no. 26 (Psittaci), 1864, 3; no. 38 (Revue), 1874, 2.  
*Sittace chloroptera* FINSCH, Die Papag., i, 1867, 403.—PELZELN, Orn. Bras., 1870, pp. 255, lii.—REICHENOW, Vogelbild., 1879, pl. 9, fig. 4; Journ. für Orn., 1881, 267 (monogr.).  
[*Sittace*] *chloroptera* PELZELN, Orn. Bras., 1870, 445.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 235 (Brazil).  
*Ara ruana* PRÉVOST, Orn. Exot., [1861?], pl. 29.  
(?)*Ara chloroptera major* BERTONI, Aves Nuevas de Paraguay, 1901, 52 (Alto Paraná, Paraguay; see Salvadori, Ibis, 1906, 452.—ARRIBALZAGA, Ann. Mus. Nac. Buenos Aires, vii, 1902, 344.

### ARA MACAO (Linnæus).

#### RED, BLUE, AND YELLOW MACAW.

*Adults (sexes alike).*—Head, neck, back, scapulars, lesser wing-coverts, greater part of tail, and under parts, including under wing-coverts, clear scarlet vermilion, deeper on under parts, which incline to deep poppy red; shafts of rectrices horn color; middle and proximal greater wing-coverts orange-yellow (between chrome and deep chrome yellow), some of them, occasionally, with a terminal spot of dull greenish blue or bluish green; the outermost (distal) ones usually more or less tinged with greenish, outer (distal) greater coverts, alula, primary coverts, and remiges uniform dull cobalt blue, the inner secondaries (tertials) more or less tinged with green; rump and upper tail-coverts uniform azure blue; under tail-coverts pale grayish blue (nearly flax-flower blue) passing into vinaceous-pinkish basally; under surface of tail red, passing into dull grayish brown or olive on tips of rectrices and for some distance thence along edges; under surface of remiges red for half (approximately) next to shaft, dull purplish brown on inner half, passing into dusky distally, the inner webs of primaries edged with yellowish proximally; maxilla mostly pale brownish yellow (pale flesh color or dull pinkish white in life); mandible, tip of maxilla, and a triangular area on lower basal portion of maxilla, black; iris pale yellow; bare skin of head pale flesh color or pinkish white in life, legs and feet dusky grayish or blackish.

*Adult male.*—Length (skins), 742–920 (841); wing, 355–425 (394.1); tail, 387–598 (549.4); culmen, 62–73.5 (69.4); tarsus, 33.5–38 (35.7); outer anterior toe, 39.5–49.5 (45.8).<sup>a</sup>

<sup>a</sup> Eight specimens.

*Adult female*.—Length (skins), 795–950 (848); wing, 386–410 (397); tail, 490–610 (541.7); culmen, 66.5–70 (68); tarsus, 33.5–36.5 (35.3); outer anterior toe, 40–44 (42).<sup>a</sup>

Southern Mexico, in States of Tamaulipas (Tampico), Vera Cruz (Tuxpán; Uvero), Oaxaca (Santa Efigénia; Chimalapa; Cacoprieto), and Chiapas (Tonalá) and southward through Guatemala (Naranjo; Aguna; Savana Grande; San Augustin; Huamuchál; Plains of Salamá; Choctúm; pine ridge of Poctún; Los Amates, Yzabál), Salvadór (La Unión), Honduras (Omoa; Tigre Island; Comayagua; Chamelicón; Rio Segóvia), Nicaragua (Chinandega; San Juan del Sur; Sucuyá; Omotepe; Los Sábalos; Rio Escondido; Matagalpa; San Rafael del Norte), Costa Rica (Naranjo de Cartago; San Carlos; Las Trojas; Tres Rios; Rio Súcio; Jiménez; Bonilla; Rio Peje; Los Anonas; Volcán de Miravalles; La Palma de Nicoya; Pigres; Boruca; Pozo del Rio Grande), Panamá (Lion Hill; Coiba Island), Colombia (La Murélia, Rio Bodoquero, Coqueta; Rio Magdalena; Cartagena; Bogotá), eastern Ecuador (Sarayacu), eastern Perú (Yarina Chocha, Rio Ucayali; Rio Huallaga; Rio Javarri; Chyavetas; Yurimaguas), Venezuela (Caicará and Niaré, Orinoco Valley; Rio Mocha, upper Rio Caura; Rio Guarapiche), British Guiana (Georgetown; Demerara), Dutch Guiana (Surinám), and French Guiana (Cayenne), to Brazil (Rio Capím; Rio Juruá, Amazonas; Huaymatha, Rio Madeira; Arumatheusa, Rio Tocantíns; Mexiana Island) and Bolivia (Santa Cruz de la Sierra).

[*Psittacus macao* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 96 (South America)<sup>b</sup> based on *Psittacus maximus alter* Aldrovandi, Orn., l. 11, c. 3; Willughby, Orn., 73; Edwards, Birds, 158, pl. 158; etc.); ed. 12, i, 1766, 139 (excl. syn. part).—GMELIN, Syst. Nat., i, pt. 1, 1788, 312 (excl. syn. part).—LATHAM, Index Orn., i, 1790, 82.

<sup>a</sup> Three specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Oaxaca, s. Mexico.....	425	550	71	36	48.5
Two adult males from Honduras.....	399.5	511	68.5	37.2	47
Two adult males from Costa Rica.....	392.5	540.5	73.3	35	47
One adult male from Coiba Island, Panama.....	355	570	67.5	33.5	42
One adult male from Colombia (Rio Magdalena).....	372	575	62	34.5	39.5
One adult male from Venezuela (upper Rio Caura).....	417	598	71.5	37.5	48.5
FEMALES.					
Two adult females from Costa Rica.....	398	567.5	67	34.7	41
One adult female from Colombia (Rio Bodoquera, Coqueta)...	395	490	70	36.5	44

<sup>b</sup> According to Hellmayr (Spix's Types, p. 577) the type locality is Pernambuco, e. Brazil, exMargrave).

- Psittacus macao* TEMMINCK, Cat. Syst., 1807, 21.—SHAW, Gen. Zool., viii, pt. 2, 1811, 386, pl. 53.—KUHLE, Consp. Psitt., 1820, 15, part.
- Macrocercus macao* VIEILLOT, Nouv. Dict. d'Hist. Nat., ii, 1816, 262 (South America; "Sainte-Domingue"); Tabl. Enc. Méth., iii, 1823, 1418.—FINSCH, Nederl. Tijdschr. Dierk., i, 1863, Bericht., p. xiii (w. coast South America).
- Ara macao* HARTLAUB, Syst. Verz., 1844, 85.—GRAY, List Birds Brit. Mus., Psitt., 1859, 26.—TAYLOR, Ibis, 1860, 119 (Comayagua and Tigre I., Honduras; habits).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 474 (Lion Hill, Panama); Ibis, 1865, 224, in text (acct. of spec. living 66 years in captivity); Bull. U. S. Nat. Mus., no. 4, 1876, 35 (Santa Efigenia and Tehuantepec City, Oaxaca, and up into pine zone).—OWEN, Ibis, 1866, 169, 170 (fig. of mandible).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 197 (Rio Ucayali, e. Peru); 1867, 587 (Mexiana I., lower Amazon), 753 (Rio Huallaga, e. Peru); 1873, 299 (lower Rio Ucayali and Chyvetes, e. Peru); 1879, 634 (Santa Cruz de la Sierra, Bolivia).—SALVIN, Ibis, 1871, 87, 89 (Middle American range); 1886, 67 (Brit. Guiana).—REINHARDT, Ibis, 1871, 362 (Mexico).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 38, 46 (San Carlos, Costa Rica; habits).—GARROD, Proc. Zool. Soc. Lond., 1873, 465 (carotid arteries).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1882, 46 (Yurimaguas, e. Peru); Orn. du Pérou, iii, 1886, 192.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 402 (La Palma de Nicoya, w. Costa Rica; habits); vi, 1883, 376, 388, 399, 407 (San Juan del Sur, Sucuya, Omotepe, and Los Sabalos, Nicaragua).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 124 (Las Trojas, Tres Rios, Rio Sucio, and Jimenez, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 592 (Rio Segovia, s. e. Honduras); Condor, vii, 1905, 155 156, in text (Pigres and Bonilla, Costa Rica).—BERLEPSCH, Journ. für Orn., 1889, 313 (Yarina Chocha, Rio Ucayali, n. e. Peru); Novit. Zool., xv, 1908, 284 (Cayenne).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 154 (Chimalapa, Oaxaca; Aguna and Savana Grande, Guatemala; Rio Peje, w. Costa Rica; Panama; Sarayacu, e. Ecuador; Demerara, Brit. Guiana); Ibis, 1906, 452 (additional references).—CHERRIE, Expl. Zool. Merid. Costa Rica, 1893, 49 (Boruca, s. w. Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 519 (Rio Escondido, Nicaragua).—UNDERWOOD, Ibis, 1896, 445 (Volcan de Miravalles, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 565 (Tampico, Tamaulipas; Tuxpam and Uvero, Vera Cruz; Cacoprieto, etc., Oaxaca; Tonala, Chiapas; San Augustin, Huamuchal, Plain of Salama, Choctum, pine ridge of Poctun, etc., Guatemala; La Union, Salvador; Omoa, etc., Honduras, Matagalpa, San Rafael del Norte, etc., Nicaragua; Las Anonas, etc., Costa Rica; Lion Hill, Panama; etc.).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 399, 9 (Cartagena, Colombia).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 24 (Bogota, Colombia); Auk, xxiv, 1907, 292 (Poza del Rio Grande, Costa Rica).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 107 (Caicara and Nicare, Orinoco Valley, Venezuela).—GOELDI, Ibis, 1903, 498 (Rio Capim, n. e. Brazil).—IHERING, Rev. Mus. Paulista, iv, 1904, 448 (Rio Jurua, Amazonas, Brazil).—? CLARK (A. H.), Auk, xxvi, 1905, 346 (Jamaica?).—HELLMAYR, Abh. Ak. Wiss., ii. Kl., xxii. Bd., iii. Abt., 1905, 577 (crit.); Novit. Zool., xvi, 1907, 405 (Huymatha, Rio Madeira, Brazil).—HAGMANN, Zool. Jahrb., 1907, 38 (Mexiana I.).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 85 (Los Amates, e. Guatemala).—SNETHLAGE, Journ. für Orn., 1908, 537 (Arumatheusa, Rio Tecantins, Brazil).—BEEBE, Zoologica, i, 1909, 82 (Rio Guarapiche, n. e. Venezuela).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 481 (Costa Rica; habits).



- [*Ara*] *macao* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111.—SHARPE, Handlist, ii, 1900, 13.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10 (Honduras).—GOELDI, Ibis, 1903, 498 (Rio Capim, n. e. Brazil).
- A[ra] macao* RIDGWAY, Man. N. Am. Birds, 1887, 587; 2d ed., 1896, 594.
- Sittace macao* SUNDEVALL, Journ. für Orn., 1855, 165 (wing structure); Met. Nat. Av. Disp. Tent., 1872, 70; Ibis, 1886, 454 (wing structure).—FINSCH, Die Papag., i, 1867, 398; ii, 1868, 943.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Las Anonas, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 364 (Costa Rica).—PELZELN, Orn. Bras., 1870, 254.—REICHENOW, Vogelbild., 1879, pl. 9, fig. 5.
- [*Sittace*] *macao* PELZELN, Orn. Bras., 1870, 445.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 235 (Brazil; Guiana).
- Arara macao* SCHLEGEL, Mus. Pays-Bas, iii, No. 26 (Psittaci), 1864, 3 (Surinam); no. 38 (Revue), 1874, 2 (Surinam).
- [*Psittacus*] *aracanga* GMELIN, Syst. Nat., i, pt. 1, 1788, 313, excl. syn. part ("in Gujana, Brasilia, Jamaica"); based on *Ara jamaicensis* Brisson, Orn., iv, 188; *Psittacus erythroxanthus* Gesner, Av., 721; *Aracanga* Macgrave, Bras., 206, etc.).—LATHAM, Index Orn., i, 1790, 83.
- Psittacus aracanga* BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 176, 697.—TEMMINCK, Cat. Syst., 1807, 22.—SHAW, Gen. Zool., viii, pt. 2, 1811, 386, pl. 53.—KUHLE, Consp. Psitt., 1820, 16.—HAHN, Vög. aus Asien, 1822, Lief. xiii, pl. 1; Orn. Atlas, Papag., 1834, ii, pl. 1.—BREHM, Mon. Papag., 1842, pl. 2.—LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1; Journ. für Orn., 1863, 54 (reprint).
- Ps[ittacus] aracanga* BECHSTEIN, Kurze Uebers., 1811, 64.
- P[sittacus] aracanga* MAXIMILIAN, Beitr. Naturg. Bras., iv, 1832, 138.
- Macrocerus aracanga* VIEILLOT, Nouv. Dict. d'Hist. Nat., ii, 1816, 258, part (based on *Psittacus ara* Latham; *Petit Ara rouge* Daubenton, Pl. Enl. 641); Enc. Méth., iii, 1823, 1416.—LESSON, Traité d'Orn., 1831, 185.—LEAR, Parrots, 1832, pl. 7.—SELBY, Nat. Libr., Parrots, 1836, 93, pl. 7, middle fig.—GULLIVER, Proc. Zool. Soc. Lond., 1875, 490 (blood corpuscles).
- [*Macrocerus*] *aracanga* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 7).
- Macrocerus aracanga* CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 729.
- Arara aracanga* SPIX, Av. Bras., i, 1824, 27 (Amazon R.).
- [*Arara*] *aracanga* LICHTENSTEIN, Nom. Mus. Berol., 1854, 73.
- S[ittace] aracanga* WAGLER, Mon. Psitt., 1832, 672, 734.
- A[ra] aracanga* GRAY, Gen. Birds, ii, 1845, 412.—HOMEYER, Journ. für Orn., 1859, 360 (in Zool. Gardens, Frankfurt).
- Ara aracanga* DESCOURTILZ, Orn. Brés., 1854-'56, pl. 7, upper fig.—SCLATER, Proc. Zool. Soc. Lond., 1857, 266 (Rio Javarri, e. Peru).—MOORE, Proc. Zool. Soc. Lond., 1859, 59 (Honduras).—SCLATER and SALVIN, Ibis, 1859, 137 (Pacific coast distr. Guatemala); Proc. Zool. Soc. Lond., 1864, 367 (Panama).—LAWRENCE, Ann. Lyc. N. Y., viii, 1867, [11] (Lion Hill, Panama).
- [*Macrocerus (Aracanga)*] *aracanga* BONAPARTE, Rev. et Mag. de Zool., 1854, 149.—SOUANCÉ, Rev. et Mag. de Zool., 1856, 57.
- Sittace coccinea* REICHENOW, Journ. für Orn., 1881, 267, Consp. Psitt., 1881, 155.

## ARA GUADELOUPENSIS A. H. Clark.

## GUADELOUPE MACAW.

"Apparently similar to *A. macao* Linn., but smaller (tail 15 to 20 in. long [Labat]; 18 in. long [Dutertre], and with the tail wholly red." (Clark.)

Islands of Guadeloupe and Martinique (also Dominica?),<sup>a</sup> Lesser Antilles. (Extinct.)

*Ara guadeloupensis* CLARK (A. H.), Auk, xxii, July, 1905, 272, 348 (based on *Ara Dutertre*, Hist. Gén. Isles des Christophe, de la Guadeloupe, etc., 294; Labat, Nouv. Voy. Isles de l'Amérique, etc., ii, 211; Buffon, Hist. Nat. Ois., vi, 181, part; (?) *L'Ara rouge* Daubenton, Pl. Col., pl. 12; Brisson, Orn., iv, 183, part; *The red and blue macaw* Edwards, Birds, iv, 158, part; Latham, Gen. Hist. Birds, ii, 102, part).—SALVADORI, Ibis., 1906, 452 (crit.).

*Ara guadaloupensis* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905 (Nov. 1), 15; Extinct Birds, 1907, 54.

ARA MILITARIS MEXICANA Ridgway.

MEXICAN GREEN MACAW.

Similar to *A. m. militaris*,<sup>b</sup> but larger.

*Adults (sexes alike)*.—General color yellowish parrot green, passing into paris green on hindneck, sides of neck, occiput, and crown, the wing-coverts and secondaries inclining to oil green or yellowish olive-green; forehead and lores bright poppy red; lines of small feathers across naked suborbital region blackish brown, the naked malar and mental areas bordered with dark reddish brown; rump and tail-coverts clear turquoise blue; alulae, primary coverts, distal greater coverts, distal secondaries, and primaries greenish cerulean blue, the primaries more purplish blue along both sides of shafts, the latter black; middle pair of rectrices dull brownish red, passing, through dull greenish, into light dull greenish blue on distal portion, or the blue abruptly succeeding the red; second pair similar but with the distal blue more extended, the remaining rectrices with the red confined to outer webs (replaced on inner webs with a more olivaceous hue), and the red of outer web more and more restricted until the outermost rectrix is wholly blue on outer web; under surface of wings (except smaller coverts) and tail deep olive-yellow changing to almost golden yellow in certain lights; bill horn color terminally darkening into nearly black basally; iris yellow; naked skin of face and chin deep rosy flesh color or carmine-pink in life; legs and feet grayish dusky.

*Young*.—Very similar in coloration to adults, but scapulars and smaller wing-coverts rather distinctly margined with paler green, middle rectrices margined terminally with pale grayish yellowish or dull whitish, middle malar region and adjacent portion of throat more brownish, and green of under parts slightly paler and more yellowish.

*Adult male*.—Length (skins), 650–728 (692); wing, 363–400 (385.5); tail, 426–435 (432); culmen, 56–63 (62.7); tarsus, 33.5–36.5 (34.8); outer anterior toe, 42–44.5 (43.4).<sup>c</sup>

<sup>a</sup> The bird formerly occurring on the island of Dominica has been named, by Austin Hobart Clark, *Ara atwoodi* (Clark, Auk, xxv, July, 1908, 310, in text; based on description in Atwood's History of the Island of Dominica, 1791).

<sup>b</sup> See p. 122.

<sup>c</sup> Four specimens.

*Adult female*.—Length (skins), 681–705 (690); wing, 365–386 (375.3); tail, 392–411 (402.7); culmen, 57.5–63 (59.3); tarsus, 32.5–33.5 (33); outer anterior toe, 40–44 (42.5).<sup>a</sup>

Mexico, in States of Tamaulipas (Sierra Madre; Rio de la Cruz), Mexico (Temascaltepec), Guanajuato, Zacatecas (Sierra Madre), Sonora (Quiriego), Sinaloa (Mazatlán; Presidio de Mazatlán; Plomosas; Coyoatlán; Escuinapa), Jalisco (San Sebastián; Barranca Beltrán; Barranca Ibarra; Huamelula near Zapotlán; Agosto), Michoacán (south of Morélia), Colima (Manzanillo; Rio de la Armeria; Culeta), Guerrero (Acapulco), and Oaxaca (mts. northwest of Tehuán-tepec), and Territory of Tepic (San Blas); Guatemala.

*Psittacus militaris* (not of Linnæus) WAGLER, Isis, 1831, 525 (Mexico).

*Macrocerus militaris* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 88, 109, 151 (Mexico).

*Sittace militaris* FINSCH, Die Papag., i, 1867, 396, part (Mazatlan, Sinaloa); ii, 1868, 943, part (crit.); Abh. Nat. Ver. Bremen, 1870, 352 (Mazatlan, Sinaloa).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 295 (Mazatlan; habits; descr. nest and eggs).—REICHENOW, Journ. für Orn., 1881, 268, part (monogr.); Consp. Psitt., 1882, 156, part.

*Sittace militaris* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 586, footnote, part.

*Ara militaris* SALVIN, Ibis, 1871, 88, part (Middle American range).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 35 (mts. w. of Tehuantepec City, Oaxaca).—BOUCARD, Ann. Soc. Linn. Lyon, 1878, 32 (Guatemala).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 158, part (Quiriego, Sonora; Presidio de Mazatlan, Sinaloa; San Blas, Tepic; Culata, Colima; Sierra Madre, Tamaulipas; Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 566, part (Mazatlan and Presidio de Mazatlan, Sinaloa; Quiriego, Sonora; San Blas, Tepic; Guanajuato; Culeta and Rio de la Armeria, Colima; Acapulco, Guerrero; Huamelula near Zapotlan, Barranca de Beltran, and Agosto, Jalisco; Temascaltepec, Mexico; Sierra Madre, Tamaulipas).—JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 786 (Barranca Beltran, and Barranca Ibarra, Jalisco; habits).—LANTZ, Trans. Kansas Ac. Sci. for 1896–97 (1899), 219 (Limoncito [Sinaloa?]).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 347 (Coyoatlan and Escuinapa, Sinaloa).—PHILLIPS, Auk., xxviii, 1911, 75 (Rio de la Cruz, s. Tamaulipas).

*A[ra] militaris* RIDGWAY, Man. N. Am. Birds, 1887, 586, part; 2d ed., 1896, 594, part.

<sup>a</sup> Three specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males of <i>A. ambigua</i> .....	404.5	467.5	71.5	34	49
Four adult males of <i>A. militaris mexicana</i> from western Mexico.	385.5	432	62.7	34.8	43.4
Four adult males of <i>A. militaris militaris</i> from Colombia.....	366.7	420.7	56.4	33	41.5
FEMALES.					
Five adult females of <i>A. ambigua</i> .....	392.4	451.2	72.1	35.1	47.4
Three adult females of <i>A. militaris mexicana</i> from western Mexico.	375.3	402.7	59.3	33	42.5
Three adult females of <i>A. militaris militaris</i> from Colombia.....	373	398	56.5	32.3	42.5

- [*Ara*] *militaris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111, part.—SHARPE, Hand-list, ii, 1900, 13, part.  
*Arara militaris* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 5, part (Mexico).  
*Ara ambigua* (not *Psittacus ambiguus* Bechstein) SCLATER, Proc. Zool. Soc. Lond., 1867, 183 (Mexico; crit.; diagn.).  
*Ara militaris mexicana* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106 (Manzanillo, Mexico; coll. U. S. Nat. Mus.).

### ARA AMBIGUA (Bechstein).

#### BUFFON'S MACAW.

Similar to *A. militaris* but decidedly larger, with relatively much larger bill; general color much lighter, the green more yellowish, the blue of rump and tail-coverts paler and more greenish, and red of tail brighter, more orange-red.

*Adults (sexes alike).*—Forehead (broadly) and lores bright scarlet-vermilion; crown bright apple green, passing into more bluish green (between emerald and malachite) on hindneck; back, scapulars, proximal secondaries, and lesser and middle wing-coverts bright yellowish green, inclining to golden olive-green in certain lights; greater coverts and alulae light greenish blue (between turquoise and Nile blue), the innermost (proximal) greater coverts suffused with light yellowish green; primary coverts and primaries deeper greenish blue, with black shafts; rump and tail-coverts clear Nile blue, some of the feathers margined terminally with light yellowish green (apple green); middle pair of rectrices dull orange-red (between orange chrome and Chinese orange), passing, through yellowish green, into greenish turquoise blue on distal portion; second pair similar, but blue of distal portion more extended and orange-red of proximal portion darker and confined to outer web (replaced on inner web by olive-greenish tinged with orange-reddish); third and fourth pairs similar but with the reddish still more restricted (progressively), the sixth (outermost) pair with outer web wholly blue; under surface of wings (except smaller coverts) and tail yellow, becoming more olivaceous in certain lights; small feathers on naked suborbital region blackish brown; auricular region, posterior portion of malar region, throat, under parts of body, and lesser under wing-coverts, light yellowish green (more yellowish than apple green), the portion next to bare skin of chin and anterior malar region mixed or suffused with deep grayish brown; bill blackish basally, light horn color terminally; naked skin of head pale carmine-purple; "iris dark yellow, but varies in different individuals;"<sup>a</sup> legs and feet grayish dusky (in dried skins).

*Young.*—Very similar in color to adults, but longer scapulars and innermost secondaries indistinctly margined with lighter, more yellowish, green, middle rectrices margined distally with pale dull yellowish, and under parts slightly duller, more olivaceous, green, especially anteriorly.

<sup>a</sup> C. W. Richmond.

*Adult male*.—Length (skins), 740–785 (762); wing, 393–416 (404.5); culmen, 68–75 (71.5); tarsus, 33.5–34.5 (34); outer anterior toe 49.<sup>a</sup>

*Adult female*.—Length (skins), 770–832 (794); wing, 380–412 (392.4); tail, 393–490 (451.2); culmen, 71–72.5 (72.1); tarsus, 31.5–37 (35.1); outer anterior toe, 44.5–50 (47.4).<sup>b</sup>

Southeastern Nicaragua (Rio Escondido; Los Sábalos, San Emílio), eastern Costa Rica (Cariblanco de Sarapiquí; Carrillo; Volcán de Barba; San Carlos; El Zarcero; Guápiles; Guayabo; Bonilla; Talamanca), Panamá (Calovévora, Verágua; Lion Hill, Canal Zone), Colombia (Rio Nércua; Antioquia), and eastern Ecuador (Guayaquil; Balzar Mts.).

*Psittacus ambiguus* BECHSTEIN, Kurze Ueb., iv. Th. 1, 1811, 65 ("South America;" based on *Le Grand Ara Militaire* Levaillant, Hist. Nat. Perr., i, 15, pl. 6).

*Psittacus ambiguus* KUHLE, Conspr. Psitt., 1820, 17.—HAHN, Orn. Atlas, Papag., 1834, 25, pl. 9.

*Macrocerus ambiguus* STEPHENS, Shaw's Gen. Zool., xiv, 1826, 113.

*Ara militaris* s. *ambiguus* CABANIS, Journ. für Orn., 1862, 335 (Costa Rica).

*Macrocerus (Aracanga) ambiguus* BONAPARTE, Rev. et Mag. de Zool., 1854, 149.—SOUANCÉ, Rev. et Mag. de Zool., 1856, 57.

*Ara ambigua* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 160 (Calovevora, Veragua, Panama; Balzar Mts. and Guayaquil, w. Ecuador).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 568 (Rio Escondido, Los Sábalos, and San Emilis, Nicaragua; Barba, San Carlos, Zarcero, and Talamanca, Costa Rica; Calovevora and Lion Hill, Panama; Rio Nercua, Colombia; w. Ecuador).—RIDGWAY, Condor, vii, 1905, 155, in text (Bonilla, e. Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 482 (Cariblanco de Sarapiquí, Carrillo, and Guapiles, Costa Rica; habits; descr. eggs).

[*Ara ambigua* SHARPE, Hand-list, ii, 1900, 13.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10.

*Sittace ambigua* FINSCH, Die Papag., ii, 1868, 943.

*Macrocerus militaris* (not *Psittacus militaris* Linnaeus) SELBY, Nat. Libr., Parrots, 1836, 86, part, pl. 5.—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 163, footnote, part.

*Sittace militaris* WAGLER, Mon. Psitt., 1832, 668, 733, part.

*Sittace militaris* FINSCH, Die Papag., i, 1867, 396, part.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Volcan de Barba, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 364 (Costa Rica).

*Ara militaris* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 28, part (specimen *d*).—CASSIN, Proc. Ac. Nat. Sci. Phila., xii, 1860, 137 (Rio Nercua, n. w. Colombia).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 299 (Lion Hill, Panama).—SALVIN, Proc. Zool. Soc. Lond., 1870, 213 (Calovevora, Panama); Ibis, 1871, 87, 88, part (Middle American range).—BOUCARD, Proc. U. S. Nat. Mus., 1878, 46 (San Carlos and Zarcero, Costa Rica).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1879, 538 (Antioquia, Colombia).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 24; Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 124 (Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 407 (Los Sábalos, e. Nicaragua).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 519 (Rio Escondido, e. Nicaragua).

*Arara militaris* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 5, part (Ecuador).

*Arara buffoni* BREHM, Mon. Papag., 1842, 6, pl. 8 (South America; based on *Le grand Ara militaire* Levaillant, Hist. Nat. Perr., i, 15, pl. 6).

<sup>a</sup> Two specimens.

<sup>b</sup> Five specimens.

## ARA TRICOLOR Bechstein.

## CUBAN MACAW.

*Adults (sexes alike).*—Forehead (broadly) vermilion red, passing, through dull orange-red on superciliary region and anterior part of crown into saffron yellow or indian yellow on occiput and hindneck, the feathers of the latter (especially on lower portion) with a concealed central area of dull vermilion red; interscapulars dull red (between dull vermilion and dragon's blood red), broadly margined terminally with olive-yellow, the scapulars similar but decidedly darker and with yellowish margins or tips less conspicuous and more olivaceous; lesser wing-coverts dark brownish red (nearly brick red), more or less distinctly edged with lighter red; middle coverts similar but more or less tinged or intermixed with dull blue and olive-greenish; greater coverts, alulae, primary coverts, primaries, and distal secondaries dull blue (between deep azure and china blue), the innermost (proximal) greater coverts mostly dull reddish brown and olive-green on outer web; proximal secondaries dull olive-greenish suffused with dull bluish; rump and tail-coverts clear light azure blue, the under tail-coverts suffused with pale reddish basally, the shorter median, anterior feathers light orange-red or vermilion broadly margined terminally with greenish yellow or yellowish green; tail dull brownish red or reddish brown (nearly brick red or dragon's blood red), passing into dull blue on distal portion, the lateral pair of rectrices mostly blue; auricular and malar regions, sides of neck, and under parts (except under tail-coverts) dull orange-red (more orange than coral red), the chin suffused with dusky brown; smaller under wing-coverts dull orange-red, the larger coverts chrome or cadmium yellow, those near margin of wing dull bluish margined terminally, or tipped, with light dull orange-red; under primary-coverts light grayish brown tinged or suffused with reddish, the under surface of primaries similar but more pronouncedly reddish; under surface of tail dull red, shaded (in certain lights) with olivaceous; bill dusky or dull black basally, more horn color terminally; iris light yellow?; naked skin of face pale (probably pale pink or flesh color in life); legs and feet grayish dusky (in dried skins); length (skins), about 485–510; wing, 276–288 (282.3); tail, 290–305 (297.5); culmen, 43.5–45 (44.3); tarsus, 23–25 (24.3); outer anterior toe, 32.5–35.5 (33.7).<sup>a</sup>

Island of Cuba, Greater Antilles, including Isle of Pines. (Extinct.)

*Psittacus macao* (not of Linnæus) BODDAERT, *Tabl. Pl. Enl.*, 1783, 39 (ex *Le petit Ara* Daubenton, *Pl. Enl.*, pl. 641).

*A[ra] tricolor* BECHSTEIN, *Kurze Ueb.*, 1811, 64, pl. 1 ("South America"; based on *L'Ara tricolor* Le Vaillant, *Hist. Nat. des Perroquets*, i, 13, pl. 5).

*Psittacus tricolor* KUHLE, *Conspectus Psitt.*, 1820, 16.—BREHM, *Mon. Papag.*, 1842, pl. 3.

<sup>a</sup> Three specimens, none with sex determined.

- Macrocerus tricolor* VIEILLOT, Nouv. Dict. d'Hist. Nat., ii, 1816, 262; Tabl. Enc. Méth., iii, 1823, 1418.—LESSON, Traité d'Orn., 1831, 186, pl. 18, fig. 1.—CABANIS, Journ. für Orn., 1856, 105 (Cuba).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—GUNDLACH, Journ. für Orn., 1871, 277; 1874, 163 (habits); Contr. Orn. Cuba, 1876, 126, 276.
- [*Macrocerus*] *tricolor* GUNDLACH, Journ. für Orn., 1861, 336; Repert. Fisico Nat. Cuba, i, 1866, 297.
- S[ittace] *tricolor* WAGLER, Mon. Psitt., 1832, 669, 733.
- Sittace tricolor* FINSCH, Die Papag., i, 1867, 409.—REICHENOW, Journ. für Orn., 1881, 268 (monogr.); Consp. Psitt., 1882, 156; Vogelbild., 1883, Nachtr., 74.—MARSCHALL, Papag., 1889, 55.
- M[acrocerus] *tricolor* SWAINSON, Classif. Birds, ii, 1837, 299.
- Ara tricolor* D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1840, 161.—FINSCH, Nederl. Tijdschr. Dierk., i, 1863, Bericht., p. xiv.—CORY, Auk, iii, 1886, 454, part (Cuba); Birds West Ind., 1889, 177, part (Cuba); Cat. West Ind. Birds, 1892, 101, 128, part (Cuba; Isle of Pines).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 157; Ibis, 1906, 452.—GUNDLACH, Orn. Cubana, ed. 1895, 151.—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15 (extinct); Extinct Birds, 1907, 51, pl. 10.—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 200 (last one shot on Isle of Pines about 1864).—CLARK (A. H.), Auk, xxii, 1905, 347, 348, part (Cuba; extinct).
- A[ra] *tricolor* GRAY, Gen. Birds, ii, 1845, 412.
- [*Ara*] *tricolor* GRAY, Hand-list, ii, 1870, 145, no. 8083.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111, part (Cuba).—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20, part (Cuba).—SHARPE, Hand-list, ii, 1900, 13.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10 ("Mexico").
- Macrocerus (Aracanga) tricolor* LEMBEYE, Aves de la Isle de Cuba, 1850, 132.—BONAPARTE, Rev. et Mag. de Zool., 1854, 149.—SOUANCÉ, Rev. et Mag. de Zool., 1856, 57.—FINSCH, Nederl. Tijdschr., Dierk., 1863, p. xiv ("S. Am.").
- Arara tricolor* BREHM, Mon. Papag., 1842, 3.—SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 4; no. 38 (Revue), 1874, 2.
- Macrocerus aracanga* VIEILLOT, Nouv. Dict. d'Hist. Nat., ii, 1816, 258, part (cites *Petit Ara rouge* Daubenton, Pl. Ent., 641).

## ARA GOSSEI Rothschild.

## GOSSE'S MACAW.

"Forehead, crown, and back of neck bright yellow, sides of face, anterior and lateral parts of neck and back bright scarlet, wing-coverts and breast deep blood-red, winglet and primaries light blue, tail red and yellow. Basal half of the upper mandible black, apical half ash-colored; lower mandible black, tip only ash-colored. Legs and feet said to have been black." (Rothschild.)

Island of Jamaica, Greater Antilles ("mountains of Hanover Parish, about ten miles east of Lucea"). (Extinct.)<sup>a</sup>

*Ara tricolor* (not *Psittacus tricolor* Bechstein) GOSSE, Birds Jamaica, 1847, 260.—ALBRECHT, Journ. für Orn., 1862, 202 (Jamaica).—CORY, Auk, iii, 1886, 454, part (Jamaica); Birds West Ind., 1889, 177, part (Jamaica); Cat. West Ind. Birds, 1892, 101, 128, part (Jamaica).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 157, part (Jamaica); Ibis, 1906, 453 (description).—CLARK, Auk, xxii, 1905, 348, part (Jamaica).

A[ra] *tricolor* NEWTON (A. and E.), Handb. Jamaica, 1881, 110.

*Ara tricolor?* SCOTT, Auk, ix, 1892, 129 (Jamaica; extinct).

<sup>a</sup> "Specimen shot about 1765, by Mr. Odell."

- [*Ara*] *tricolor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111, part (Jamaica).—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20, part (Jamaica).  
*Ara gossei* ROTHSCILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 14 (mts. of Hanover Parish, about 10 miles east of Lucea, Jamaica—extinct; based on *Yellow-headed Macaw* Gosse, Birds Jamaica, 1847, 260); Extinct Birds, 1907, 52, pl. 11.  
*Ara gossei* SCLATER, Rev. List Birds Jamaica, 1910, 12.

**ARA SEVERA (Linnæus).**

**SEVERE MACAW.**

*Adults (sexes alike).*—General color light yellowish parrot green (or between bice green and oil green), the pileum, hindneck, and auricular region (especially the first) more bluish green (verdigris green); forehead (rather narrowly) dark brownish red (dark claret brown or bay), the feathers bordering naked skin of anterior malar region and chin intermixed or suffused with the same; primary coverts and primaries greenish blue (deep turquoise), the latter broadly margined terminally with black; middle pair of rectrices dull brownish red medially, green laterally, the distal portion greenish blue; other rectrices similar, but the reddish mostly confined to inner webs, the outermost with outer web almost wholly blue; under wing-coverts and margin of wing rich geranium red, with a central area of green; under primary coverts grayish brown strongly suffused with wine red; under surface of primaries dull grayish wine red, the under surface of tail similar but more decidedly wine-reddish; lower portion of thighs partly red; bill brownish black, more horn colored terminally; iris golden yellow or orange; naked skin of face and chin pale (whitish in life); legs and feet grayish dusky or blackish.

*Adult male.*—Length (skins), 410–474 (447); wing, 226–250 (240.5); tail, 230–270 (243.2); culmen, 37.5–43.5 (40.4); tarsus, 21.5–23.5 (22.3); outer anterior toe, 30–34.5 (31.4).<sup>a</sup>

*Adult female.*—Length (skins), 398–457 (443); wing, 230–246 (235.7); tail, 224–248 (234.7); culmen, 36.5–41.5 (38.2); tarsus, 22–24 (22.6); outer anterior toe, 27.5–33 (30.7).<sup>b</sup>

<sup>a</sup> Eight specimens.

<sup>b</sup> Six specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Panama and Darien.....	247.5	262.5	41.7	23.2	33.3
Three adult males from Colombia.....	243.3	234.7	38.7	22	30.8
Three adult males from Venezuela (tail of only one measured).....	233	230	40.7	22	30.7
FEMALES.					
One adult female from Panama.....	236	232	38	22	30.5
Two adult females from Colombia.....	236	240	38.2	23	30
Two adult females from Venezuela.....	230	230	39	22.2	31
One adult female from Bolivia.....	246	236	36.5	23	32



Eastern Panamá (Lion Hill, Canal Zone), and southward through Colombia (Rio Atrato; Rio Cauquito; mouth of Rio Nércua; lower Rio Magdalena; Cauca Valley; Bogotá), Ecuador (Rio Napo; Chimbo; Foreste del Rio Peripa), eastern Peru (Rio Javarri; Rio Ucayali; Rio Huallaga; Pebas), Venezuela (Encontrados, Zúlia; Catatumbo; Caicará, Orinoco Valley), and Guianas (Surinám) to Brazil (Rio Juruá, Amazonas; Teffé; Mexiana Island) and Bolivia (lower Rio Beni; Buena Vista, Province del Sara; Santa Cruz de la Sierra).

[*Psittacus*] *severus* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 97 ("Indiis;"<sup>a</sup> based on *P. macrourus viridis, genis nudis, remigibus rectricibusque cæruleis subtus purpurascens* Mus. Ad. Fr., i, p. 13); ed. 12, i, 1766, 140 ("America").—GMELIN, Syst. Nat., i, pt. 1, 1788, 315.—LATHAM, Index Orn., i, 1790, 85.

*Psittacus severus* BECHSTEIN, Latham's Uebers. Vogel, i, 1793, 181, 697.—TEMMINCK, Cat. Syst., 1807, 22.—BECHSTEIN, Kurze Uebers., 1811, 66.—SHAW, Gen. Zool., viii, 1811, 397.—KUHL, Consp. Psitt., 1820, 18.—HAHN, Orn. Atlas, Papag., 1836, 72, pl. 53.

*Psittacus severus* BECHSTEIN, Kurze Uebers., 1811, 66.

*Psittacus severus* MAXIMILIAN, Reise Bras., i, 1820, 322; ii, 1820, 147, 341; Beitr. Naturg. Bras., iv, 1832, 155.

*Macrocerus severus* VIEILLOT, Nouv. Dict. d'Hist. Nat., ii, 1816, 263 (Guiana); Tabl. Enc. Méth., iii, 1823, 1419.—STEPHENS, Shaw's Gen. Zool., xiv, 1826, 113.—LESSON, Traité d'Orn., 1831, 186.—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 160.—FINSCH, Nederl. Tijdschr. Dierk., i, 1863, Bericht., p. xiv.—GULLIVER, Proc. Zool. Soc. Lond., 1875, 489 (blood corpuscles).

*Arara severus* SPIX, Av. Bras., i, 1824, 28 (Amazon R.).—BREHM, Mon. Papag., 1842, pl. 11.

*Arara severa* SCHLEGEL, Mus. Pays-Bas, no. 26 (Psittaci), 1864, 6; no. 38 (Revue), 1874, 2.

*Sittace severa* WAGLER, Mon. Psitt., 1832, 666, 733.

*Sittace severa* BONAPARTE, Rev. et Mag. de Zool., 1854, 150; Naumannia, 1856 (Consp. Psitt., no. 10).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 57.—FINSCH, Die Papag., i, 1867, 417; ii, 1868, 944.—PELZELN, Orn. Bras., 1870, 255.—REICHENOW, Journ. für Orn., 1881, 268 (monogr.); Consp. Psitt., 1882, 156; Vogelbild., 1879, pl. 9, fig. 3.

[*Sittace*] *severa* PELZELN, Orn. Bras., 1870, 445.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 235 (Surinam).

*A[ra] severa* GRAY, Gen. Birds, ii, 1845, 412.

*Ara severa* SCLATER, Proc. Zool. Soc. Lond., 1855, 162 (Bogota, Colombia); 1857, 266 (Rio Javarri e. Peru); Cat. Am. Birds, 1862, 345 (Bolivia; Bogota).—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 28 (Bolivia; "Nicaragua"; Rio Javarri, e. Peru).—HOMMEYER, Journ. für Orn., 1859, 360.—CASSIN, Proc. Ac. Nat. Sci. Phila., xii, 1860, 137 (Rio Nércua, n. Colombia).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 197 (Rio Ucayali, e. Peru); 1867, 979 (Pebas, e. Peru); 1873, 299 (Rio Ucayali, Rio Huallaga, Pebas, and Rio Javarri, e. Peru; habits); 1879, 538 (Cauca, Colombia), 673 (Santa Cruz de la Sierra, Bolivia).—SALVIN, Ibis, 1871, 91 (Middle American range); 1886, 66 (Brit. Guiana).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 573 (Chimbo, w. Ecuador; fresh colors).—TACZANOWSKI, Orn. du Pérou, iii, 1886, 194.—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 104 (lower Rio Beni, Bolivia).—BERLEPSCH, Journ. für Orn., 1889, 313 (Yarina Cocha and

<sup>a</sup> Hellmayr (Spix's Types, p. 578) gives as substitute type locality Amazon River.

- Shanusi near Yurimaguas, e. Peru); Novit. Zool., xv, 1908, 284 (Cayenne).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 161; Ibis, 1906, 453.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 569 (Lion Hill, Panama; mouth of Rio Nercua, Colombia; etc.).—HOLMBERG, Segundo Censo Argentina, 1898, 513.—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 24 (Foreste del Rio Peripa, w. Ecuador).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 107 (Caicara, etc., Orinoco Valley, Venezuela).—IHERING, Rev. Mus. Paulista, iv, 1904, 448 (Rio Jurua, Amazonas, Brazil).—(?)CLARK (A. H.), Auk, xxii, 1905, 347 (Jamaica?).—HELLMAYR, Abh. K. B. Ak. Wiss., ii Kl., xxii Bd., iii Abt., 1905, 578 (crit.); Novit. Zool., xiv, 1907, 85 (Teffé, Brazil).—HAGMANN, Zool. Jahrb., 1907, 39 (Mexiana Island, lower Amazon).
- [*Ara severa* LAWRENCE, Ann. Lyc. N. H., vii, 1862, 474 (Lion Hill, Panama).—SCLATER and SALVIN, Nom. Av. Noctr., 1873, 111.—SHARPE, Hand-list, ii, 1900, 14.
- Ara severus* DESCOURTILZ, Orn. Brés., 1854-'56, pl. 6, lower fig.
- [*Onurus*] *severus* CABANIS, in Schomburgh's Reise Brit. Guiana, iii, 1848, 729.
- Ara castaneifrons* LAFRESNAYE, Rev. Zool., x, March, 1847, 66 (Bolivia; type now in coll. Acad. Nat. Sci. Phila.?).
- Macrocerus (Aracanga) castaneifrons* BONAPARTE, Rev. et Mag. de Zool., 1854, 149.

### ARA ERYTHROCEPHALA Rothschild.

#### RED-HEADED GREEN MACAW.

"Head red, rest of body bright green. Wings and greater coverts blue. Tail above scarlet and blue, under side of tail and wings intense orange-yellow." (Rothschild.)

Island of Jamaica ("Mountains of Trelawny and St. Anne's"). (Extinct.)<sup>a</sup>

- Ara erythrocephala* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 14 (mountains of Trelawny and St. Anne's, Jamaica; ex Gosse, Birds Jamaica, 1847, 261, 262); Extinct Birds, 1907, 53, pl. 12.—SALVADORI, Ibis, 1906, 452 (description).
- Ara militaris* (not *Psittacus militaris* Linnæus) GOSSE, Birds Jamaica, 1847, 261.

#### Genus RHYNCHOPSITTA Bonaparte.

- Rhynchopsitta* BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 149 (Consp. Psitt., p. 6). (Type, *Macrocerus pachyrhynchus* Swainson.)
- Rhynchopsittacus* (emendation) SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 168.

Medium-sized cuneate-tailed Psittacidae (length about 375 mm.) with relatively very large and greatly compressed bill, completely feathered cere, sides of head (except orbital region) completely feathered, tail much shorter than wing and graduated for only about one-third its length, and with longest primaries exceeding distal secondaries by nearly half the length of wing; color green, with red forehead, superciliary region, anterior margin of wing, and thighs, greater under wing-coverts yellow, and under surface of remiges and rectrices blackish.

<sup>a</sup> "Procured by Mr. White, proprietor of the Oxford Estate."

Bill very large, excessively compressed, its depth at base equal to or slightly exceeding length of culmen and equal to nearly twice its transverse width; culmen longer than middle toe with claw, regularly and strongly decurved from base, rather broadly rounded; maxillary unguis broad (vertically) and compressed (its transverse diameter at base equal to about two-thirds its lateral width at same point), obtuse, the palatal surface with corrugations indistinct or obsolete; maxillary tomium slightly lobed behind the distinct subterminal notch; depth of mandible at base decidedly less than length of gonys, the latter moderately convex, grooved medially as far as the base of the flattened, truncate, and considerably produced chisel-like tip of mandible; mandibular tomium faintly convex posteriorly, very deeply concave anteriorly. Wing large and pointed, the longest primaries exceeding distal secondaries by nearly half the length of wing; ninth primary longest, the eighth slightly shorter, the tenth (outermost) slightly longer than seventh. Tail a little less than two-thirds as long as wing, graduated for about one-third its length, the rectrices tapering terminally, with tips of lateral ones broadly rounded, those of middle pair more pointed. Tarsus about as long as inner anterior toe without claw.

*Plumage and coloration.*—Head completely feathered except a rather small circumorbital area; cere densely and completely covered with short, stiff, erect feathers, concealing nostrils; plumage in general hard or harsh. General color uniform green, the forehead, lores, superciliary region, anterior margin of wing, and thighs red, greater under wing-coverts yellow, and under surface of remiges and rectrices blackish.

*Range.*—Highlands (conifer zone) of northern and middle Mexico and adjacent border of United States. (Monotypic.)

#### RHYNCHOPSITTA PACHYRHYNCHA (Swainson).

##### THICK-BILLED PARROT.

*Adults (sexes alike).*—Forehead, anterior part of crown, superciliary region, and anterior lesser wing-coverts, deep poppy red or dull carmine; lower portion of thighs light poppy red; a spot of dark reddish brown or blackish brown immediately in front of bare orbital space, this dark color extending, narrowly, along the upper margin of the naked orbital space; under primary coverts clear chrome yellow, forming a conspicuous patch on under side of wing; under surface of remiges and rectrices plain brownish slate color, tinged with olive in certain lights; rest of plumage yellowish parrot green or bright oil green, brighter (between paris green and apple green) on sides of head, slightly lighter (sometimes duller) on under parts, the carpo-metacarpal region sometimes (in older individuals?)

partly red; bill dull black; iris brownish red;<sup>a</sup> legs and feet dull black.

*Adult male*.—Length (skins), 350–404 (389); wing, 260–273 (267); tail, 173–195 (182.4); culmen, 38.5–41 (39.7); tarsus, 19–21.5 (20.3); outer anterior toe, 27.5–31.5 (29.2).<sup>b</sup>

*Adult female*.—Length (skins), 360–390 (374); wing, 255–265 (261); tail, 165–184 (177.2); culmen, 37–39 (38.4); tarsus, 19.5–22 (20.6); outer anterior toe, 27–31.5 (28.7).<sup>c</sup>

Mountains of northern and middle Mexico (in pine belt), in States of Chihuahua (Piños Altos; Bravo; Colonia Pacheco; Colonia Garcia; Jesús Maria; Chuichupa; near Guadalupe y Calvo), Durango (Arroyo del Buéy; San Andrés; Ciudad Durango), Mexico (Popocatápetl), and Vera Cruz (Jalapa; Cofre de Perote; Moyoapám); occasional in southern Arizona (Bonita Pass, Chiricáhua Mts.; Paradise).

*Macrocerus pachyrhynchus* SWAINSON, Philos. Mag., n. s., i, no. 6, June, 1827, 439 (table land of Mexico; coll. Bullock Mus.).

*Sittace pachyrhyncha* WAGLER, Mon. Psitt., 1832, 667, 733.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 586, footnote.

*Sittace pachyrhyncha* WAGLER, Mon. Psitt., 1832, pl. 25.—HARTLAUB, Syst. Verz., 1844, 86.—FINSCH, Die Papag., i, 1867, 428.

*Psittacus pachyrhynchus* KÜSTER, Orn. Atlas, Papag., 1840, 94, pl. 73.

*A[ra] pachyrhyncha* GRAY, Gen. Birds, ii, 1845, 412.

*Ara pachyrhyncha* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 29.—SCLATER, Proc. Zool. Soc. Lond., 1859, 368 (Jalapa, Vera Cruz).

*[Rhynchopsitta] pachyrhyncha* BONAPARTE, Rev. et Mag. de Zool., 1854, 149, Consp. Psitt., p. 6; Naumannia, 1856 (Couspectus Psitt., no. 30).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 111.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10 (Mexico).

*Rhynchopsitta pachyrhyncha* SOUANCÉ, Rev. et Mag. de Zool., 1856, 57; Icon. Perr, 1857, pl. 5.—SCLATER, Proc. Zool. Soc. Lond., 1857, 230, in text (Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 66 ("Rio Grande, Texas"); Rep. U. S. and Mex. Bound. Surv., ii, no. 2, 1859, 5 ("Rio Grande, Texas"); Cat. N. Am. Birds, 1859, no. 64.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 562 (alpine zone, Vera Cruz).—SALVIN, Ibis, 1871, 91 (range).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880 (Cat. N. Am. Birds), 190; Nom. N. Am. Birds, 1881, no. 391; Man. N. Am. Birds, 1887, 593.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Check List, 1886, 354 (hypothetical list, no. 16); 2d ed., 1895, 330; 3rd ed., 1910, 179; Auk, xviii, 1901, 300.—CHAPMAN, Auk, v, 1888, 395.—SALVIN and GODMAN, Ibis, 1889, 242, in text (western Sierra Madre of Mexico).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 34 (Pacheco, n. Chihuahua).—LUSK, Condor, ii, 1900, 129 (Chiricahua Mts., Arizona, June, 1900; flock).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxii, 1906, 164 (Arroyo del Buéy and San Andreas, n. w. Durango).—THAYER, Auk, xxiii, 1906, 223 (Pacheco, Colonia Pacheco, and Colonia Garcia, Chihuahua, breeding; descr. nest and eggs).—BERGTOLD, Auk, xxiii, 1906, 425–428 (Sierra Madre of Chihuahua, from Chuichupa southward; habits).—SMITH (A. P.), Condor, ix, 1907, 104, cut (Bonita Pass, Chiricahua Mts., Aug., 1904; "immense flock").

<sup>a</sup> W. De W. Miller, Bull. Am. Mus. N. H., xxii, 164.

<sup>b</sup> Ten specimens, from Chihuahua.

<sup>c</sup> Nine specimens from Chihuahua.

- R[hynchopsitta] pachyrhyncha* RIDGWAY, Man. N. Am. Birds, 1887, 269.
- Rhynchopsittacus pachyrhynchus* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 169 (Jalapa, Vera Cruz; Durango City, Durango).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 570 (Cofre de Perote, Moyoapam, etc., Vera Cruz; Popocatepetl, Mexico; etc.).
- [*Rhynchopsittacus*] *pachyrhynchus* SHARPE, Hand-list, ii, 1900, 14.
- Conurus pachyrhynchus* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 11; no. 38 (Revue), 1874, 3.—REICHENOW, Journ. für Orn., 1881, 273 (monogr.); Consp. Psitt., 1882, 161; Vogelbild., 1883, Nachtr., 78.
- [*Psittacus*] *strenuus* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1 (Mexico); Journ. für Orn., 1863, 54 (reprint).
- [*Conurus*] *strenuus* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 73 (Mexico).
- Psittacus pascha* WAGLER, Isis, 1831, 525 (new name for *Macrocerus pachyrhynchus* Swainson).
- Macrocerus mexicanus* SWAINSON, in Murray's Encyclop. of Geography, 1834, —; Am. ed., iii, 1837, 315 (*nomen nudum*).

### Genus CONUROPSIS Salvadori.

*Conuropsis* <sup>a</sup> SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 203. (Type, *Psittacus carolinensis* Linnæus.)

Rather small, long-tailed Psittacidae (length about 285–325 mm.), with the acutely wedge-shaped tail about four-fifths as long as wing and graduated for about two-fifths its length; cere densely feathered, completely concealing nostrils; seventh primary not attenuated at tip; general color (including tail) green, the forehead orange or orange-red (adults with forehead and sides of head reddish orange, the rest of head and the neck uniform yellow).

Bill moderately large, deeper than long; culmen regularly and strongly decurved from base, rounded, decidedly longer than middle toe without claw; maxillary unguis rather broad, its width at base of the distinctly corrugated palatal surface decidedly less than its length, however; maxillary tomium distinctly notched at base of the unguis; depth of mandible at base decidedly less than length of gonys, the latter very broad, somewhat flattened; base of mandible nearly or quite truncate beneath, the chisel-like tip also truncate. Wing long and pointed, the longest primaries exceeding distal secondaries by half the length of wing; eighth and ninth primaries longest, the tenth (outermost) longer than seventh. Tail about four-fifths as long as wing, graduated for about two-fifths its length, the rectrices strongly tapering terminally, the middle ones acuminate, the lateral ones obtusely pointed or narrowly rounded at tip. Tarsus decidedly shorter than outer posterior toe without claw, but longer than inner anterior toe with claw.

*Plumage and coloration*.—Head, except orbital region and chin, completely feathered, the feathering of forehead and cere very dense, plush-like, completely concealing nostrils. General color, in-

<sup>a</sup> From *Conurus* (κωνος, a cone; οὐρά, tail); + ὄψις, aspect. (Richmond.)

cluding tail, green, the forehead orange or orange-red (more dull in young); adults with neck and part of head uniform yellow, the forehead and sides of head reddish orange.

*Range*.—Southeastern United States. (Monotypic.)

CONUROPSIS CAROLINENSIS CAROLINENSIS (Linnæus).

CAROLINA PAROQUET.

*Adults (sexes alike)*.—Forehead, anterior portion of crown, loreal and suborbital regions, and upper part of malar region, orpiment orange; rest of head and neck (all round) clear lemon yellow; back and scapulars clear yellowish green (between paris green and apple green), the rump brighter and less yellowish green (yellowish emerald green); lesser and middle wing-coverts deep paris green margined with paler and brighter green; greater coverts and proximal secondaries (tertials) more yellowish green, paler and more yellowish (apple) green terminally and along distal margin of outer webs; secondaries (except innermost ones) and primary coverts dark green (yellowish terre-verta or French green), the primaries similar but becoming darker and duller terminally (especially on inner webs, where passing into dusky on margin), the longer primaries (except outermost) broadly edged with pale greenish yellow (citron yellow) basally; upper tail-coverts and tail clear light parrot green with black shafts, the shafts of middle rectrices whitish basally; under parts of body, including foreneck and under tail-coverts, clear light apple green (slightly tinged, especially on foreneck and chest, with emerald green), the under wing-coverts similar but more yellowish green, sometimes intermixed with yellow; "bend" of wing orange intermixed more or less with yellow, the carpo-metacarpal region yellow, sometimes tinged or intermixed with orange; anal region and lower portion of thighs yellow, sometimes tinged with orange; under primary coverts and under surface of primaries brownish gray, tinged with yellowish olive, the under surface of tail similar but more strongly tinged with yellowish olive; bill light cream-buff or cream color; iris dark brown; bare orbital space pale flesh color or pinkish white; legs and feet pale flesh color or pinkish white (in life).

*Young*.—Essentially like adults but without any yellow on head or neck, which are green except forehead and loreal region, which are tawny-orange, the feathers bordering naked orbital space (except anteriorly) brownish; no yellow nor orange on edge of wing, thighs, nor anal region, which are wholly green. (This plumage lasts but a few weeks, the full adult plumage being assumed, by gradual molt, before end of the first year.)

*Immature*.—Variously intermediate between the adult and young plumages, according to age.

*Adult male*.—Length (skins), 285–328 (299); wing, 175–192 (184.7); tail, 129.5–157 (146.5); culmen, 22.5–24.5 (23.7); tarsus, 16–17.5 (16.7); outer anterior toe, 20.5–22.5 (21.4).<sup>a</sup>

*Adult female*.—Length (skins), 283–313 (298); wing, 179–193 (186.3); tail, 137.5–153 (147); culmen, 21.5–24 (22.8); tarsus, 16–17.5 (16.7); outer anterior toe, 20–23 (21.3).<sup>a</sup>

Formerly inhabiting the Atlantic coastal plain of the United States, from Florida to Virginia (occasionally even to eastern New York), but now totally extirpated over much the greater part of its former range and so nearly extinct that only a few small colonies may yet exist in remote and uninhabited parts of southern Florida.

Definite records are as follows:

Florida: Leon County (Waukulla Swamp, 1885); Levy County (Cedar Keys); Marion County (Oklawaha River, 1876); Lake County (Panasoffke Lake, 1876); Volusia County (Enterprise, up to 1880; Blue Springs); Putnam County (1869); Orange County (Orlando); Brevard County (Micco, 1889; Rockledge, up to 1891); Osceola County (7 miles southwest of Kissimmee, 1897); St. Lucie County (Fort Drum; Taylor's Creek, 1897; Padgett's Creek, 1901); Dade County (Miami); Lee County (Charlotte Harbor); De Soto County (upper Caloosahatchie River); Hillsboro County (Tampa; Tarpon Springs; Thonotosassa, 1887); Hernando County (Linden, up to 1889). Georgia (up to 1849). South Carolina (pine barrens, up to 1851). Virginia (no recent records). District of Columbia (one flock in 1865). Pennsylvania (Juniata River, old record). New York (25 miles northwest of Albany, one flock, January, 1790).

[*Psittacus*] *carolinensis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 97 (South Carolina; based on *Carolina Parrot* Catesby, Nat. Hist. Carolina, pl. 11; *Psittacus carolinensis* Brisson, Orn., iv, 350); ed. 12, i, 1766, 141.—GMELIN, Syst. Nat. i, pt. 1, 1788, 320.—LATHAM, Index Orn., i, 1790, 93.

*Psittacus carolinensis* FORSTER, Cat. Anim. N. Am., 1771, 9 (Carolina).—MÜLLER, Syst. Nat. Suppl., 1776, 74.—BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 195, 699.—TEMMINCK, Cat. Syst., 1807, 24 and note (app.), p. 7.—WILSON, Am. Orn., ii, 1811, 89, part (*not* pl. 26, fig. 1; Maryland; accidental near Albany, New York).—SHAW, Gen. Zool., viii, pt. 2, 1811, 444, part.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 369 (cites Pl. Enl., pl. 499).—KUHLE, Consp. Psitt., 1820, 23.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 41, part.—NUTTALL, Man. Orn. U. S. and Can., land birds, 1832, 545, part (valley of Juniata R., Pennsylvania; near Albany, New York, accidental in 1790; Tuscaloosa, Alabama).

*Psittacus carolinensis* BECHSTEIN, Kurze Uebers., 1811, 72.

*Psittacus carolinensis* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 358, part; Obs. Wilson's Am. Orn., 1826 [19], part.

*Psittacus carolinensis* AUDUBON, Orn. Biog., i, 1831, 135, part ("boundary line between Virginia and Maryland").

*Aratinga carolinensis* STEPHENS, Shaw's Gen. Zool., xiv, 1826, 136, part.

<sup>a</sup> Ten specimens from Florida.

- Conurus carolinensis* LESSON, *Traité d'Orn.*, 1831, 211, part.—BONAPARTE, *Geog. and Comp. List*, 1838, 38, part.—NUTTALL, *Man. Orn. U. S. and Can.*, land birds, 2d ed., 1840, 648, part (north to Virginia; valley of Juniata R., Pennsylvania; Albany, New York, accidental).—SOUANCÉ, *Rev. et Mag. de Zool.*, 1856, 60.—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 67, part (Florida); *Cat. N. Am. Birds*, 1859, no. 63, part.—GRAY, *List Birds Brit. Mus.*, Psittacidae, 1859, 36 ("Carolina").—SCLATER, *Cat. Am. Birds*, 1862, 347 ("Eastern N. Am.").—SCHLEGEL, *Mus. Pays-Bas*, iii, no. 26 (Psittaci), 1864, 17; no. 38 (*Revue*), 1874, 5.—FINSCH, *Die Papag.*, i, 1867, 478, part.—TURNBULL, *Birds E. Penn. and N. J.*, 1869, 41.—RUSS, *Journ. für Orn.*, 1869, 82, and 1870, 30 (habits and breeding in captivity).—COUES, *Check List*, 1873, no. 315, part; 2d ed., 1882, no. 460, part; *Birds North-West*, 1874, 296, part (in synonymy).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 587, part, pl. 56, fig. 2 (*not* fig 11); special ed., 1875, colored plate facing p. 587.—REICHENOW, *Journ. für Orn.*, 1881, 297, part (monogr.); *Consp. Psitt.*, 1882, 167, part; *Vogelbild.*, 1878, pl. 2, fig. 8.—RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, 1880 (*Cat. N. Am. Birds*), 190, part; *Nom. N. Am. Birds*, 1881, no. 392, part.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886 (and 2d ed., 1895), no. 382, part.—SMITH and PALMER, *Auk*, v, 1888, 148 (near Washington, D. C., Sept., 1865; flock).—SCOTT, *Auk*, v, 1888, 185 (Hillsboro Co., Florida, extirpated; still existing in Hernando Co.); vi, 1889, 249 (Panasoffkee Lake and Ocklawaha R., Florida, winter of 1875-76; Tarpon Springs; Hernando Co., 1888-89; habits); ix, 1892, 212, 218 (upper Caloosahatchie R., Florida). BREWSTER, *Auk*, vi, 1889, 336 (supposed nesting habits).—HASBROUCK, *Auk*, viii, 1891, 369, part, with map (range, past and present).—BENDIRE, *Life Hist. N. Am. Birds*, ii, 1895, 1, part, pl. 1, fig. 1 (egg).—CHILDS, *Warbler*, i, 1905, 97, 98, frontispiece (breeding in confinement; descr. eggs; photographic reproduction of eggs).
- [*Conurus*] *carolinensis* BONAPARTE, *Consp. Gen. Av.*, i, 1850, 1, part; *Rev. et Mag. de Zool.*, 1854, 150 (*Consp. Psitt.*, no. 34); *Naumannia*, 1854 (*Consp. Psitt.*, no. 62).—COUES, *Key N. Am. Birds*, 1872, 199, part.
- [*Conurus*] *carolinensis* COUES, *Key N. Am. Birds*, 2d ed., 1884, 496, part.—RIDGWAY, *Man. N. Am. Birds*, 1887, 270, part.
- [*Conurus carolinensis*] NOWOTNY, *Auk*, xv, 1898, 28-32 (breeding and habits in captivity).
- Centurus carolinensis* AUDUBON, *Synopsis*, 1839, 189, part; *Birds Am.*, oct. ed., iv, 1842, 306, part.
- Arara carolinensis* SELBY, *Naturalists' Libr.*, *Parrots*, 1836, 81, part; ed. 1843, 101, part.
- Conuropsis carolinensis* SALVADORI, *Cat. Birds Brit. Mus.*, xx, 1891, 203, part (Fort Drum, Lake Okechobee, Linden, Tarpon Springs, Miami, Cedar Keys, and Enterprise, Florida); *Ibis*, 1906, 457 (additional references).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, *Auk*, xxv, 1908, 373, part; *Check List*, 3d ed., 1910, 179, part.—WRIGHT, *Auk*, xxix, 1912, 343-363, part (early records).
- Conuropsis carolinensis carolinensis* BANGS, *Proc. New Engl. Zool. Club*, iv, Nov. 26, 1913, 94, part (range).
- [*Conuropsis*] *carolinensis* SHARPE, *Hand-list*, ii, 1900, 16, part.—FORBES and ROBINSON, *Bull. Liverp. Mus.*, i, 1897, 11 (Florida).



## CONUROPSIS CAROLINENSIS LUDOVICIANUS (Linnæus).

## LOUISIANA PAROQUET.

Similar to *C. c. carolinensis*, but green of rump and lower hind-neck (sometimes that of wing-coverts also) decidedly less yellowish (more bluish) than that of back, inclining, more or less, to vander-poels or cendre green, sometimes, though rarely, to turquoise green; green of under parts averaging less yellowish; greater wing-coverts, proximal secondaries, and basal portion of outer webs of primaries more pronouncedly and more extensively yellowish, contrasting more strongly with the general green color; size averaging decidedly greater.

*Adult male*.—Length (skins), 317–330 (322);<sup>a</sup> wing, 184–203.5 (192.2); tail, 138.5–167 (156.5); culmen, 23.5–26 (25.1); tarsus, 15.5–18 (16.7); outer anterior toe, 21–23 (22.2).<sup>b</sup>

*Adult female*.—Length (skins), 305;<sup>c</sup> wing, 183–194.5 (185.7);<sup>d e</sup> tail, 136.5–157 (149.5);<sup>d</sup> culmen, 23.5–25 (24.3);<sup>e</sup> tarsus, 15.5–18 (16.4);<sup>e</sup> outer anterior toe, 21–22.5 (21.8).<sup>e</sup>

Formerly inhabiting the entire Mississippi Valley (except open prairies and plains), from West Virginia to eastern Colorado, north to southern shores of Lake Erie and Lake Michigan, south to the Gulf coast. Now totally extirpated over much the greater part (perhaps the whole) of its former range, and if still existing to be found only in small numbers in very restricted areas in bottom lands of southwestern Arkansas or northwestern Louisiana.

Definite records are as follows:

West Virginia: Great Kanawha River (in early part of 19th century). Ohio: South shore of Lake Erie (in 1807); mouth of Big Beaver Creek, 30 miles below Pittsburg (in 1808); vicinity of Cincinnati (up to 1832); mouths of Big Miami, Little Miami, and Little Scioto rivers (up to 1830 or later); near Columbus (up to 1862(?)). Kentucky: Big Bone Lick; between Louisville and Shippenport (up to 1851); Fulton County (up to 1878). Indiana: Franklin County (up to 1828); Posey County (abundant in 1836); White-water River (up to 1856); White River, 20 miles from Indianapolis (breeding in 1832); French Lick Springs (up to 1823); Vincennes (1816); Patoka River (1817); Terre Haute (1821). Illinois: Near Chicago (1821); mouth of Illinois River (1821); Hennepin County (1835); Edwards County (1822); Shawneetown (1826); Cairo; Wabash County (up to

<sup>a</sup> Three specimens only.

<sup>b</sup> Fourteen specimens, including three not sexed, but of maximum dimensions and almost certainly males.

<sup>c</sup> One specimen only.

<sup>d</sup> Five specimens only.

<sup>e</sup> Ten specimens.

1835, at least).<sup>a</sup> Wisconsin: Southern Wisconsin. Missouri: Near St. Louis; Booneville (abundant in 1854); St. Charles (1826); Independence (1834); Fayette (up to 1885); Stone County (up to 1891). Iowa: Decatur County (up to 1873). Nebraska: Bald Island, Missouri River (up to 1857); Weeping-water River (1833). Colorado: South Platte River, near Denver (1861); Little Thompson River (1862); Brown Cañon (1806); Fort Lyon. Kansas: Fort Riley; Fort Leavenworth (1857); Council Grove (1847). Arkansas: Fort Smith. Indian Territory: Boggy Depot, Choctaw Nation; Cherokee Nation; mouth of Grand River; Fort Cobb; Caddo (up to 1885 or later); Fort Gibson (1889); between Canadian and Verdigris rivers (1820); Falls of Canadian River (1819). Louisiana: Bayou Sara (up to 1875); West Baton Rouge Parish (up to 1880); Bayou St. Pierre; New Orleans. Mississippi: Near Natchez; near Vicksburg; Jackson. Tennessee: Tennessee River (1811); Lauderdale County (up to 1876). Texas: Between Brazos and Trinity Rivers, eastern Texas (1853). ?Alabama: Tuscaloosa; Coosada (up to 1879).<sup>b</sup>

*Psittacus pertinax* (not of Linnæus) FORSTER, Cat. Anim. N. Am., 1771, 9 (Illinois).

*Psittacus ludovicianus* GMELIN, Syst. Nat., i, pt. 1, 1788, 347 (Louisiana; based on *Perroquet de la Louisiane* DuPratz, Voy., ii, 128; *Papagei à tête aurore* Buffon, Hist. Nat. Ois., vi, 247; *Orange-headed Parrot* Latham, Synopsis Birds, i, pt. 1, 304).—BECHSTEIN, Kurze Uebers., 1811, 72.

*Psittacus ludovicianus* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 254, 711.—KÜHL, Consp. Psitt., 1820, 23.

*Psittace ludoviciana* WAGLER, Mon. Psitt., 1832, 656, 731.—HARTLAUB, Syst. Verz., 1844, 86.—MAXIMILIAN, Journ. für Orn., 1858, 351, part.

*Aratinga ludoviciana* STEPHENS, Shaw's Gen. Zool., xiv, 1826, 136.

*Conurus ludovicianus* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 36, part ("North America").

*Psittacus carolinensis* Var.  $\beta$  LATHAM, Index Orn., i, 1790, 93.

*Psittacus carolinensis* Var. VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 331.

*Psittacus thalassinus* VIEILLOT, Tabl. Enc. Méth., iii, 1823, 1377 (Louisiana; based on *Le Papagei à tête aurore* Buffon, Hist. Nat. Ois., vi, 247).

*Psittacus luteocapillus* VIEILLOT, Tabl. Enc. Méth., iii, 1823, 1402 (Louisiana; based on *Le Papagei à tête aurore* Buffon, Hist. Nat. Ois., vi, 247; *Orange-headed Parrot* Latham, Synopsis Birds, i, pt. 1, 304; *Perruche à tête jaune* Levaillant, Perr., pl. 33).

*Psittacus carolinensis* (not of Linnæus) WILSON, Am. Orn., iii, 1811, 89, part, pl. 26, fig. 1,—SHAW, Gen. Zool., viii, pt. 2, 1811, 444, part.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 41, part.—NUTTALL, Man. Orn. U. S. and Can., land birds, 1832, 545, part ("banks of the Ohio"; "banks of the Mississippi and Missouri around St. Louis"; etc.).

<sup>a</sup> I have been informed by residents of Mt. Carmel that a flock passed over that place in 1861 or 1862.

<sup>b</sup> Without examination of specimens it is, of course, impossible to determine whether the paroquets of Alabama were this form or *C. c. carolinensis*.

- [Sittacus]* *carolinensis* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iii, 1824, 358, part; Obs. Wilson's Am. Orn., 1826 [19], part.
- Psittacus carolinensis* AUDUBON, Orn. Biog., i, 1831, 135, part, pl. 26 (Great Kanawha R., West Virginia; Ohio; Illinois; etc.; specimens figured from Bayou Sara, Louisiana).
- Aratinga carolinensis* STEPHENS, Shaw's Gen. Zool., xiv, 1826, 136, part.
- Psittacus (Conurus) carolinensis* MAXIMILIAN, Journ. für Orn., 1857, 97 (Wabash and Missouri rivers, etc.; habits).
- Conurus carolinensis* LESSON, Traité d'Orn., 1831, 211, part.—BONAPARTE, Geog. and Comp. List, 1838, 38, part.—NUTTALL, Man. Orn. U. S. and Can., land birds, 2d ed., 1840, 648, part (banks of Illinois R. to near southern end of Lake Michigan; etc.).—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 89 (Indian Territory; Texas?).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 60, part.—MAXIMILIAN, Journ. für Orn., 1857, 99 (Wabash and Missouri rivers, etc.; full descr.; habits).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 67, part (Cairo, Illinois; Fort Smith, Arkansas; Fort Riley, Kansas; Nebraska; Bald I., Missouri R.); Cat. N. Am. Birds, 1859, no. 63, part.—KENNERLY, Rep. Pacific R. R. Surv., x, no. 3, 1859, 21 (Fort Smith, Arkansas).—HAYDEN, Trans. Am. Philos. Soc. (2), xii, 1863 (pub. 1862), 154 (Missouri R. below mouth of Platte R.).—HOY, An. Rep. Smithson. Inst. for 1864 (1865), 438 (near Boonesville, w. Missouri, abundant in 1854).—FINSCH, Die Papag., i, 1867, 478, part.—TRIPPE, Proc. Bost. Soc. N. H., xv, 1872, 233 (Decatur Co., Iowa; recent occurrence of flock).—COUES, Check List, 1873, no. 315, part; 2d ed., 1882, no. 460, part; Birds North-West, 1874, 296, excl. syn. part (Bald I., Missouri R., Nebraska; etc.; range); Bull. Nutt. Orn. Club, ii, 1877, 50 (Golden and Denver, Colorado, in 1860-'61; Little Thompson R., Colorado, 1862; Ft. Lyon, Colorado; abundant in Kansas in 1865-'67).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 587, part, pl. 56, fig. 1 (not fig. 2!).—REICHENOW, Journ. für Orn., 1881, 297, part (monogr.); Consp. Psitt., 1882, 167, part; Vogelbild., 1878, pl. 2, fig. 8.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880 (Cat. N. Am. Birds), 190, part; Nom. N. Am. Birds, 1881, no. 392, part; Orn. Illinois, i, 1889, 397 (excl. syn. part).—LANGDON, Journ. Cinc. Soc. N. H., 1881, 152 (West Baton Rouge Parish, Louisiana, Sept., 1880; flock of 2 or 3 dozen).—ABERT, Journ. Cinc. Soc. N. H., v, 1882, 59 (Council Grove, Kansas, in flocks Feb. 24, and March 1, 1847).—HAY, Bull. Nutt. Orn. Club, vii, 1882, 93 (near Vicksburg and Jackson, Mississippi; s. e. Arkansas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 382, part.—BUTLER, Bull. Brookv. Soc. N. H., no. 2, 1886, 25 (Franklin Co., Indiana; last seen in 1828); Auk, ix, 1892, 49-56, part (habits, former range, etc.).—COOKE, Bird Migr. Miss. Val., 1888, 124 (Mississippi Valley localities); Birds Colorado, 1897, 81 (former resident); Bull. 44, Col. Agric. Exp. Sta., 1898, 162 (Arkansas R., Colorado, in 1807).—PINDAR, Auk, vi, 1889, 313 (Fulton Co., Kentucky, up to 1878).—HASBROUCK, Auk, viii, 1891, 369, part, with map (geog. range, past and present).—MERRIAM, Auk, ix, 1892, 301 (Stone Co., Missouri, fall of 1891, 2 specs.).—BENDIRE, Life Hist. N. Am. Birds, (ii), 1895, 1, part.—RHOADS, Proc. Ac. Nat. Sci. Phila., 1895, 481 (Lauderdale Co., Tennessee; last one seen in 1876).—BEYER, Proc. La. Soc. Nat. for 1897-99 (1900), 101 (Louisiana; probably extirpated in State).—ANDERSON, Proc. Davenp. Ac. Sci., xi, 1907, 269 (Iowa records).—SWALES, Auk, xxvii, 1910, 209 (no valid Michigan record).
- [Conurus]* *carolinensis* BONAPARTE, Consp. Gen. Av., i, 1850, 1, part; Rev. et Mag. de Zool., 1854, 150 (Consp. Psitt., no. 34), part; Naumannia, 1854, Consp. Psitt., no. 62, part.—COUES, Key N. Am. Birds, 1872, 199, part.

- C[onurus] carolinensis* RIDGWAY, Ann. Lyc. N. Y., x, 1874, 398 (Illinois); Man. N. Am. Birds, 1887, 270, part.—COUES, Key N. Am. Birds, 2d ed., 1884, 496, part.
- Centurus carolinensis* AUDUBON, Synopsis, 1839, 189, part; Birds Am., oct. ed., iv, 1842, 306, part.
- Arara carolinensis* SELBY, Nat. Libr., Parrots, 1836, 81, part; ed. 1843, 101, part.
- Conuropsis carolinensis* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 203, part (in synonymy); Ibis, 1896, 457, part (references).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxv, 1908, 373, part; Check List, 3rd ed., 1910, 179, part.—WRIGHT (A. H.), Auk, xxix, 1912, 343-363, part (early records).
- [*Conuropsis*] *carolinensis* SHARPE, Hand-list, ii, 1900, 16, part.
- Conuropsis carolinensis carolinensis* BANGS, Proc. New Engl. Zool. Club, iv, 1913, 94, part (Louisiana specimens).
- Psittacus septentrionalis* MAXIMILIAN, Reise Nord-Amerika, i, 1839, 175 (New Harmony, Indiana; substitute name for *P. carolinensis* Linnæus).
- Conuropsis carolinensis interior*<sup>a</sup> BANGS, Proc. New Engl. Zool. Club, iv, Nov. 26, 1913, 94 (Bald Island, Nebraska; coll. Mus. Comp. Zool.).

### Genus ARATINGA Spix.

- Aratinga* SPIX, Av. Bras., i, 1824, 29. (Type, as fixed by Gray, 1855, *Psittacus luteus* Boddaert.)
- Arara* (not of Spix, 1824) LESSON, Man. d'Orn., ii, 1828, 143. (Type, *Psittacus guianensis* Gmelin=*P. leucophthalmus* Müller.)
- Psittacara* VIGORS, Zool. Journ., ii, 1825, 388. (Type, *Psittacus guianensis* Gmelin=*P. leucophthalmus* Müller.)
- Evopsitta* BONAPARTE, Rev. et Mag. de Zool., 1854, 151. (Type, *Sittace cuops* Wagler.)
- (?) *Maracana* DES MURS, in Chemn., Enc. d'Hist. Nat., Ois., i, 1851?, 163; in Castelnau's Exp. Am. Sud., Zool. i, Ois., 1855, 13, pl. 2. (New name for *Conurus* Kuhl?)

Medium-sized to rather small long-tailed Psittacidae (length about 250-300 mm.) with seventh primary attenuated at tip, cere partly naked, tail shorter than wing, tip of mandible slightly produced and strongly rounded transversely with terminal edge strongly concave above, and under surface of remiges and rectrices yellowish or yellowish olive.

Bill relatively short and very deep (depth at base much greater than length of culmen), the maxilla but little compressed toward culmen, the mandible very broad and not at all flattened laterally;

<sup>a</sup> Mr. Bangs was misled as to the relationship of the Louisiana specimens by having an insufficient series of Mississippi Valley birds, several examples of which were abnormal in the development of the blue cast to the plumage; also, by a specimen said to be from Cape Florida (but unquestionably *not* from there) which agrees with the single Louisiana adult with which it was compared. The alleged Cape Florida specimen was supposed to have been collected there by G. Würdemann; but the "make" of Würdemann's skins is so unique that they are very easily recognizable, and the specimen in question certainly was not put up by him. It represents the greener phase (or extreme) of the interior bird, and without doubt came from some locality in the interior of the country.

culmen as long as or longer than middle toe without claw, regularly and strongly decurved from base, broadly and distinctly flattened, at least for basal half; depth of maxilla at base equal to from half to two-thirds the length of culmen; maxillary unguis more or less broadly conical in vertical profile, more or less acute at tip, its width at base of the strongly corrugated palatal surface less than its length from same point; maxillary tomium more or less convex or lobed posterior to the distinct subterminal notch; mandible broadly rounded beneath, not at all flattened laterally, its depth at base usually equal to but sometimes a little less than its width at same point and nearly to quite equal to length of gonys; the produced tip rather sharp, not flattened, but deeply concave above, truncated, and somewhat thickened medially; mandibular tomium more or less convex proximally, more or less deeply concave terminally. Wing moderate, pointed, the longest primaries exceeding distal secondaries by more than two-fifths the length of wing. Tail more than six-sevenths to more than nine-tenths as long as wing, graduated for nearly to quite half its length, the rectrices rather narrow, distinctly tapering distally, but with tip rounded. Tarsus decidedly longer than inner anterior toe without claw.

*Plumage and coloration.*—Only the orbital region and part of cere unfeathered; except in *A. chloroptera* and *A. leucophthalma*, the cere naked in front of (sometimes, narrowly, all round) nostrils; in the species mentioned the nostril concealed in the short prefrontal feathering, only a portion of the anterior margin of the cere being naked. General color plain green, including upper surface of remiges and rectrices, which are yellowish or yellowish olive on the under surface; in most species the adults with under wing-coverts red, some species having the forehead also red, or red feathers on neck.

*Range.*—Middle Mexico to eastern Peru, Bolivia, and Argentina; also, islands of Cuba, Haiti, and Mona (near Porto Rico), Greater Antilles. (About twelve species.)

KEY TO THE SPECIES AND SUBSPECIES OF ARATINGA.

a. Larger (wing 160-190 mm.).

b. Forehead with at least a few bright red feathers (or else under wing-coverts partly red).

c. Whole forehead and anterior part of crown red.

d. Under wing-coverts wholly yellowish green. (Colombia and Venezuela.)

*Aratinga wagleri* (extralimital).<sup>a</sup>

<sup>a</sup>*Conurus wagleri* Gray, Gen. Birds, ii, Nov., 1845, 413, pl. 102 (no locality given); List Birds Brit. Mus., Psittaci, 1859, 34 (Bogota, Colombia; Venezuela); Schlegel, Mus. Pays-Bas, Psittaci, 1864, 12 (Venezuela); Finsch, Die Papag., i, 1867, 459; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 184 (Bogotá, Atanques, and Medellín, Colombia; Venezuela).—[*Psittacara*] *wagleri* Bonaparte, Rev. et Mag. de Zool., 1854, 150.—*Evopsitta wagleri* Bonaparte, Naumannia, 1856 (Consp. Psitt., no. 25).—*Conurus erythrochlorus* Hartlaub, Rev. et Mag. de Zool., June, 1849, 274 (Caracas, Venezuela).

- dd.* Under wing-coverts extensively red, the under primary coverts yellow. (Nicaragua to western Panama).....*Aratinga finschi*, adults (p. 152).
- cc.* Forehead only partly red (sometimes with only a few red feathers). (Under wing-coverts with or without red).....*Aratinga finschi*, young (p. 153).
- bb.* Forehead without any bright red.
- c.* Under wing-coverts red. (*Aratinga chloroptera*.)
- d.* Under primary coverts olive. (Haiti.)  
*Aratinga chloroptera chloroptera*, adults (p. 153).
- dd.* Under primary coverts (as well as smaller coverts) red. (Porto Rico and Mona Island; extinct?).....*Aratinga chloroptera maugei*, adults (p. 155).
- cc.* Under wing-coverts wholly green.
- d.* Throat and foreneck red or orange (the feathers yellow basally). (Guatemala to northern Nicaragua.).....*Aratinga rubritorquis*, adults (p. 156).
- dd.* Throat and foreneck green, like rest of under parts.
- e.* Tenth (outermost) primary longer than seventh; distance from tips of longest primary coverts to tips of longest primaries greater than from former to bend of wing; green of under parts lighter.
- f.* Smaller (wing less than 160 mm.); green of under parts less yellowish.  
*Aratinga rubritorquis*, young (p. 156).
- ff.* Larger (wing not less—usually much more—than 160 mm.; green of under parts more yellowish.
- g.* Smaller (averaging: male, wing 168.1, tail 128.8, culmen 24.9, tarsus 17.2, outer anterior toe 21.2; female, wing 165.8, tail 125.6, culmen 24.1, tarsus 16.6, outer anterior toe 21.2. (Mexico; Guatemala?)  
*Aratinga holochlora holochlora* (p. 157).
- gg.* Larger (averaging: male, wing 175, tail 139.7, culmen 28.2, tarsus 19, outer anterior toe 25.7; female, wing 180.4, tail 140, culmen 27.9, tarsus 18.6, outer anterior toe 24.7. (Salvador to western Nicaragua.)  
*Aratinga holochlora strenua* (p. 158).
- ee.* Tenth (outermost) primary not longer (usually much shorter) than seventh; distance from tips of longest primary coverts to tips of longest primaries not greater than from former to bend of wing; green of under parts darker. (Socorro Island, western Mexico.)  
*Aratinga brevipes*, adults and young (p. 159).
- aa.* Smaller (wing 135–140 mm.). (Cuba.).....*Aratinga euops* (p. 160).

### ARATINGA FINSCHI (Salvin).

#### FINSCH'S PAROQUET.

*Adults (sexes alike).*—Forehead, median anterior portion of crown, and upper anterior portion of lores, deep poppy red; under wing-coverts and edge of wing mostly vermilion red, or orange-vermilion, and orange (except proximal coverts, which are mostly green), the under primary coverts chrome yellow; under surface of remiges and rectrices yellowish olive; rest of plumage clear parrot green above, lighter and more yellowish green below (yellowish apple green on posterior under parts), the head and neck frequently with scattered red feathers; the lower portion of thighs also partly red; bill brownish buffy, paler terminally; iris (yellow?); bare orbital space pale flesh color or whitish (in life); legs and feet pale pinkish brown or dull whitish flesh color.

*Young*.—Essentially like adults but forehead with much less red (sometimes none),<sup>a</sup> edge of wing wholly green, under wing-coverts with red confined to a small central area (or with none),<sup>a</sup> and under primary coverts light yellowish olive instead of yellow.

*Adult male*.—Length (skins), 258–291 (278); wing, 158.5–175.5 (168.6); tail, 125–141.5 (133.7); culmen, 24–28 (26.9); tarsus, 17.5–19 (18.1); outer anterior toe, 22–26 (23.9).<sup>b</sup>

*Adult female*.—Length (skins), 260–286 (276); wing, 155.5–169.5 (164.3); tail, 126–141 (134.2); culmen, 24.5–28.5 (26.1); tarsus, 17.5–19 (18.1); outer anterior toe, 22.5–24.5 (23).<sup>b</sup>

Southern Nicaragua (Rio Escondido; Rama), and southward through Costa Rica (San José; San Pedro de San José; Naranjo de Cartago; Guayabo; Bonilla; Guápiles; Monte Redondo; Volcán de Miravalles) to western Panamá (Divala and Bugaba, Chiriquí).

*Conurus finschi* SALVIN, Ibis, 3rd ser., i, Jan., 1871, 91, pl. 4 (Bugaba, Chiriquí, w. Panama; coll. Salvin and Godman); Bull. Brit. Orn. Club, no. vi, 1893, p. xxxii (Nicaragua).—REICHENOW, Journ. für Orn., 1881, 274 (monogr.); Consp. Psitt., 1882, 162; Vogelbild., 1881, text to pl. 22, fig. 7.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 501 (San José, Costa Rica).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 124 (Naranjo de Cartago and San José, Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 184; Ibis, 1906, 454.—CHERRIE, Auk, ix, 1892, 327 (San José, Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 519 (Rio Escondido, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., ii, 1897, 571 (Rama, etc., Nicaragua; etc.).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, 9 (Chiriquí).—RIDGWAY, Condor, vii, 1905, 156, in text (Bonilla, Costa Rica).—FERRY, Pub. 146, Field Mus. N. H., 1910, 262 (Guayabo, Costa Rica; crit.).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 482 (range in Costa Rica).

[*Conurus*] *finschi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.—SHARPE, Hand-list, ii, 1900, 15.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10.

## ARATINGA CHLOROPTERA CHLOROPTERA (Souancé).

### HAITIAN PAROQUET.

*Adults (sexes alike)*.—General color plain green (light parrot green above, nearly apple green below), deeper and more bluish green on primaries, primary coverts, and alulæ, the remiges, rectrices, etc., with black shafts; anterior portion of forehead (very narrowly) sometimes suffused with dull brownish red; under wing-coverts, edge of wing, and outer lesser coverts at bend of wing, bright poppy red; under primary coverts yellowish olive (sometimes with some

<sup>a</sup> In a specimen without trace of red on forehead there is considerable red on the under wing-coverts, while in one without a trace of red on the under wing-coverts there is a considerable amount of red on the forehead; so it would seem that there is usually if not always some red in one or the other of the places named in the young of this species.

<sup>b</sup> Ten specimens, from Costa Rica.

of the feathers light red or pink), the under surface of remiges and rectrices similar but decidedly more yellowish; bill pale buffy brownish; bare orbital space pale buffy brownish or dull buffy (whitish or pale flesh color in life?); legs and feet grayish brown or brownish gray (in dried skins).

*Immature*.—Similar to adults but under wing-coverts mostly green (entirely green in younger birds?).

*Adult male*.—Length (skins), 286–310 (303); wing, 170.5–184 (177.1); tail, 135.5–157.5 (147.2); culmen, 26–27.5 (26.6); tarsus, 17–19.5 (18.8); outer anterior toe, 22–25 (23.4).<sup>a</sup>

*Adult female*.—Length (skins), 276–311 (296); wing, 169–179.5 (174.2); tail, 128.5–156 (143.9); culmen, 25.5–28 (26.5); tarsus, 18–18.5 (18.3); outer anterior toe, 22.5–24.5 (23.7).<sup>b</sup>

Island of Haiti, Greater Antilles (Samaná, La Cañita, Rio Yuna, El Valle, and Matanzas, Santo Domingo).

*Psittacara chloroptera* SOUANCÉ, Rev. et Mag. de Zool., 2 ser., viii, Feb., 1856, 59 (Santo Domingo; coll. Prince Massena); Icon. Perr., 1857, text to pl. 7.

[*Evopsitta*] *chloroptera* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 23).

*Conurus chloropterus* SCLATER, Proc. Zool. Soc. Lond., 1857, 225, in text (Santo Domingo).—SALLÉ, Proc. Zool. Soc. Lond., 1857, 234 (Santo Domingo; habits).—CORY, Birds Haiti and San Dom., 1885, 113, pl. [15]; Auk, iii, 1886, 457 (synonymy; descr.); Birds West Ind., 1889, 180; Cat. West Ind. Birds, 1892, 101, 131, part (Haiti and Santo Domingo).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 186 (Samana, Santo Domingo).—CHERRIE, Contr. Orn. San. Dom., 1896, 21.—CHRISTY, Ibis, 1897, 334 (Rio Yuna, Santo Domingo).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 359 (El Valle and Matanzas, Santo Domingo).

[*Conurus*] *chloropterus* CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—SHARPE, Hand-list, ii, 1900, 15.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10.

*Psittacus chloropterus* BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 96 (Santo Domingo).

[*Conurus*] *chloropterus* CABANIS, Journ. für Orn., 1885, 222, in text (comparison with *C. gundlachi*).

*Evopsitta euops* (not *Sittace euops* Wagler) SOUANCÉ, Icon. Perr., 1857, pl. 7, fig. 2.

*Conurus euops* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 33, part (Santo Domingo).—TRISTRAM, Ibis, 1884, 168 (Santo Domingo).

*Conurus pavua* (not *Psittacus pavua* Boddaert) FINSCH, Die Papag., i, 1867, 469, part (Santo Domingo).

*Conurus paona* [typog. error] MARSCHALL, Papag., 1889, 55.

[*Conurus*] *leucophthalmus* (not *Psittacus leucophthalmus* Müller) GRAY, Hand-list, ii, 1870, no. 8090.

*Conurus leucophthalmus* REICHENOW, Journ. für Orn., 1881, 276 (monogr.); Consp. Psitt., 1882, 164.

<sup>a</sup> Eight specimens.

<sup>b</sup> Five specimens.



## ARATINGA CHLOROPTERA MAUGEI (Souancé).

## MAUGE'S PAROQUET.

Similar to *A. c. chloroptera* but with smaller and darker colored bill, the maxillary tomium without distinct angular projection, the adults with under primary coverts light red, and the lesser coverts on outside of wing entirely green.

*Adult female*.—Length (skin), 296; wing, 165; tail, 158; culmen, 26.5; tarsus, 17; outer anterior toe, 22.5.<sup>a</sup>

Mona Island, near Porto Rico.

*Psittacara maugéi* SOUANCÉ, Rev. et Mag. de Zool., 2 ser., viii, Feb., 1856, 59 (no locality given, but type from Porto Rico, in coll. Paris Mus.).—CABANIS, Journ. für Orn., 1855, 222, in text.

*Evopsitta maugéi* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 22).—SOUANCÉ, Icon. Perr., 1857-'58, pl. 8.

*Conurus maugéi* SCLATER, Proc. Zool. Soc. Lond., 1857, 225, in text (Porto Rico).

*Conurus maugéi* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 33 ("South America").—SCHLEGEL, Die Dierent., 1864, 81; Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 13; no. 38 (Revue), 1874, 4.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 189; Ibis, 1906, 455 (crit.).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15 (Mona Island).

*Conurus maugéi*(?) BOWDISH, Auk, xx, 1903, 20 (near Lares, Porto Rico).

[*Conurus*] *maugéi* SHARPE, Hand-list, ii, 1900, 15.

*Conurus parva* (not *Psittacus parva* Boddaert) FINSCH, Die Papag., i, 1867, 463, part.

*Conurus evops* ? (not *Sittace cuops* Wagler) GUNDLACH, Journ. für Orn., 1878, 160, 184 (Porto Rico; crit.); Anal. Soc. Esp. Hist. Nat., vii, 1878, 229 (Porto Rico).

*Conurus gundlachi* CABANIS, Orn. Centralbl., vi, no. 1, Jan., 1881, 5 (Mona Island, near Porto Rico); Journ. für Orn., 1881, 107 (Mona I.); 1882, 119; 1885, 222 (crit.).—SCLATER and SALVIN, Ibis, 1881, 479 (Porto Rico).—GUNDLACH, Journ. für Orn., 1881, 401.—MARSCHALL, Bull. Soc. Philom., 7 ser., v, 1881, 173; Papag., 1889, 55.—REICHENOW and SCHALOW, Journ. für Orn., 1882, 119 (descr.; Mona Island).—CORY, Auk, iii, 1886, 457; ix, 1892, 229 (Mona I.; crit.); Birds West Ind., 1889, 180.

[*Conurus*] *gundlachi* CORY, List Birds West Ind., rev. ed., 1886, 20.

[*Conurus evops*.] Subspecies: *gundlachi* REICHENOW, Journ. für Orn., 1881, 275 (monogr.); Consp. Psitt., 1882, 163.

*Conurus chloropterus* (not *Psittacara chloroptera* Souancé) CORY, Cat. West Ind. Birds, 1892, 101, 141, part (Mona I.); Auk, ix, 1892, 228, in text (Mona I.; crit.).

<sup>a</sup> One specimen, from Mona Island. This bird seems really different from true *A. chloroptera* (from Santo Domingo). The bill, while the culmen is slightly longer than the minimum of that measurement in *A. chloroptera* seems both shorter and narrower (transversely), there is no angle or "tooth" on the maxillary tomium, and the color of the bill much darker, the maxilla being deep brownish horn color for the basal half. There is no red whatever on the lesser coverts of the outside surface of the wing, and the under primary coverts are wholly light red (strawberry pink or light coral red), except that on the left wing the two outermost under primary coverts are light yellowish olive, these feathers probably representing remnants of the immature plumage. The toes also appear to be more slender, and the anterior portion of the head duller, more olivaceous, green than in adults of *A. chloroptera*.

## ARATINGA RUBRITORQUIS (Sclater).

## RED-THROATED PAROQUET.

*Adults (sexes alike).*—Whole throat and foreneck, together with lower portion of malar region, red or reddish orange (grenadine red to orange chrome), the feathers yellow beneath surface; rest of plumage clear light parrot green above, becoming brighter and more yellowish green (deeper than apple green) on sides of head, the primaries and primary coverts slightly more bluish green; primaries, rectrices, etc., with black shafts, the first with tip of inner webs narrowly margined with blackish; a few red or reddish orange feathers on sides of neck and across hindneck, forming indication of a broken collar; under parts, posterior to red or orange of foreneck, clear yellowish apple green, passing into apple green on under tail-coverts; smaller under wing-coverts wholly clear apple green, the under primary coverts and under surface of remiges and rectrices light yellowish olive or deep olive-yellowish; bill light brownish buffy; naked orbital space pale brownish (whitish or pale flesh color in life?); legs and feet pale brownish (in dried skins).

*Young.*—Essentially like adults but with the red (or reddish orange) and yellow of throat, foreneck, etc., replaced by light green, the green of under parts of body slightly darker or duller.

*Adult male.*—Length (skins), 250–265 (257); wing, 156–164 (161.4); tail, 115–124.5 (120.7); culmen, 24.5–26 (25.1); tarsus, 16–17 (16.6); outer anterior toe, 20.5–21.5 (21).<sup>a</sup>

*Adult female.*—Length (skins), 257–275 (264); wing, 154–162 (159); tail, 112–119.5 (116.8); culmen, 23–24.5 (23.7); tarsus, 16.5–17.5 (17); outer anterior toe, 20–22 (21).<sup>b</sup>

Guatemala (Iguana; Gualán) and Salvadór (Volcán de San Miguel to Nicaragua (San Rafael del Norte; Matagalpa).<sup>c</sup>

*Conurus rubritorquis* SCLATER, Proc. Zool. Soc. Lond., 1886 (pt. iv, April 1, 1887), 539, pl. 56 ("South America or West Indies"; coll. Zool. Soc. Lond.).—SALVIN and GODMAN, Ibis, 1892, 328 (centr. Nicaragua); Biol. Centr.-Am., Aves, ii, 1897, 573 (Volcan de San Miguel, Salvador; Matagalpa, Nicaragua).

[*Conurus*] *rubritorquis* FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 11.

<sup>a</sup> Four specimens.

<sup>b</sup> Three specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from Guatemala.....	163.2	121.2	25.2	17	21
One adult male from Nicaragua.....	156	119.5	25	16.5	21
Two adult females from Guatemala (tarsus and toe of only one measured).....	157.5	119.2	23.7	17.5	22
One adult female from Nicaragua.....	162	112	23.5	16.5	20

<sup>c</sup> Not yet recorded from Honduras.

*Conurus rubritorques* SALVADORI, Bull. Brit. Orn. Club, iii, 1892, p. xi (Nicaragua; crit.); Ibis, 1893, 122 (reprint); 1906, 455 (crit.).

[*Conurus*] *rubritorques* SHARPE, Hand-list, ii, 1900, 15.

*Conurus holochlorus rubritorques* DEARBORN, Pub. 125, Field Mus. N. H., Nov., 1907, 85 (Gualan, Guatemala; crit.).

ARATINGA HOLOCHLORA HOLOCHLORA (Sclater).

GREEN PAROQUET.

Similar to *A. rubritorquis* but larger and without red or orange throat.

*Adults (sexes alike).*—Above bright yellowish parrot green, becoming slightly darker and more bluish green on primaries and primary-coverts, the former narrowly margined with blackish terminally, especially on inner webs; sides of head lighter, more yellowish green (bright apple green),<sup>a</sup> the under parts still lighter and more yellowish; smaller under wing-coverts light yellowish apple green; under primary coverts and under surface of remiges and rectrices light yellowish olive changing to deep olive-yellowish, the first slightly duller or more grayish; primaries, rectrices, etc., with black shafts; bill dull brownish buffy or pale buffy brownish; iris (yellow?); bare orbital space pale brownish (whitish in life?); legs and feet light brownish (in dried skins).

*Adult male.*—Length (skins), 236–287 (267); wing, 160–179 (168.1); tail, 120–134 (128.8); culmen, 23.5–26.5 (24.9); tarsus, 16–18 (17.2); outer anterior toe, 19–23 (21.2).<sup>b</sup>

*Adult female.*—Length (skins), 240–288 (264); wing, 160–174 (165.8); tail, 114.5–144 (125.6); culmen, 23–25 (24.1); tarsus, 16–17 (16.6); outer anterior toe, 20.5–22 (21.2).<sup>c</sup>

<sup>a</sup> Many specimens (probably older individuals) show a few scattered red feathers on lower malar regions, sides of neck, etc.

<sup>b</sup> Fourteen specimens.

<sup>c</sup> Five specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Five adult males from Chihuahua.....	173.2	128.7	24.7	14.7	21
Eight adult males from Tamaulipas.....	164.7	128.3	25.1	17.1	21.2
One adult male from Vera Cruz.....	169	131.5	24.5	17	23
Three adult males from Nicaragua ( <i>A. h. strenua</i> ).....	175	139.7	28.2	19	25.7
Ten adult males from Socorro Island ( <i>A. brevipes</i> ).....	168.2	150.8	27.8	18	22.4
FEMALES.					
One adult female from Chihuahua.....	165.5	114.5	23	17	21
One adult female from Nuevo Leon.....	174	144	24	16.5	21.5
Three adult males from Tamaulipas.....	164.5	122.5	24.5	16.5	21.2
Seven adult females from Nicaragua ( <i>A. h. strenua</i> ).....	180.4	141.8	27.8	18.5	24.4
Ten adult females from Socorro Island ( <i>A. brevipes</i> ).....	166.4	150.7	26.7	17.6	21.4

It is possible that specimens from Chihuahua may eventually require separation, on account of the appreciably less yellowish hue of the green, strong tinge of blue on alulae, and weaker bill.

Mexico, in States of Chihuahua (Hacienda de San Rafael), Nuevo León (Montemorelos; Rio Camacho), Tamaulipas (Sota la Marina; Forlón; Rio Pilón; Victoria; Xicotencal; Sierra Madre), Vera Cruz (Miradór; Jalapa; Misantla; Santa Ana; Rio Juan Martín; Hacienda Tortuga; Omealca), Puebla (Rinconada), San Luis Potosí (Vallés), Guanajuato, and Mexico (near City of Mexico), and Guatemala (Cobán; Dueñas; El Rincón de San Marcos; Santa Maria de Quezaltenango; Vera Paz.)

(?) *Psittacus guianensis* (not *P. gujanensis* Gmelin, 1788) LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1; Journ. für Orn., 1863, 54 (reprint).

*Conurus holochlorus* SCLATER, Ann. and Mag. N. H., ser. 3, iv, 1859, 224 (Jalapa, Vera Cruz; coll. P. L. Sclater); Proc. Zool. Soc. Lond., 1859, 368 (Jalapa, Vera Cruz); 1864, 177 (near City of Mexico); Cat. Am. Birds, 1862, 346 (Jalapa).—SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 13; no. 38 (Revue), 1874, 4.—SALVIN, Ibis, 1871, 92 (range; habits).—SCHMIDT, Proc. Zool. Soc. Lond., 1880, 310 (duration of life in captivity).—REICHENOW, Journ. für Orn., 1881, 276, part (monogr.); Consp. Psitt., 1882, 164, part, Vögelbild., 1883, Nachtr., 81, part.—PELZELN and LORENZ, Ann. d. Naturhist. Hofmus., iii, 1888, 38.—SALVIN and GODMAN, Ibis, 1889, 241, in text (s. Mexico); Biol. Centr.-Am., Aves, ii, 1897, 572, part (Rio Camacho, Nuevo Leon; Sierra Madre and Xicotencal, Tamaulipas; Valles, San Luis Potosi; Misantla, Santa Ana, Rio Juan Martin, Hacienda Tortugas, Jalapa, and Omealca, Vera Cruz).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 189, part (excl. syn. *C. rubritorquis* Sclater).—LANTZ, Trans. Kansas Ac. Sci. for 1896-'97 (1899), 219 (Rinconada, Puebla).

(?) *Conurus holochlorus*<sup>a</sup> SALVIN and SCLATER, Ibis, 1860, 44 (Coban and Dueñas, Guatemala; crit.).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 189, part (El Rincon de San Marcos, Santa Maria de Quezaltenango, Dueñas, and Vera Paz, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 572, part (El Rincon de San Marcos, etc., Guatemala).

[*Conurus*] *holochlorus* SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 560 (tierra caliente of Vera Cruz).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.—GARROD, Proc. Zool. Soc. Lond., 1873, 466 (carotid arteries), 633 (leg muscles); 1874, 587 (anatomy).—SHARPE, Hand-list, ii, 1900, 15.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 11 (Mexico; "Central America").  
C[onurus] *holochlorus* RIDGWAY, Man. N. Am. Birds, 1887, 270.

#### ARATINGA HOLOCHLORA STRENUA (Ridgway).

##### NICARAGUAN GREEN PAROQUET.

Similar in coloration to *A. h. holochlora* (from eastern Mexico) but decidedly larger, especially the bill and feet.

*Adult male*.—Length (skins), 292–308 (300); wing, 173–178.5 (175); tail, 139–140.5 (139.7); culmen, 28–28.5 (28.2); tarsus, 18.5–19.5 (19); outer anterior toe, 25–26 (25.7).<sup>b</sup>

*Adult female*.—Length (skins), 285–292 (289); wing, 176.5–186 (180.4); tail, 137–147.5 (141.8); culmen, 25.5–29 (27.8); tarsus, 17–19.5 (18.5); outer anterior toe, 23.5–26 (24.4).<sup>c</sup>

<sup>a</sup> These references may refer to *A. holochlora strenua*. I have not seen specimens from Guatemala.

<sup>b</sup> Three specimens.

<sup>c</sup> Seven specimens.

Pacific slope of Central America, from Salvadór (Volcán de San Miguél) to Nicaragua (Omotepe: San Gerónimo, Chinandega).

*Conurus holochlorus* (not of Sclater) NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 395 (Omotepe, Nicaragua).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 189, part (specimen Z).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 572, part (Omotepe, Nicaragua; Volcan de San Miguel, Salvador).

*Conurus holochlorus strenuus* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106 (Omotepe, Nicaragua; coll. U. S. Nat. Mus.).

### ARATINGA BREVIPES (Lawrence).

#### SOCORRO PAROQUET.

Similar to *A. holochlora* but larger (especially the bill), coloration decidedly darker (both above and below), and primaries relatively shorter, with the tenth (outermost) shorter, instead of longer, than the seventh.

*Adults (sexes alike)*.—Above clear light parrot green, the primaries and primary coverts slightly darker and more bluish green, the former margined terminally (especially on inner webs) with blackish; primaries, rectrices, etc., with black shafts; sides of head brighter green (bright deep apple green), the under parts lighter and more yellowish green (deep apple green); smaller under wing-coverts apple green, the under primary coverts and under surface of remiges and rectrices light yellowish olive changing to deep olive-yellowish; bill dull buffy whitish deeper (more brownish) on basal portion of maxilla; iris yellow;<sup>a</sup> naked orbital space pale brownish (yellow in life?); legs and feet dull grayish or horn color (in dried skin).

*Adult male*.—Length (skins), 290–317 (303); wing, 164.5–172 (168.2); tail, 144–157 (150.8); culmen, 26–29.5 (27.8); tarsus, 17.5–19 (18); outer anterior toe, 22–23 (22.4).<sup>b</sup>

*Adult female*.—Length (skins), 283–316 (305); wing, 161.5–170.5 (166.4); tail, 143.5–156.5 (150.7); culmen, 25.5–28.5 (26.7); tarsus, 17–18 (17.6); outer anterior toe, 21–22 (21.4).<sup>b</sup>

Socorro Islands, Revillagigedo group, western Mexico.

*Conurus holochlorus*, var. *brevipes* "Baird, MS." LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, 1871, 54 [author's separate, p. 14] (Socorro Island, Revillagigedo group, off n. w. Mexico; coll. U. S. Nat. Mus.); Mem. Bost. Soc. N. H., ii, 1874, 295 (habits).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 298 (habits).

*Conurus holochlorus brevipes* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 190; Nom. N. Am. Birds, 1881, no. 393.—ANTHONY, Auk, xv, 1898, 317.

[*Conurus*] *holochlorus brevipes* RIDGWAY, Man. N. Am. Birds, 1887, 270.

*Conurus brevipes* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 191.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 574.

[*Conurus*] *brevipes* SHARPE, Hand-list, ii, 1900, 15.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 11.

*Conurus holochlorus* (not of Sclater) REICHENOW, Journ. für Orn., 1881, 276, part (monogr.); Cons. Psitt., 1882, 164, part.

<sup>a</sup>According to Grayson.

<sup>b</sup>Ten specimens.

## ARATINGA EUOPS (Wagler).

## CUBAN PAROQUET.

Much smaller than other species of the genus (wing not more than 140 mm.); adults with smaller under wing-coverts red and (usually, at least) with scattered red feathers on abdomen or flanks, sometimes on head and neck also.

*Adults (sexes alike).*—Above light yellowish parrot green, the primaries and primary coverts slightly darker and decidedly more bluish green, the former margined terminally with blackish or dusky, especially on inner webs; shafts of primaries, rectrices, etc., black; sides of head slightly brighter green; under parts light apple green, the abdomen or abdomen and flanks, sometimes head and neck also, with a few scattered red feathers;<sup>a</sup> smaller under wing-coverts and edge of wing vermilion red, the latter slightly intermixed with yellow; under primary coverts light grayish olive, with a yellowish cast, the under surface of remiges and rectrices light yellowish olive changing to deep olive-yellowish; bill pale brownish or dull brownish buffy; bare orbital space pale brownish (whitish in life?); legs and feet light brownish (in dried skins).

*Young.*—Similar to adults but with red on under wing-coverts more restricted, the edge of the wing (more or less broadly) yellowish green, and without any red feathers on head, neck, or under parts.

*Adult male.*—Length (skins), 237–264 (253); wing, 139–145 (142.4); tail, 126–139.5 (133.7); culmen, 19–20 (19.9); tarsus, 14–15 (14.5); outer anterior toe, 17.5–20 (18.9).<sup>b</sup>

*Adult female.*—Length (skins), 220–265 (247); wing, 134.5–143.5 (139.9); tail, 118–141.5 (127.3); culmen, 17.5–19.5 (18.6); tarsus, 13.5–15 (14.2); outer anterior toe, 17.5–19 (18.6).<sup>b</sup>

Island of Cuba (Trinidad; Guamá; Remédios; Camaguéy; San Juan; San Pablo; Yateras); formerly also Isle of Pines, where now extirpated.

[*Psittacus rufirostris.*] Var.  $\beta$ . LATHAM, Index Orn., i, 1790, 96.

*Psittacus guianensis* (not of Scopoli nor of Gmelin) D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1840, 162.—LEMBEYE, Aves de la Isla de Cuba, 1850, 132.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 306 (Cuba).

*Conurus guyanensis* CABANIS, Journ. für Orn., 1856, 106 (Cuba).

[*Conurus*] *guyanensis* GUNDLACH, Journ. für Orn., 1861, 336 (Cuba).

*Sittace euops* WAGLER, Mon. Psitt., 1832, 638, 728 ("America").

*Sittace euops* WAGLER, Mon. Psitt., 1832, pl. 24, fig. 2.

*Psittacus euops* KÜSTER, Orn. Atlas, Papag., 1840, 95, pl. 74.

[*Conurus*] *euops* GRAY, Gen. Birds, ii, 1845, 414.—CABANIS, Journ. für Orn., 1881, 107, in text (comparison with *C. gundlachi*).

<sup>a</sup> In some specimens red feathers are interspersed on other parts, especially on the head and neck.

<sup>b</sup> Ten specimens.

*Conurus euops* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 33, part.—FINSCH, Die Papag., i, 1867, 474.—GUNDLACH, Journ. für Orn., 1871, 271, 288, 291, 293; 1874, 164 (habits); Contr. Orn. Cuba, 1876, 126, 276; Orn. Cubana, ed. 1895, 152.—REICHENOW, Journ. für Orn., 1881, 275 (monogr.); Consp. Psitt., 1882, 163; Vogelbild., 1883, Nachtr., 79.—CORY, Auk, iii, 1886, 455 (synonymy; descr.); Birds West Ind., 1889, 178; Cat. West Ind. Birds, 1892, 101, 128 (Cuba; Isle of Pines).—MARSCHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 185.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 298 (San Juan and San Pablo, s. Cuba; habits and notes; crit.).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 200 (Isle of Pines; extirpated!).

[*Conurus*] *euops* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—SHARPE, Hand-list, ii, 1900, 15.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 10.

*Evopsitta euops* SOUANCÉ, Icon. Perr., 1857, pl. 7, fig. 1 (not fig. 2), and text to pl. 8, part.

[*Evopsitta*] *euops* BONAPARTE, Rev. et Mag. de Zool., 1854, 151; Naumannia, 1856 (Consp. Psitt., no. 24).

*Conurus euops* GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 297.

*Conurus enops* [typog. error] SCLATER, Proc. Zool. Soc. Lond., 1886, 539.

[*Evopsitta*] *typus* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 21, in synonymy).

#### Genus EUPSITTULA Bonaparte.

(?) *Guarouba* LESSON, Traité d'Orn., 1831, 210. (Type, *Psittacus luteus* Latham = *P. guarouba* Gmelin.)

*Eupsittula* BONAPARTE, Compt. Rend, Ac. Sci. Paris, xxxvii, 1853, 807; Mag. de Zool., vi (2), 1854, 150. (Type, *Psittacus petzii* Leiblein = *P. canicularis* Linnæus.)

(?) *Heliopsitta* BONAPARTE, Rev. et Mag. de Zool., 1854, 150. (Type, *Psittacus guarouba* Gmelin.)

*Eupsittaca* (emendation) CABANIS, Journ. für Orn., 1862, 335.

Rather small, long-tailed Psittacidae (length about 230–300 mm.) with cere mostly naked, fully exposing nostrils; tip of seventh primary attenuated; coloration variable, but mostly green or (in one species) orange and yellow, the under surface of remiges always blackish or slaty.

Bill moderate, decidedly deeper than long and very much deeper than wide, the maxilla more or less compressed laterally toward culmen; culmen longer than middle toe without claw, regularly and strongly decurved from base, usually more or less flattened (sometimes broadly grooved between two distinct lateral ridges); maxillary unguis rather thick, not acute, its width at base of the distinctly corrugated palatal surface less than its length from same point; maxillary tomium with a more or less prominent angular projection or "tooth" immediately behind the very distinct postungual notch; depth of mandible at base less than length of gonys, the latter broad and more or less flattened (sometimes with one or two indistinct median grooves or ridges), the chisel-like tip of mandible more or

less abruptly flattened, with terminal margin sharp and truncate; mandibular tomium more or less deeply incised (concave) subterminally, straight to strongly convex proximally. Wing moderately long, pointed, the longest primaries exceeding distal secondaries by more than two-fifths (but less than half) the length of wing; eighth and ninth, or ninth, primaries longest, the tenth (outermost) longer than seventh (equal to eighth in *E. weddellii*), the seventh with tip abruptly attenuated. Tail shorter than wing (very nearly as long in *E. solstitialis*), graduated for a little more than one-third to slightly more than half its length, the rectrices strongly tapering distally, narrowly rounded (the middle pair sometimes subacuminate) at tip. Tarsus not longer (sometimes shorter) than outer hind toe without claw.

*Plumage and coloration.*—Cere with greater part naked, fully exposing nostrils; orbital region naked; chin naked, or with thin downy feathers. In all the Middle American (and some extralimital) species, the plumage without any red; above, including tail, green, the primaries more or less distinctly bluish terminally; under parts paler green or partly olive or brownish; some species with dull orange or salmon color on forehead or beneath eyes, some with greater part of head orange-yellow. Some South American species have more or less of red in the plumage, one (*E. weddellii*) a gray head, while one (*E. solstitialis*) has the prevailing colors orange and yellow.

(As to coloration, all the species of *Eupsittula* differ from all those of *Aratinga* in having (1) the under surface of the remiges dusky or slaty instead of olive-yellowish, and (2) in having the distal secondaries and distal portion of proximal primaries deep blue, instead of green.)

*Range.*—Southern Mexico to eastern Peru, Bolivia, southern Brazil, and Guiana; also islands of Jamaica and St. Thomas, West Indies, and Curaçao, Aruba, and Bonaire, off Venezuela. (About fourteen species.)<sup>a</sup>

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<sup>a</sup> Several species which may be referable to this genus I have not seen, namely, *Psittacus guarouba* Gmelin and *Psittacus cactorum* Kuhl, all of which are placed in *Conurus* (i. e., *Aratinga*) by modern authorities.

The genus *Eupsittula*, as here defined, is possibly too comprehensive, and may require further restriction. *E. nana*, for example, has the bill much larger and relatively deeper than any of the others, though exceedingly like *E. astec* in coloration. *E. ocularis* has the culmen rounded (transversely) in conspicuous contrast with *E. nana* and *E. astec*, in which it is conspicuously flattened, with a broad though shallow groove separating two distinct lateral ridges; other species are, however, intermediate in regard to this character. In the South American species having much red and yellow in the plumage (*E. jendaya*, *E. auricapilla*, and *E. solstitialis*) the tail is relatively longer and more graduated, but otherwise the details of form are essentially as in typical members of the group.



## KEY TO THE SPECIES AND SUBSPECIES OF EUPSITTULA.

- a. Crown without red.
- b. Feathers of auricular region narrow and distinctly outlined, with narrow paler shaft-streaks. (*Eupsittula pertinax*.)
- c. Cheeks, forehead, and sides of pileum yellow.
- d. Crown, occiput, and hindneck green. (Islands of Curaçao, Dutch West Indies, and St. Thomas, Greater Antilles.)
- Eupsittula pertinax pertinax* (p. 164).
- dd. Hindneck and more or less of crown and occiput yellow. (Island of Bonaire, Dutch West Indies.) ..... *Eupsittula pertinax xanthogenia* (p. 166).
- cc. Cheeks light brownish; forehead pale brown or dull whitish; whole crown dull bluish green.
- d. Orbital region, more or less extensively, yellow.
- e. Yellow suborbital area more extensive, involving rictal region and more or less of lores. (Tortuga Island, Venezuela.)
- Eupsittula pertinax tortugensis* (extralimital).<sup>a</sup>
- ee. Yellow suborbital area more restricted, the rictal region and lores light brownish, like cheeks. (Island of Aruba, Dutch West Indies.)
- Eupsittula pertinax arubensis* (p. 167).
- dd. Orbital region not distinctly, if at all, yellow. (Guianas and mainland of Venezuela.)..... *Eupsittula pertinax æruginosus* (extralimital).<sup>b</sup>
- bb. Feathers of auricular region normal (blended), without paler shaft-streaks.
- c. Crown more or less bluish green; cheeks brownish or olivaceous; under primary coverts and under surface of remiges olive-grayish or yellowish olive; chest light buffy olive, ecru-olive, or yellowish olive.
- d. Forehead dull bluish green, like crown; distal secondaries green, becoming more bluish terminally. (Adults with a yellow suborbital spot.) (Panama.)..... *Eupsittula ocularis* (p. 167).
- dd. Forehead light salmon-orange or ochraceous-salmon; crown dull grayish blue; distal secondaries deep blue.
- e. Under surface of remiges dull slate-gray or olive-gray; bill dull whitish or light buffy. (Western Mexico to Costa Rica.)

*Eupsittula canicularis* (p. 168).

<sup>a</sup> *Conurus æruginosus tortugensis* Cory, Pub. 137, Field Mus. Nat. Hist., Oct. 25, 1909, 220 (Tortuga Island, Venezuela; coll. Field Mus. Nat. Hist.).

<sup>b</sup> [*Psittacus*] *æruginosus* Linnæus, Syst. Nat., ed. 10, i, 1758, "68"=98, no. 12 ("America"; based on *Psittacus minor*, *guiture fusco*, *occidentalis* Edwards, Birds, 177, pl. 177; type locality, as fixed by Berlepsch and Hartert, Cumaná, Venezuela); ed. 12, i, 1766, 142.—*Aratinga æruginosus* Stephens, Shaw's Gen. Zool., xiv, 1826, 139.—*Conurus* *æruginosus* Gray, Gen. Birds, ii, 1845, 413, excl. syn. part.—*Conurus æruginosus* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 195.—[*Psittacus*] *plumbeus* Gmelin, Syst. Nat., i, pt. i, 1788, 326 (no locality given; based on *Brown-fronted Parakeet* Latham, Synopsis Birds, i, pt. 1, 243).—*Psittacus inornatus* Temm[inck], Kuhl, Consp. Psitt., 1820, 92 (locality unknown).—*Psittacus pertinax* (not of Linnæus) Küster, Orn. Atlas, Papag., 1837, 86, pl. 66 (supposed young).—*Conurus pertinax* Finsch, Die Papag., i, 1867, 506, part; ii, 1868, 944, part.

There are additional names which have been referred to this or closely related forms, as *Conurus chrysophrys* Souancé (Icon. Perr., pl. 11) and *C. chrysogenys* Massena and Souancé (Rev. et Mag. de Zool., 1854, 72); but in view of the fact that the species requires careful revision (there being unquestionably several geographic subspecies included under the general specific or subspecific term *æruginosus*), these may for the present be passed by.

- ee. Under surface of remiges yellowish olive; bill blackish. (Guianas to Paraguay and Bolivia.).....*Eupsittula aurea* (extralimital). <sup>a</sup>
- cc. Whole pileum (including forehead) and cheeks bright parrot green or grass green; under primary coverts and under surface of remiges deep slate-grayish; chest deep olive or olive-greenish.
- d. Bill much smaller (culmen 16.5–20). (Southern Mexico to Costa Rica.)  
*Eupsittula astec* (p. 171).
- dd. Bill much larger (culmen 21–22.5). (Jamaica.)...*Eupsittula nana* (p. 174).
- aa. Crown with a red patch. (Island of Guadeloupe, Lesser Antilles; extinct.)  
*Eupsittula* (?) *labati* (p. 175).

### EUPSITTULA PERTINAX PERTINAX (Linnæus).

#### CURAÇAO PAROQUET.

*Adults (sexes alike).*—Upper parts (except forehead and superciliary region) light yellowish parrot green or deep apple green, the crown (anterior portion at least) tinged with bluish green; distal secondaries and distal portion of primaries greenish blue, the latter margined terminally with blackish; the green of middle rectrices sometimes passing terminally into greenish blue; forehead (broadly), whole side of head, including superciliary region, and anterior portion of side of neck, deep orange-yellow or yellow-orange (cadmium yellow to orange); throat, foreneck, and upper chest light buffy brownish or dull brownish buffy, the remaining under parts clear yellowish apple green, intermixed on abdomen with orange-yellow or yellow-orange; smaller under wing-coverts clear light yellowish green (much yellower than apple green); under primary coverts and under surface of remiges dull slate color; under surface of tail yellowish olive changing to bright olive-yellow; bill light brownish; iris yellow or straw yellow; bare orbital space pale brownish (dull white in life?); legs and feet brownish (in dried skins).

*Young.*—Similar to adults but with yellow of head much more restricted, confined to suborbital and loreal regions and anterior portion of forehead, the whole pileum (except anterior portion of forehead green, the posterior portion of auricular and malar regions, sides of neck and throat light buffy olive or ecru-olive.

<sup>a</sup> [*Psittacus*] *aureus* Gmelin, Syst. Nat., i, pt. i, 1788, 329 (Brazil; based on *Psittaca brasiliensis* Brisson, Orn., iv, 337; *Perruche couronnée d'or* Buffon, Hist. Nat. Ois., vi, 271; *Golden-crowned Parakeet* Edwards, Gleanings, pl. 235).—*Aratinga aureus* Spix, Av. Bras., i, 1824, 37; Brehm, Mon. Papag., 1842, 16, pl. 20.—*Conurus aureus* Lesson, Traité d' Orn., 1831, 214; Reichenow, Vogelbild., 1878, pl. 2, fig. 2; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 199.—*Sittace*] *aurea* Wagler, Mon. Psitt., 1832, 649.—[*Eupsittula*] *aureus* Bonaparte, Rev. et Mag. de Zool., 1854, 150 (Consp. Psitt., p. 7).—*Eupsittaca aurea* Cabanis, Journ. für Orn., 1862, 335, in text.—[*Psittacus*] *brasiliensis* (not of Linnæus) Latham, Index Orn., i, 1790, 103.—*Psittacus regulus* Shaw, Gen. Zool., viii, pt. ii, 1812, 453 (new name for *P. brasiliensis* Latham).—[*Psittacus*] *canicularis* (not of Linnæus) Lichtenstein, Verz. Doubl., 1823, 6.—*Conurus canicularis* Cabanis, in Schomburgk's Reise Brit. Guiana, iii, 1848, 728.—[*Eupsittula*] *canicularis* Bonaparte, Rev. et Mag. de Zool., 1854, 150 (Consp. Psitt., p. 7).

*Adult male*.—Length (skins), 233–247 (239); wing, 136.5–146.5 (141.1); tail, 113–118.5 (115.6); culmen, 19–20.5 (19.7); tarsus, 14–14.5 (14.4); outer anterior toe, 18–19 (18.2).<sup>a</sup>

*Adult female*.—Length (skins), 228–254 (244); wing, 138–148.5 (142.1); tail, 121–127 (123.6); culmen, 18.5–19.5 (18.9); tarsus, 14–15 (14.3); outer anterior toe, 17.5–18.5 (18).<sup>a</sup>

Island of Curaçao, Dutch West Indies; island of St. Thomas, Greater Antilles (introduced?).

[*Psittacus*] *pertinax* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 98, no. 10 ("Indiis;" based on *Psittacus macrourus viridis*, *genis fulvis*, *remigibus rectricibusque canescentibus* Mus. Ad. Fr., i, 14); ed. 12, i, 1766, 142 ("America").—GMELIN, Syst. Nat., i, pt. 1, 1788, 322.—LATHAM, Index Orn., i, 1790, 94.

*Psittacus pertinax* BECHSTEIN, Lathams Uebers. Vogel, i, 1793, 196, 700.—TEM-MINCK, Cat. Syst., 1807, 25 and note (app.), p. 7 (includes *Illinois Parrakeet* Latham, Synopsis Birds, i, 228).—SHAW, Gen. Zool., viii, pt. 2, 1811, 445.—VIEILLOR, Nouv. Dict. d'Hist. Nat., xxv, 1817, 360 (cites Pl. Enl., pl. 528); Tabl. Enc. Méth., iii, 1823, 1395.—KUHLE, Consp. Psitt., 1820, 24.—KÜSTER, Orn. Connect.

Atlas, Papag., 1837, 86, pl. 66.—THIENEMANN, Fortpfl. d. ges. Vög., 1846, 75.

*Psittacus pertinax* BECHSTEIN, Kurze Uebers., 1811, 72.

*Aratinga pertinax* Spix, Av. Bras., i, 1824, 37.—STEPHENS, Shaw's Gen. Zool., xiv, 1826, 132.—BREHM, Mon. Papag., 1842, pl. 29.

*Sittacus pertinax* WAGLER, Mon. Psitt., 1832, 652, 730, part.—HARTLAUB, Syst. Verz., 1844, 86 ("Brasilien").

*Conurus pertinax* GRAY, Gen. Birds, ii, 1845, 413.

*Conurus pertinax* BONAPARTE, Rev. et Mag. de Zool., 1854, 150; Naumannia, 1856 (Consp. Psitt., no. 66).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 60 ("Brésil").—SCLATER, Cat. Am. Birds, 1862, 348, part.—SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 20; no. 38 (Revue), 1874, 5.—FINSCH, Die Papag., i, 1867, 506, part.—RUSS, Journ. für Orn., 1869, 82.—CABANIS, Journ. für Orn., 1879, 222.—REICHENOW, Journ. für Orn., 1881, 282 (monogr.); Consp. Psitt., 1881, 171.—MARSCHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 197 (St. Thomas, Greater Antilles); Ibis, 1906, 457.—BERLEPSCH, Journ. für Orn., 1892, 88 (Curaçao).—PETERS, Journ. für Orn., 1892, 112 (Curaçao; habits).—CORY, Cat. West Ind. Birds, 1892, 101, 141 (St. Thomas; Curaçao); Pub. 137, Field Mus. N. II., 1909, 206 (Curaçao; crit.; descr. nest).—HARTERT, Ibis, 1893, 320 (Curaçao; crit.; habits); Novit. Zool., ix, 1902, 301 (Curaçao; crit.).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15 (Curaçao; St. Thomas).

<sup>a</sup> Six specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Six adult males from Curaçao.....	141.1	113.3	19.7	14.4	18.2
One adult male from St. Thomas.....	139	108	19.5	.....	.....
FEMALES.					
Six adult females from Curaçao.....	142.1	123.6	18.9	14.3	18
One adult female from St. Thomas.....	133.5	117	19.5	13	18.5
Ten adults (sex undetermined) from St. Thomas.....	139.1	110.2	19.1	13.9	17.4

- [*Conurus*] *pertinax* FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 11.—SHARPE, Hand-list, ii, 1900, 16.
- [*Conurus*] *pertinax* HARTERT, Bull. Brit. Orn. Club, no. iii, 1892, p. xii (Curaçao).
- (?) *Psittacus tui* (not of Gmelin) LEDRU, Voy. aux îles de Teneriffe, la Trinité, Saint Thomas, etc., 1810, 392.
- Conurus aureus* (not *Psittacus aureus* Gmelin), female, LESSON, Traité d'Orn., 1831, 214.
- (?) *Conurus canigularis* THIENEMANN, Fortpfl. d. ges. Vög., 1846, 76. (Not seen.)
- [*Conurus*] *xanthogenius* (not of Bonaparte) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112 (St. Thomas).
- "*Psittacus barbarossa* Licht[enstein]" BONAPARTE, Naumannia, 1856, Consp. Psitt., no. 66 (in synonymy).
- Conurus xantholæmus* SCLATER, Ann. and Mag. N. H., 3rd ser., iv., 1859, 225 (St. Thomas, Greater Antilles; coll. A. and E. Newton); Cat. Am. Birds, 1862, 348 (St. Thomas).—NEWTON (A. and E.), Ibis, 1859, 374 (St. Thomas).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 377 (St. Thomas).—TAYLOR, Ibis, 1864, 171 (St. Thomas).—GARROD, Proc. Zool. Soc. Lond., 1873, 465 (carotid arteries), 633 (leg muscles); 1874, 587 (anatomy).—REICHENOW, Vogelbild., 1880, pl. 17, fig. 8.—CORY, Auk, iii, 1886, 456 (synonymy; descr.); Birds West Ind., 1889, 179.
- [*Conurus*] *xantholæmus* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 588, in text.—CABANIS, Journ. für Orn., 1879, 222.
- [*Conurus*] *xantholæmus* CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20 (St. Thomas).

#### EUPSITTULA PERTINAX XANTHOGENIA (Bonaparte).

##### BONAIRE PAROQUET.

Similar to *E. pertinax pertinax* but pileum and hindneck mostly yellow, the center of crown with an irregular (usually more or less broken) area of dull green.

*Adult male*.—Length (skin), 243; wing, 142; tail, 118; culmen, 22; tarsus, 15; outer anterior toe, 19.<sup>a</sup>

*Adult female*.—Length (skins), 233–245 (239); wing, 134–143.5 (139); tail, 108.5–118 (114.9); culmen, 20–20.5 (20.4); tarsus, 14–15 (14.4); outer anterior toe, 18–19 (18.5).<sup>b</sup>

Island of Bonaire, Dutch West Indies.

*Psittacus carolinensis* (not of Linnæus) KÜHL, Consp. Psitt., 1820, 23 (spec. in coll. Leyden Mus.).

*Psittacus carolinensis* WAGLER, Mon. Psitt., 1832, 743.

*Conurus xanthogenius* BONAPARTE, Consp. Gen. Av., i, 1850, 1 ("Brasilia"); type in Leyden Mus.); Compt. Rend., xxx, 1850, 132; Rev. et Mag. de Zool., 1854, 150; Naumannia, 1856 (Consp. Psitt., no. 63).—SCHLEGEL, Dierent., 1864, 81; Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 18 (type of *C. xanthogenius* Bonaparte and *Psittacus carolinensis* Kuhl, in coll. Leyden Mus.); Nederl. Tijdschr. Dierk., iii, 1866, 187.—HARTERT, Ibis, 1893, 331 (Bonaire, Dutch West Indies; crit.; habits).—CORY, Pub. 137, Field Mus. N. H., 1909, 211 (Bonaire; crit.).—SALVADORI, Ibis, 1906, 457 (Bonaire; synonymy, diagnosis; crit.).

[*Conurus*] *xanthogenius* SHARPE, Hand-list, ii, 1900, 16.

[*Conurus*] *xanthogenius* HARTERT, Bull. Brit. Orn. Club, no. iii, 1892, p. xii (Bonaire).

<sup>a</sup> One specimen.

<sup>b</sup> Four specimens.

*Conurus pertinax xanthogenius* HARTERT, Novit. Zool., ix, July 25, 1902, 302 (Bonaire; crit.).

*Conurus pertinax* (not *Psittacus pertinax* Linnæus) FINSCH, Die Papag., i, 1867, 506, part.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 197, part.—DUBOIS, Synop. Avium, 1899, 12, part.

### EUPSITTULA PERTINAX ARUBENSIS (Hartert).

#### ARUBA PAROQUET.

Similar to *E. p. æruginosus*<sup>a</sup> but orbital region (especially beneath eyes) dull orange-yellow (antimony yellow to yellow ochre), crown less strongly bluish (the blue, if present, lighter), and color of malar region, chest, etc., lighter (ecru-olive to dark olive-buff instead of buffy citrine or saccardos olive).

*Adult male*.—Length (skins), 248-251 (249.5); wing, 136-136.5 (136.2); tail, 113.5-121 (117.2); culmen, 19; tarsus, 13.5-14 (13.7); outer anterior toe, 18-18.5 (18.2).<sup>b</sup>

*Adult female*.—Length (skins), 238; wing, 133.5-141 (137.2); tail, 112.5-117.5 (115); culmen, 18.5-19.5 (19); tarsus, 14-14.5 (14.2); outer anterior toe, 18-18.5 (18.2).<sup>b</sup>

Island of Aruba, Dutch West Indies.

[*Conurus*] *æruginosus* (not *Psittacus æruginosus* Linnæus) HARTERT, Bull. Brit. Orn. Club, no. iii, 1892, p. xii (Aruba Island).

*Conurus arubensis* HARTERT, Bull. Brit. Orn. Club, no. iv, Dec. 31, 1892, p. xvi (Island of Aruba, Dutch West Indies; coll. Tring Mus.?). *Ibis*, 1893, 300 (crit.; habits).

[*Conurus*] *arubensis* SHARPE, Hand-list, ii, 1900, 16.

*Conurus æruginosus arubensis* HARTERT, Novit. Zool., ix, July 25, 1902, 301 (crit.; habits).

*Conurus æruginosus arubensis* CORY, Pub. 137, Field Mus. N. H., 1909, 199 (crit.).

### EUPSITTULA OCULARIS (Sclater and Salvin).

#### VERAGUA PAROQUET.

*Adults (sexes alike)*.—Above deep apple green passing into dull bluish green or tinged with paris green on pileum; distal secondaries and proximal primaries passing into dull blue or greenish blue (dull cerulean blue to dull beryl green) distally, the primaries margined terminally with blackish; loreal, lower part of suborbital, auricular, and malar regions, chin, and upper throat, plain light grayish brown (buffy hair brown), passing into a paler and more buffy or yellowish hue on lower throat, foreneck, upper chest, and sides of neck; an elongated, subcrescentic, patch of orange-yellow (deep chrome to orange-buff) immediately beneath bare orbital space, its posterior extremity acute; breast, sides, flanks, and under tail-coverts clear yellowish apple green, passing into greenish yellow on abdomen, the yellow usually deeper or purer (nearly pure lemon yellow) on lower

<sup>a</sup> See p. 163.

<sup>b</sup> Two specimens.

abdomen; smaller under wing-coverts clear apple green; under primary coverts and under surface of remiges slate color; under surface of tail yellowish olive changing to deep olive-yellowish; bill light horn color; iris yellow; bare orbital space pale brownish (dull white in life?); legs and feet brownish dusky (in dried skins).

*Young*.—Similar to adults but lacking the orange-yellow sub-orbital spot.

*Adult male*.—Length (skins), 215–243 (229); wing, 130.5–141.5 (136.6); tail, 101.5–114 (108.3); culmen, 18.5–20 (19.1); tarsus, 13–14.5 (13.9); outer anterior toe, 17.5–19 (18.4).<sup>a</sup>

*Adult female*.—Length (skins), 221–243 (228); wing, 131–141 (137.1); tail, 101–117 (109.8); culmen, 18.5–19.5 (19); tarsus, 13.5–14.5 (13.9); outer anterior toe, 17.5–19 (18.1).<sup>a</sup>

Panamá (Lion Hill; Panamá; Boquerón, Bugaba, Divala, and David, Chiriquí; Calobre, Verágua).

*Conurus pertinax?* (not *Psittacus pertinax* Linnæus) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 333 (Lion Hill, Panama).

*Conurus pertinax* FINSCH, Die Papag., i, 1867, 506, part.

*Conurus chryso-genys* (not of Massena and Souancé) LAWRENCE, Ann. Lyc. N. Y., viii, 1867, 489 [author's separate, p. 11] (Lion Hill, Panama; crit.).—SCHLEGEL, Mus. Pays-Bas, iii, no. 38 (Revue), 1874, 5.

*Conurus ocularis* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864 (pub. Oct. 1), 367 ([Lion Hill] Panama; coll. Salvin and Godman).—SALVIN, Proc. Zool. Soc. Lond., 1870, 214 (Calobre, Veragua, Panama; crit.); Ibis, 1871, 93 (range; crit.).—REICHENOW, Vogelbild., 1880, pl. 17, fig. 1.—PELZELN and LORENZ, Ann. d. Naturhist. Hofmus., iii, 1888, 38 (Veragua).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 197.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 576.—BANGS, Auk, xviii, 1901, 359 (Divala and David, Chiriquí, Panama); Proc. New Engl. Zool. Club, iii, 1902, 24 (Bugaba, Chiriquí, Panama).

[*Conurus*] *ocularis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.—SHARPE, Hand-list, ii, 1900, 16.

[*Conurus*] *ocularis* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 588, in text.—CABANIS, Journ. für Orn., 1879, 222.

[*Conurus aeruginosus*] Subspecies: *ocularis* REICHENOW, Journ. für Orn., 1881, 282 (monogr.); Consp. Psitt., 1882, 170.

## EUPSITTULA CANICULARIS (Linnæus).

### PETZ'S PAROQUET.

*Adults (sexes alike)*.—Forehead (broadly), dull orange or deep orange-buff, deepening into cadmium orange anteriorly; crown dull greenish blue (dull Nile blue) passing into yellowish bice green or light yellowish parrot green on occiput and hindneck, the back, rump, upper tail-coverts, wing-coverts, and inner (proximal) secondaries brighter yellowish green, the tail slightly darker green with middle pair of rectrices passing into more bluish green (sometimes greenish

<sup>a</sup> Ten specimens.

blue) terminally; outer (distal) secondaries and inner (proximal) primaries deep blue (nearest cyanine), the secondaries narrowly edged with light greenish blue, the primaries rather broadly margined terminally with blackish; outer primaries green passing into greenish blue distally; auricular region and sides of neck dull yellowish green, like hindneck; loreal region dusky or mixed dull greenish and dusky; suborbital and malar regions, chin, throat, and chest dull light grayish green or pale olive-green, the feathers (some, at least), with darker narrow shaft-streaks; rest of under parts, together with smaller under wing-coverts, clear light yellowish apple green; under primary coverts dull slate-gray narrowly margined with light yellowish green; under surface of primaries dull slate-grayish; under surface of tail light yellowish olive, changing to deep olive-yellow; maxilla dull ivory whitish; mandible dusky laterally with median portion (broadly) ivory whitish; iris and bare orbital space yellow (naples yellow or kings yellow) in life; legs and feet grayish dusky (in dried skins).

*Immature*.—Similar to adults but with the orange-buff of forehead more restricted, sometimes confined to median anterior portion, the sides of forehead being dull greenish blue, like crown.

*Adult male*.—Length (skins), 211–252 (226); wing, 130–143 (136.4); tail, 96–117.5 (106); culmen, 17.5–19.5 (18.7); tarsus, 13–14.5 (13.8); outer anterior toe, 16.5–19.5 (18.1).<sup>a</sup>

*Adult female*.—Length (skins), 206–231 (220); wing, 125.5–141.5 (133.1); tail, 100–112.5 (105.2); culmen, 17–19.5 (18.2); tarsus, 13–14 (13.7); outer anterior toe, 16.5–18.5 (17.7).<sup>b</sup>

Western Mexico, in States of Sinaloa (Mazatlán; Escuinapa), Jalisco (Barranca Beltrán; Hacienda de San Marcos), Durango

<sup>a</sup> Thirteen specimens.

<sup>b</sup> Eleven specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
<b>MALES.</b>					
One adult male from Sinaloa.....	130	101	17.5	13	16.5
One adult male from Tepic.....	143	110.5	19.5	14.5	18
Two adult males from Durango.....	137.5	112	18.5	14	17.5
One adult male from Colima.....	136	117.5	19.5	14.5	19
Three adult males from Guerrero.....	135	101.2	18.8	14	19.2
One adult male from Salvador.....	139	103	19	13	17
Two adult males from Costa Rica.....	138.7	107	18	13.2	17.7
<b>FEMALES.</b>					
Three adult females from Sinaloa.....	136.8	109.7	18.2	13.7	18
One adult female from Colima.....	134	100	19.5	13.5	17
Five adult females from Guerrero.....	131.2	103.8	18.9	13.6	17.8
One adult female from Oaxaca.....	132	.....	17	14	18.5
One adult female from Costa Rica.....	131.5	100.5	18	13	17

(Chacalá), Colima (Plains of Colima; Manzanillo), Guerrero (Acapulco; Tierra Colorado; Dos Arroyos), Oaxaca (Huiloátepec; Juchitán; Putla; Cacoprieto; Chihuitán; Santa Efigénia; Tehuantepec), and Chiapas (Tonala), and Territory of Tepic (San Blas; Santiago; Tepic), and southward through Guatemala (Naranjo; Rio Montagua; Retalhuleu; Gualán; El Rancho, Zacapa; Mazatenango; San José), Salvador (La Unión; La Libertad), Honduras (Pacific slope) and Nicaragua (Chinandega) to western Costa Rica (Guanacaste; Liberia; Volcán de Miravalles; Bolsón; Sarchi; Escazú; Alajuela; San Juan; San José; La Sabana de San José; Naranjo).

[*Psittacus*] *canicularis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, "68"=98, part ("America"; based on *Psittacus capite rubro cæruleoque* Edwards, Nat. Hist. Birds, 176, pl. 176; *Tui-apute-juba* Marcgrave, Bras., 206 a); ed. 12, i, 1766, 142.—GMELIN, Syst. Nat., i, pt. i, 1788, 323.—LATHAM, Index Orn., i, 1790, 94.

*Psittacus canicularis* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 206, 701.—SHAW, Gen. Zool., viii, pt. 2, 1811, 445.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 364 (cites Pl. Enl., pl. 767).—KUHLE, Consp. Psitt., 1820, 25.

*Psittacus canicularis* VIEILLOT, Tabl. Enc. Méth., iii, 1823, 1398.

*Psittacus canicularis* BECHSTEIN, Kurze Uebers., 1811, 72.—LICHTENSTEIN, Verz. Doubl., 1823, 6.

*Aratinga canicularis* STEPHENS, Shaw's Gen. Zool., xiv, 1826, 139.

*Conurus canicularis* GRAY, Gen. Birds, iii, 1849, App., p. 20; List Birds Brit. Mus., Psittacide, 1859, 37 (Mexico).—SALVIN, Ibis, 1871, 88, footnote (Mexico).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 201 (Mazatlan, Sinaloa; Santiago and San Blas, Tepic; Plains of Colima and Manzanillo, Colima; Beltran and Hacienda San Marcos, Jalisco; Acapulco, Tierra Colorado, and Dos Arroyos, Guerrero; Putla and Cacoprieto, Oaxaca; Tonala, Chiapas; Rio Montagua, Guatemala; Nicaragua; San Juan, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 577 (Mazatlan; Santiago and Tepic, Tepic; Plains of Colima, Rio de Coahuayana, and Manzanillo Bay, Colima; Beltran, Barranca de Beltran, and Hacienda de San Marcos, Jalisco; Acapulco, Tierra Colorado, and Dos Arroyos, Guerrero; Putla, Cacoprieto, Juchitan, Chihuitan, Santa Efigenia, and Tehuantepec, Oaxaca; Tonala, Chiapas; Retalhuleu and Rio Montagua, Guatemala; La Libertad, Salvador; Pacific slope, Honduras; Nicaragua; San Jose, Sarchi, Alajuela, Liberia, and San Juan, Costa Rica).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 348 (Escuinapa, etc., s. Sinaloa).—BAILEY (H. H.), Auk, xxiii, 1906, 388 (San Blas, Tepic).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 85 (Gualan, El Raicho, Mazatenango, and San Jose, Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 483 (La Sabana de San Jose, Alajuela, Escazu, Bolson, Guanacaste, and Miravalles, Costa Rica).

[*Conurus*] *canicularis* BONAPARTE, Naumannia, 1854 (Consp. Psitt., under no. 64).

[*Conurus*] *canicularis* FORBES and ROBINSON, Bull. Liverp. Mus., i, 1897, 11 (Central Am.; "St. John's River").

[*Eupsittula canicularis* BONAPARTE, Rev. et Mag. de Zool., 1854, 150 (Consp. Psitt., p. 7).

*Conurus canicularis* [lapsus] UNDERWOOD, Ibis, 1896, 445 (Volcan de Miravalles, Costa Rica).



- Sittace*] *petzii* WAGLER, Mon. Psitt., 1832, 650, 730 (Mexico; coll. Würzburg Mus.; ex *Psittacus petzii* Leiblein, manuscript).—HARTLAUB, Syst. Verz., 1844, 86.
- Psittacus petzii* KÜSTER, Orn. Atlas, Papag., 1837, 85, pl. 64.
- C[onurus] petzii* GRAY, Gen. Birds, ii, 1845, 413.—RIDGWAY, Man. N. Am. Birds, 1887, 270.
- Conurus petzii* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 37 (Mexico).—SOUANCÉ, Icon. Perr., 1857, pl. 9.—SCLATER, Ann. and Mag. N. H., ser. 3, iv, 1859, 224; Cat. Am. Birds, 1862, 348 (s. Mexico).—SALVIN and SCLATER, Ibis, 1860, 401 (Rio Montagua, Guatemala).—SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 20 (Mexico; Costa Rica); no. 38 (Revue), 1874, 5.—FINSCH, Die Papag., i, 1867, 502.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (San Jose, San Juan, and Sarchi, Costa Rica); Mem. Bost. Soc. N. H., ii, 1874, 296 (Mazatlan; Rio de Coahuylana; Plains of Colima; Manzanilla Bay); Bull. U. S. Nat. Mus., no. 4, 1876, 36 (Juchitan, Chihuitan, and Santa Efigenia, Oaxaca).—FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1883, 426 (Acapulco, Guerrero).—GARROD, Proc. Zool. Soc. Lond., 1873, 466 (carotid arteries), 633 (leg muscles); 1874, 587 (anatomy).—REICHENOW, Vogelbild., 1880, pl. 17, fig. 2.—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. C. R., i, 1887, 124 (San Jose, Alajuela, and Liberia, Costa Rica).—CHERRIE, Auk, ix, 1893, 327 (San Jose, Costa Rica).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 786 (Barranca Veltran, Agosto, and Barranca Ibarra, Jalisco).—LANTZ, Trans. Kansas Ac. Sci. for 1896-'97 (1899), 219 (Naranja, Guatemala; Limoncito, [Sinaloa?]).
- [*Conurus*] *petzi* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 65).
- Conurus petzi* SCLATER, Proc. Zool. Soc. Lond., 1857, 230 (Acapulco, Guerrero; crit.).—SALVIN, Ibis., 1871, 92 (geog. range).
- [*Conurus*] *petzi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.
- Conurus petzi?* TAYLOR, Ibis, 1860, 120 (Pacific slope, Honduras; habits; fresh colors of soft parts).
- [*Conurus aureus*] subspecies: *petzi* REICHENOW, Journ. für Orn., 1881, 283 (monogr.); Consp. Psitt., 1882, 171 (reprint).
- Eupsittula petzii* BONAPARTE, Compt. Rend., xxxvii, 1853, 807, in text; Notes Orn. Coll. Delattre, 1854, 2, in text; Rev. et Mag. de Zool., 1854, 10.
- Eupsittaca petzii* CABANIS, Journ. für Orn., 1862, 335 (Costa Rica; Mexico; crit.).
- Psittacus (Aratinga) eburnirostrum* LESSON, Rev. Zool., v, May, 1842, 135 (Acapulco, Guerrero, s. w. Mexico; coll. A. Lesson).
- C[onurus] eburnirostrum* GRAY, Gen. Birds, ii, 1845, 414.
- Aratinga eburnirostrum* LESSON, Descr. Mam. et Ois., 1847, 189.

## EUPSITTULA ASTEC (Souancé).

## AZTEC PAROQUET.

*Adults (sexes alike).*—Above clear bright parrot green to bright lettuce green, the sides of head similar but slightly lighter and brighter; small feathers on top of cere sometimes dull yellowish, orange, or orange-reddish; distal secondaries and distal portion of proximal primaries deep blue, bordered terminally with dusky or blackish; shafts of rectrices, primaries, etc., black; throat and fore-neck buffy olive (more or less dark), passing through more greenish olive on chest into olive-yellowish (clear olive-yellow to dull wax

yellow) on abdomen, many of the feathers, from foreneck to abdomen, showing more or less distinct narrow shaft-streaks of dusky; sides, flanks, and under tail-coverts clear light yellowish green; smaller under wing-coverts clear light yellowish green (apple green); under primary coverts and under surface of remiges dull slate color or dark mouse gray, the former sometimes narrowly margined distally with pale dull yellowish; under surface of tail light yellowish olive changing to deep olive-yellowish; bill horn brownish, paler terminally; iris yellow or orange-yellow; naked orbital space dull white (in life); legs and feet grayish dusky or dull blackish.

*Adult male*.—Length (skins), 211–245 (232); wing, 129–145.5 (136.6); tail, 99–117 (108.8); culmen, 16.5–20 (18.4); tarsus, 13–14.5 (13.9); outer anterior toe, 15.5–18 (17.1).<sup>a</sup>

*Adult female*.—Length (skins), 212–263 (226); wing, 131–136.5 (134.2); tail, 102.5–118.5 (108.1); culmen, 16–5–19.5 (18.1); tarsus, 13–14.5 (13.8); outer anterior toe, 16.5–18.5 (17.5).<sup>b</sup>

Southern Mexico, in States of Vera Cruz (Motzorongo; Potrero near Córdoba; Mérida; Playa Vicente; Plan del Rio; Misantla; Vega de Casadero; Sochiapa; La Antigua; San Lorenzo; Atoyac; Jalapa; Omealca; Cosamaloapám), Puebla (Rinconada), southern Tamaulipas (Alta Mira; Tampico), Oaxaca (Guichicovi), Tabasco (Frontera; Teapa; San Juan Bautista), and Yucatán (Chichen-Itza; Mérida; Citilpech; Tekanto; Ticúl; Labna; Izamál; Camp Mengel, Quintana Roo; Holbox Island), and southward, through Guatemala (Cajabón; Vera Paz; Petén; Los Amates, Yzabál), British Honduras (Belize River; Orange Walk), Honduras (Santa Ana; Truxillo; Comayagua; Omoa; San Pedro; Rio Segóvia) and Nicaragua (Rio Escondido;

<sup>a</sup> Sixteen specimens.

<sup>b</sup> Nine specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from Vera Cruz.....	133.7	107.2	16.8	13.3	16.5
Four adult males from Tabasco.....	139.7	107	18.7	14.4	17.9
Two adult males from Yucatan.....	133	104	18	14	16.2
Four adult males from Honduras.....	136.7	109.5	18.7	13.7	17.2
One adult male from eastern Nicaragua.....	137	112	18.5	14	16.5
Two adult males from eastern Costa Rica.....	137.7	114	20	14	17
FEMALES.					
One adult female from Vera Cruz.....	132	.....	18	13.5	17.5
One adult female from Oaxaca.....	135.5	110.5	18	14	17.5
Two adult females from Honduras.....	136.2	103	18	13.7	17.7
Four adult females from eastern Nicaragua.....	133.5	110.2	18.1	13.9	17.6
One adult female from eastern Costa Rica.....	134	102.5	18	13.5	16.5

Greytown; Los Sábalo; La Libertád) to eastern Costa Rica (Rio Frio; Jiménez; La Concepción; Cariblanco de Sarapiquí; El Hogár; San Carlos).

*Psittacus pertinax* (not of Linnaeus), juv., LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1; Journ. für Orn., 1863, 54 (reprint).

*Conurus astec* SOUANCE, Rev. et Mag. de Zool., 2 ser., ix, March, 1857, 97 (Mexico; coll. Massena).—SCLATER, Proc. Zool. Soc. Lond., 1857, 230, in text (s. Mexico); 1859, 388 (Playa Vicente, Vera Cruz); Ann. and Mag. N. H., 3rd ser., iv, 1859, 224 (tierra caliente of Vera Cruz; Cordova).—MOORE, Proc. Zool. Soc. Lond., 1859, 59 (Belize R., Brit. Honduras).—SCLATER and SALVIN, Ibis, 1859, 137 (Belize); Proc. Zool. Soc. Lond., 1867, 280 (Bluefields R., Nicaragua); 1870, 837 (Honduras).—TAYLOR, Ibis, 1860, 120 (Comayagua, Honduras).—SALVIN, Ibis, 1872, 313 (Nicaragua); 1889, 373 (Holbox Island, Yucatan).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 46 (San Carlos, Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Alta Mira, s. Tamaulipas).

[*Conurus*] *astec* SALVIN, Ibis, 1890, 88 (Holbox Island, Yucatan).

*Conurus aztec* SOUANCE, Icon. Perr., 1857, pl. 12, lower fig.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 38.—SCLATER, Cat. Am. Birds, 1862, 349 (Belize).—SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 21; no. 38 (Revue), 1874, 6.—FINSCH, Die Papag., i, 1867, 522.—LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 207 (Merida, Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 35 (Guichicovi, Oaxaca).—SUMCHRAST, Mem. Bost. Soc. N. H., i, 1869, 560 (tierra caliente of Vera Cruz).—SALVIN, Ibis, 1871, 93 (range).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 455 (Yucatan; habits).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 407 (Los Sábalo, Nicaragua).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. C. R., i, 1887, 124 (Mexico).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 163 (Plan del Rio, Vera Cruz).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 583 (Truxillo, Honduras), 592 (Rio Segovia, Honduras).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 205 (Sitalpech, Tekanto, Ticul, and Labna, Yucatan).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 191 (Tampico, Tamaulipas; Misantla, Vega del Casadero, Sochiapa, La Antigua, Playa Vicente, San Lorenzo, and Plan del Rio, Vera Cruz; Atoyac, Oaxaca; Teapa, Tabasco; Orange Walk, etc., Brit. Honduras; Cajabon, Vera Paz, Guatemala; San Pedro, Honduras; Costa Rica, etc.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 519 (Rio Escondido, Nicaragua).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 286 (Chichen-Itza, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 575 (Jalapa, Omealca, Cosamaloapam, etc., Vera Cruz; Citalpech, Izamal, Holbox Island, etc., Yucatan; Peten, etc., Guatemala; Omoa, etc., Honduras; La Libertad, etc., Nicaragua, etc.).—LANTZ, Trans. Kansas Ac. Sci. for 1897-'99 (1900), 220 (Rinconada, Puebla).—COLE, Bull. Mus. Comp. Zool., 1, 1906, 125 (Chichen-Itza, Yucatan).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 85 (Los Amates, Ysabal, e. Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 483 (Costa Rica; habits).—PHILLIPS, Auk, xxviii, 1911, 75 (Alta Mira, Tamaulipas).—PETERS, Auk, xxx, 1913, 373 (Camp Mengel, Quintana Roo).

*Conurus aztec* ? LAWRENCE, Ann. Lyc. N. Y., viii, 1867, 184 (Greytown, Nicaragua).

[*Conurus*] *aztec* GRAY, Hand-list, ii, 1870, 147, no. 8112.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.—GARROD, Proc. Zool. Soc. Lond., 1874, 587 (anatomy).—SHARPE, Hand-list, ii, 1870, 15.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 11.

[*Conurus*] *aztec* RIDGWAY, Man. N. Am. Birds, 1887, 270.

*Conurus asteco* BONAPARTE, Compt. Rend., xliv, 1857, 538.

[*Conurus nanus*.] Subspecies: *frontalis* REICHENOW, Jour. für Orn., July, 1881, 281 (Mexico; ex *Conurus frontalis* Natterer, manuscript); Comp. Psitt., 1882, 169; Vogelbild., 1883, pl. 33, fig. 5.

### EUPSITTULA NANA (Vigors).

#### JAMAICAN PAROQUET.

*Adult (sexes alike).*—Above bright parrot green, the sides of head and neck similar but rather lighter and brighter (especially when compared with color of pileum); distal secondaries and proximal primaries deep dull blue (between indigo and cyanine), the secondaries narrowly edged, especially toward base, with paler, more greenish blue, the primaries becoming green on proximal portion of outer webs; larger primaries tinged with blue terminally; rectrices, primaries, etc., with black shafts; throat and foreneck smoky brown (varying from light sepia to olive), passing through olive or greenish olive on chest into bright green on sides, flanks, and under tail-coverts; smaller under wing-coverts bright light green; under primary coverts and under surface of primaries plain slate-gray; under surface of tail yellowish olive changing to olive-yellowish; bill pale buffy brownish or whitish; iris yellow or orange; naked orbital space pale brownish (whitish in life ?); legs and feet deep brownish or dusky horn color (in dried skins) or blackish.

*Young.*—Essentially like adults but brown of under parts replaced by dull green slightly suffused with brown or olive, the abdomen dull light yellowish green with indistinct shaft-streaks of darker.

*Adult male.*—Length (skins), 240–251 (247); wing, 135–142.5 (139.6); tail, 112.5–129.5 (123.8); culmen, 21–22.5 (21.6); tarsus, 13.5–14.5 (13.9); outer anterior toe, 17.5–19 (18.2).<sup>a</sup>

*Adult female.*—Length (skins), 230–255 (240); wing, 135–143.5 (140.7); tail, 116–131 (126.8); culmen, 21–21.5 (21.2); tarsus, 14.5–15 (14.8); outer anterior toe, 18–19 (18.5).<sup>a</sup>

Island of Jamaica (Spanishtown; Falmouth; Moneague; near Troy; Bogwalk Bridge).

*Psittacara nana* VIGORS, Zool. Journ., v, no. xviii, June, 1830, 273 (Jamaica; coll. Zool. Gardens London).—LEAR, Parrots, no. 5, 1831, pl. 12.—BOURJOT, Perr., 1837-'38, pl. 24.—DENNY, Proc. Zool. Soc. Lond., 1847, 38.

[*Psittacara*] *nana* VIGORS, in Lear, Illustr. Psittacidæ, 1832 (in list of plates).

[*Psittacara*] *nana* WAGLER, Mon. Psitt., 1832, 640, 741.

[*Conurus*] *nanus* GRAY, Gen. Birds, ii, 1845, 414.—NEWTON (A. and E.), Handb. Jamaica, 1881, 110.

[*Conurus*] *nanus* BONAPARTE, Rev. et Mag. de Zool., 1854, 150 (Consp. Psitt., 7); Naumannia, 1856 (Consp. Psitt., no. 70).—GRAY, Hand-list, ii, 1870, 148, no. 8117.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—SHARPE, Hand-list, ii, 1900, 15.—FORBES and ROBINSON, Bull. Liverp. Mus., i, 1897, 11.

<sup>a</sup> Five specimens.

*Conurus nanus* SOUANCÉ, Rev. et Mag. de Zool., 1856, 61; Icon. Perr., 1857, pl. 12, upper fig.—SCLATER, Proc. Zool. Soc. Lond., 1857, 225; 1861, 79; Cat. Am. Birds, 1862, 349; Rev. List Birds Jam., 1910, 12.—ALBRECHT, Journ. für Orn., 1862, 203.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 284.—SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 14; no. 33 (Revue), 1874, 4.—FINSCH, Die Papag., i, 1867, 520.—REICHENOW, Journ. für Orn., 1881, 280 (monogr.); Consp. Psitt., 1882, 168; Vogelbild., 1883, in text to pl. 33, fig. 5.—CORY, Auk, iii, 1886, 456 (syn.; descr.); Birds West Ind., 1889, 179; Cat. West Ind. Birds, 1892, 101, 130.—MARSCHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 191.—SCOTT, Auk, viii, 1892, 128.—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.

*Conurus flaviventer* (not *Aratinga flaviventer* Spix) GOSSE, Birds Jamaica, 1847, 263. [*Conurus*] *flaviventer* ALBRECHT, Journ. für Orn., 1862, 203.

### EUPSITTULA(?) LABATI (Rothschild).

#### GAUDELOUPE PAROQUET.

“About the size of a blackbird [*Planesticus merula*]. Entirely green, except a small patch of red on the crown, bill white.” (Rothschild.)

Island of Guadeloupe, Lesser Antilles. (Extinct.)

*Conurus labati* ROTHSCCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 13 (island of Guadeloupe, Lesser Antilles; ex Labat, Voy. aux îles de l'Amér., ii, 1742, 218).—SALVADORI, Ibis, 1906, 454 (descr.; crit.).

### Genus PYRRHURA Bonaparte.

*Aratinga* (not of Spix, 1824) BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 150. (Type, *Psittacus cruentatus* Maximilian.)

*Pyrhura* BONAPARTE, Naumannia, 1856, Consp. Gen. Psittacorum, gen. 14. (Type, *Psittacus vittatus* Shaw.)

Medium-sized, long-tailed Psittacidae (length about 195–290 mm.) with cere wholly naked (the nostril completely exposed), tip of seventh primary not attenuated, and with tail reddish or dusky brown, at least on under side.

Bill moderate, decidedly shorter than head, its depth at base much greater than its length, the maxilla truncate-conical or subpyramidal in transverse section; culmen nearly to quite as long as outer toe without claw (sometimes as long as middle toe without claw), regularly and strongly decurved from base, usually broadly flattened (rarely shallowly but broadly grooved between lateral ridges) but sometimes rounded; depth of maxilla at base not greater (often less) than its width at same point; maxillary unguis rather thick, rounded (transversely) at tip, its width at base of the distinctly corrugated palatal surface less than its length; maxillary tomium distinctly notched at base of unguis, the remaining portion nearly straight or slightly concave proximally with anterior portion usually more or less prominent, forming a rounded or obtusely angular lobe or “tooth”; depth of mandible at base usually a little less (never more) than length of gonys, slightly to considerably less than its width (transversely), the mandible more or less flattened laterally, rounded

to somewhat flattened beneath, where usually with a more or less distinct median ridge, the produced, chisel-like tip abruptly beveled, with truncate or faintly concave terminal margin, which is more or less distinctly concave on upper side. Wing moderate, the longest primaries exceeding distal secondaries by about two-fifths the length of wing; seventh, eighth and ninth, or eighth, ninth, and tenth primaries longest, the tenth (if shorter than ninth) equal to or shorter than seventh; tip of seventh primary not attenuated. Tail decidedly shorter than wing to very nearly as long, graduated for about half its length, the rectrices more or less distinctly tapering terminally, with tip broadly rounded (except, sometimes, middle rectrices, which however, are never acute at tip). Tarsus equal to or shorter than outer hind toe without claw.

*Plumage and coloration.*—Cere wholly, or for greater part, naked, the nostrils conspicuously exposed; orbital region extensively naked; feathers of foreneck and chest usually sharply defined. General color green, the under surface of tail dull red or dusky reddish brown; foreneck and chest usually barred or squamated with pale yellowish or pale buffy brownish; primaries usually blue; abdomen often dull red.

*Range.*—Costa Rica to eastern Peru, Bolivia, Paraguay, Argentina, and Guiana. (About twenty-two species.)

#### PYRRHURA HOFFMANNI HOFFMANNI (Cabanis).

##### HOFFMANN'S PAROQUET.

*Adults (sexes alike).*—General color parrot green, slightly lighter and decidedly more yellowish green below, where feathers are olivaceous beneath surface, the feathers of pileum sometimes more or less distinctly margined or streaked with wax yellow, those of foreneck sometimes (but more rarely) similarly marked; short downy feathers of lower chin reddish; auricular region (at least in part) dull vermilion or poppy red, the feathers with paler (more yellowish or orange-colored) shafts; outer (distal) greater wing-coverts and middle secondaries canary yellow for anterior portion, sometimes along edges also; alulae and primary coverts canary yellow, with terminal portion dull green or greenish dusky; primaries more bluish green (especially the outermost ones), with shafts and terminal portion of inner webs blackish; tail more olivaceous green (especially middle pair of rectrices), with black shafts, the under surface reddish dusky passing into light brownish red on edges of inner webs; smaller under wing-coverts green; under primary coverts canary yellow with distal portion (broadly) olive-slaty; inner webs of remiges canary yellow proximally, olive-dusky distally, the yellow becoming more olivaceous (olive-yellow to yellowish olive) on outer primaries; bill dull ivory yellowish or buffy whitish; bare orbital space dull yellowish (in dried skins); legs and feet brownish (in dried skins).

*Adult male*.—Length (skins), 227–246 (234); wing, 128.5–142 (135.7); tail, 101.5–117 (110.8); culmen, 16–17.5 (17.1); tarsus, 13.5–14.5 (14.1); outer anterior toe, 16.5–18 (17.1).<sup>a</sup>

*Adult female*.—Length (skins), 223–244 (232); wing, 130.5–139 (133.9); tail, 106–112 (109.6); culmen, 16–18 (16.9); tarsus, 13–14.5 (14); outer anterior toe, 16.5–18 (17.4).<sup>b</sup>

Mountains of Costa Rica (Azahár de Cartago; La Estrella de Cartago; Navarro de Cartago; Aguas Calientes, near Cartago; base of Cerro de la Candelaria; Escazú; Monte Redondo; La Cedral de Aserrí; Tuís; San Marcos; Dota, Santa Maria, Laguaría, and Copéy, Dota; Ujurrás de Térraba).

*Conurus hoffmanni* CABANIS, Sitzb. d. Ges. naturf. Freunde zu Berlin, 13 Nov., 1861 (Costa Rica; coll. Berlin Mus.).—FINSCH, Die Papag., i, 1867, 553.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Angostura, Frailes, and Navarro de Cartago, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).—SCLATER and SALVIN, Exotic Orn., 1869, 161, pl. 81.—SALVIN, Ibis, 1871, 93, part (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 46 (base of Cerro de la Candelaria and Aguas Calientes, near Cartago, Costa Rica).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. C. R., i, 1887, 124 (Costa Rica).

[*Conurus*] *hoffmanni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112, part (Costa Rica).

*Conurus hoffmanni* SCHLEGEL, Mus. Pays-Bas, iii, no. 38 (Revue), 1874, 6 (Costa Rica).

*Pyrrhura hoffmanni* CABANIS, Journ. für Orn., x, Sept., 1862, 335 (Costa Rica; crit.).

*Pyrrhura hoffmanni* REICHENOW, Journ. für Orn., 1881, 288, part (monogr.); Consp. Psitt., 1882, 176, part; Vogelbild., 1883, Nachtr., 86, part.—SALVADORI, Cat. Birds Brit Mus., xx, 1891, 230, part (Angostura and Dota, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 578, part (Costa Rica).

[*Pyrrhura*] *hoffmanni* SHARPE, Hand-list, ii, 1900, 18, part (Costa Rica).—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 12.

*Pyrrhura hoffmanni hoffmanni* CARRIKER, Ann. Carnegie Mus., vi, 1910, 486 (Costa Rica; crit.; habits).

<sup>a</sup> Ten specimens.

<sup>b</sup> Seven specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Ten adult males from Costa Rica.....	135.7	110.8	17.1	14.1	17.1
Ten adult males from western Panama (Chiriquí) ( <i>P. h. gaudens</i> ).....	136.9	111.7	18	14	17.7
FEMALES.					
Seven adult females from Costa Rica.....	133.9	109.6	16.9	14	17.4
Eight adult females from western Panama ( <i>P. h. gaudens</i> ).....	135.1	108.2	17.1	14	17.9

## PYRRHURA HOFFMANNI GAUDENS Bangs.

## CHIRIQUI PAROQUET.

Similar to *P. h. hoffmanni* but adults always with pileum and nape streaked with yellowish and reddish, and primaries more decidedly bluish, and size averaging slightly larger.

*Adult male*.—Length (skins), 220–240 (232); wing, 134–141.5 (136.9); tail, 105–116.5 (111.7); culmen, 17–19 (18); tarsus, 13.5–14.5 (14); outer anterior toe, 17–18.5 (17.7).<sup>a</sup>

*Adult female*.—Length (skins), 217–235 (226); wing, 130.5–137 (135.1); tail, 104–111 (108.2); culmen, 16–18 (17.1); tarsus, 13.5–14.5 (14); outer anterior toe, 17–18.5 (17.9).<sup>b</sup>

Mountains of western Panamá (Boquete and Volcán de Chiriquí, Chiriquí; Verágua).

*Conurus hoffmanni* (not of Cabanis) SALVIN, Proc. Zool. Soc. Lond., 1870, 214 (Volcan de Chiriqui, Panama); Ibis, 1871, 93, part (Veragua).

[*Conurus*] *hoffmanni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 112, part (Veragua).

*Pyrrhura hoffmanni* REICHENOW, Journ. für Orn., 1881, 288, part (Veragua); Consp. Psitt., 1882, 176, part (Veragua); Vogelbild., 1883, Nachtr., 86, part.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 230, part (Veragua and Chiriqui, Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 578, part (Volcan de Chiriqui).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 24 (Boquete, etc., Chiriqui, w. Panama, 4,000–10,000 ft.).

[*Pyrrhura*] *hoffmanni* SHARPE, Hand-list, ii, 1900, 18, part.

*Pyrrhura hoffmanni gaudens* BANGS, Proc. Biol. Soc. Wash., xix, July 30, 1906, 103 (Boquete, Chiriqui, w. Panama; coll. E. A. and O. Bangs).

## Genus BOLBORHYNCHUS Bonaparte.

*Bolborhynchus* BONAPARTE, Remarques Obs. Blanchard Psittacides, 1857, 6. (Type, *B. catharina* Bonaparte=*Psittacula lineola* Cassin.)

*Grammopsittaca* <sup>c</sup> RIDGWAY, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 100. (Type, *Psittacula lineola* Cassin.)

Very small, wedge-tailed Psittacidae (length about 55–70 mm.) with tarsus as long as or longer than culmen; the maxilla very broad, swollen laterally, broadly rounded on culmen, with unguis short and very broad, its tomium very shallowly notched and lobed; cere strongly convex anteriorly, wholly unfeathered around nostril (the latter set well back); outermost primary not attenuated at tip; tail not more than two-thirds (sometimes scarcely more than half) as long as wing, and coloration wholly green or green with black bars and spots.

Bill rather small but very thick and swollen, its depth at base very much greater than its length; maxilla decidedly wider than deep, its width at base equal to three-fourths the length of culmen, the unguis short and very broad, its width at base of palatal surface decidedly to very much greater than its length, the tip broadly rounded in vertical profile; maxillary tomium very faintly if at all lobed

<sup>a</sup> Ten specimens.

<sup>b</sup> Eight specimens.

<sup>c</sup> Γραμμη, line; ψιττάκη, a parrot.



posterior to the very shallow post-ungual excision; depth of mandible at base decidedly less than width of mandible, about equal to length of gonys; mandible broadly rounded beneath, its tip very slightly if at all produced, very broad; culmen about as long as outer hind toe without claw, gradually and not very strongly decurved from base, broadly rounded. Wing moderate, very pointed, the longest primaries exceeding secondaries by nearly to quite half the length of wing; ninth or tenth (outermost) primaries longest, the tenth not attenuated at tip. Tail very slightly more than half to two-thirds as long as wing, graduated for about one-third its length, the rectrices rather broad basally, tapering rapidly to the acuminate or subacuminate tip. Tarsus equal to or slightly longer than outer hind toe without claw.

*Plumage and coloration.*—Head completely feathered except a restricted orbital area, cere surrounding nostril, and chin. Color wholly green or green barred and spotted with black.

*Range.*—Southern Mexico to Venezuela, Peru, and Bolivia. (Two species.<sup>a</sup>)

KEY TO THE SPECIES AND SUBSPECIES OF BOLBORHYNCHUS.

- a. Rump and tail-coverts barred or transversely spotted with black; hindneck, etc., narrowly barred with black. (*Bolborhynchus lineola*.)
- b. Rump and upper tail-coverts with small terminal spots or bars of black; middle rectrices with much less of black; general color purer, lighter green. (Eastern Mexico to Panama.) ..... *Bolborhynchus lineola lineola* (p. 179)
- bb. Rump and upper tail-coverts heavily spotted with black; middle rectrices with much more of black (sometimes almost wholly black); general color deeper, more olivaceous, green. (Eastern Peru?)
- Bolborhynchus lineola maculatus* (extralimital).<sup>b</sup>
- aa. No black markings whatever. (Peru; Bolivia.)
- Bolborhynchus andicola* (extralimital).<sup>c</sup>

**BOLBORHYNCHUS LINEOLA LINEOLA** (Cassin).

BARRED PAROQUET.

*Adults (sexes alike).*—Above yellowish green (between parrot green and oil green), brighter and purer green on hindneck, passing into clear calliste green on forehead, the feathers of the hindneck

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<sup>a</sup> *B. andicola* differs from the type (*B. lineola*) in the decidedly longer tail, which is two-thirds as long as the wing instead of only a little more than half as long, shorter tenth (outermost) primary, which instead of being longer than the ninth is slightly shorter, and in the relatively slightly longer tarsus; but in other respects they agree very closely and I would not think of separating them generically.

<sup>b</sup> *Grammopsittaca lineola maculata* Ridgway, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106 (eastern Peru?; coll. U. S. Nat. Mus.).

<sup>c</sup> *Psittacula andicola* Finsch, Proc. Zool. Soc. Lond., Jan. 20, 1874, 90 (Paucartambo, e. Peru; coll. P. L. Sclater).—*Bolborhynchus andicola* Sclater and Salvin, Proc. Zool. Soc. Lond., 1876, 18; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 238, pl. 5 (Paucartambo, Maraynioc, and Punamarca, Peruvian Andes).—*Grammopsittaca andicola* Ridgway, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 100, in text.—*Bolborhynchus orbignesi* (not *Myiopsitta orbignesia* Bonaparte) Taczanowski, Proc. Zool. Soc. Lond., 1874, 549, 679 (centr. Peru).

narrowly tipped with black, producing distinct bars, the occiput, posterior part of crown, scapulars, and interscapulars similarly but less distinctly barred, the rump and upper tail-coverts (which are sometimes decidedly more yellowish green, especially the latter) much more broadly barred, or transversely spotted, with black; lesser wing-coverts mostly black, the middle coverts broadly tipped with black; primaries grass green, becoming black next to shaft and on terminal margin, the primary coverts similar but darker and duller green; middle rectrices black medially, the black occupying whole of the terminal portion, the other rectrices dusky medially; under parts light green (javel green to apple green), the sides and flanks more or less distinctly barred with black, the under tail-coverts with more or less distinct small terminal spots of the same; under wing-coverts clear light green, usually more or less (but never very distinctly) narrowly barred or mottled with blackish toward edge of wing, the carpo-metacarpal edge clear light yellowish green; under primary coverts and under surface of remiges dull bluish green (deep malachite or french green), the latter dusky toward shafts; bill pale dull brownish yellow or buff; legs and feet pale brownish.

*Adult male*.—Length (skins), 157–165 (161); wing, 104.5–111 (107.7); tail, 59–62 (60.5); culmen, 12–12.5 (12.2); tarsus, 12–13 (12.5); outer anterior toe, 15.5–16 (15.7).<sup>a</sup>

*Adult female*.—Length (skins), 156–165 (161); wing, 103–109 (105.7); tail, 57–62.5 (59.1); culmen, 12–13 (12.7); tarsus, 11.5–12.5 (12); outer anterior toe, 15–16 (15.6).<sup>a</sup>

Southern Mexico, in States of Vera Cruz (Puente Nacional; Córdoba; Coátepec), Mexico (near city of Mexico), and southward, through Guatemala (Dueñas; Chiquimula; Volcán de Fuego), and Costa Rica (Volcán de Irazú; Los Cuadros de Irazú; Naranjo de Cartago; Escazú; Angostura), to western Panamá (Chitra, Veragua; Volcán de Chiriquí and Boquete, Chiriquí); Cozumel Island, Yucatan? Venezuela?

<sup>a</sup> Four specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Costa Rica.....	107	61.5	12.5	12.5	15.5
Two adult males from western Panama (Chiriquí).....	108.5	59.5	12	12.5	16
FEMALES.					
One adult female from Vera Cruz.....	103	58	.....	11.5	15
One adult female from Costa Rica.....	109	59	12	12	15.5
Two adult females from western Panama (Chiriquí).....	105.5	59.7	12.7	12.2	16
SEX NOT DETERMINED.					
Four adults (sex not determined) from eastern Peru? ( <i>B. l. maculatus</i> ).....	106	60	11.9	.....	.....

- Psittacula lineola* CASSIN, Proc. Ac. Nat. Sci. Phila., vi, June, 1853, 372 (Puente Nacional, Vera Cruz, Mexico; coll. Acad. Nat. Sci. Phila.); <sup>a</sup> Journ. Ac. Nat. Sci. Phila., iii, 1855, 154, pl. 14, fig. 1.—SCLATER, Proc. Zool. Soc. Lond., 1857, 230, in text (State of Vera Cruz).
- [*Myiopsitta*] *lineola* BONAPARTE, Naumannia, 1856, Consp. Psitt., no. 54.
- Myiopsitta lineola* ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. C. R., i, 1887, 124 (Naranjo de Cartago, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., xi, 1888, 544 (Naranjo de Cartago, Costa Rica).
- M[yiopsitta] lineola* RIDGWAY, Man. N. Am. Birds, 1887, 269, footnote.
- Conurus lineola* GRAY, List Birds Brit. Mus., Psittaci, 1859, 44.
- C[onurus] lineola* SCLATER, Proc. Zool. Soc. Lond., 1864, 177 (near city of Mexico crit.).
- [*Bolborhynchus*] *lineola* GRAY, Hand-list, ii, 1870, 149, no. 8144.
- Bolborhynchus lineolus* CARRIKER, Ann. Carnegie Mus., i, 1910, 484 (Escazu, Los Cuadros de Irazú, and Angostura, Costa Rica; habits).
- Grammopsittaca lineola* RIDGWAY, Proc. Biol. Soc. Wash., xxv, May 4, 1912, 100.
- Psittacula lineolata* SCLATER, Proc. Zool. Soc. Lond., 1856, 306 (Córdova, Vera Cruz).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 66, footnote.
- Conurus lineolatus* SCLATER and SALVIN, Ibis, 1859, 137 (Cozumel Island, Yucatan); 1862, 96, in text (Dueñas, Guatemala).—SALVIN, Ibis, 1869, 319 (Angostura, Costa Rica).
- Bolborhynchus lineolatus* FINSCH, Die Papag., ii, 1868, 130.—SALVIN, Ibis, 1871, 87, 94 (s. Mexico to Costa Rica).—BOUCARD, Liste Ois. récol. Guat., 1878, 23 (Vera Paz).—REICHENOW, Journ. für Orn., 1881, 348 (monogr.); Consp. Psitt., 1882, 188; Vogelbild., 1882, pl. 28, fig. 1.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 239 (Coatepec, Vera Cruz; Vera Paz and Volcan de Fuego, Guatemala; Angostura, Costa Rica; Volcan de Chiriqui and Veragua, w. Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 579 (Cordova and Coatepec, Vera Cruz; Cozumel I. ?; Volcan de Fuego and Chiquimula, Guatemala; Angostura and Naranjo de Cartago, Costa Rica; Volcan de Chiriqui; Venezuela?).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 25 (Volcan de Chiriqui, 2,000 feet).
- [*Bolborhynchus*] *lineolatus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—FORBES and ROBINSON, Bull. Liverp. Mus., i, 1897, 12.—SHARPE, Hand-list, ii, 1900, 18.
- (?) *Myiopsitta tigrina* SOUANCÉ, Rev. et Mag. de Zool., 1856, 144 (Venezuela).—BONAPARTE, Compt. Rend., xlii, 1856, 764; xliv, 1857, 538.—SCLATER, Proc. Zool. Soc. Lond., 1864, 178, in text (crit.).—RIDGWAY, Proc. U. S. Nat. Mus., xi, 1888, 544, footnote.
- Bolborhynchus tigrinus* BONAPARTE, Remarques Obs. Blanchard Psittacides, 1857, 6.—GRAY, List Birds Brit. Mus., Psittaci, 1859, 44 (in synonymy).
- Bolborhynchus tigrina* SALVIN, Ibis, 1871, 95.
- Myiopsitta catharina* BONAPARTE, Compt. Rend., xliv, 1857, 538.
- Bolborhynchus catharina* BONAPARTE, Remarques Obs. Blanchard Psittacides, 1857, 6.—SCLATER, Proc. Zool. Soc. Lond., 1857, 225, in text.—SCLATER and SALVIN, Ibis, 1859, 137 (in synonymy).
- Conurus catharinus* GRAY, List Birds Brit. Mus., Psittaci, 1859, 45 (Mexico).

<sup>a</sup> I was informed by the late Professor Angelo Heilprin (in a letter dated November 19, 1885) that both specimens mentioned by Cassin in the original description of this species are missing from the collection of the Academy of Sciences. The type is said by Sclater (Proc. Zool. Soc. Lond., 1864, 178) to have been taken at the Puente Nacional (National Bridge), in the State of Vera Cruz.

## Genus BROTOGERIS Vigors.

*Brotogeris*<sup>a</sup> VIGORS, Zool. Journ., ii, 1825, 400. (Type, *Psittacus pyrrhopterus* Latham.)

*Brotogerys* (emendation) AGASSIZ, Nomencl. Zool. Index Univ., 1846, 54.

*Psittovius* BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 151. (Type, *Psittacus tovi* Gmelin=*P. jugularis* Müller.)

*Sittace* (not of Wagler, 1832) GRAY, Hand-list, ii, 1870, 150. (Type, *Psittacus st. thomæ* Müller=*P. tui* Gmelin.)

Small, wedge-tailed, Psittacidae (length about 165-180 mm.) with bill much compressed and as long as or longer than deep; cere large, wholly unfeathered, its anterior outline nearly straight; tail less than two-thirds as long as wing, more or less graduated, with rectrices strongly tapering distally (the middle ones sometimes obtusely pointed), and color green with under surface of remiges blue or bluish green, sometimes with under wing-coverts, primary coverts, forehead, or chin, orange.

Bill moderate in size (more than half as long as head), longer than deep (its depth at base decidedly less than length of culmen), much compressed; depth of maxilla at base equal to less than half the length of culmen, the latter narrowly rounded or obtusely ridged, regularly and strongly decurved from near base (or from base), sometimes not longer than outer hind toe without claw, sometimes longer than outer front toe without claw; maxillary unguis rather narrowly conical or cuneate and obtusely pointed in vertical profile, its width at base of the distinctly corrugated palatal surface decidedly less than its length; maxillary tomium distinctly (sometimes prominently) lobed behind the deep and broad post-ungual notch or incision; depth of mandible at base decidedly to very much less than length of gonys and very much less than its width at same point, the sides of mandible usually somewhat flattened, the under side broadly rounded; mandibular tomium sometimes broadly notched behind the recurved, chisel-like, truncate, but not distinctly flattened, tip, but usually broadly and rather deeply concave. Wing moderate, pointed, the longest primaries exceeding distal secondaries by two-fifths to nearly half the length of wing; tenth, ninth, ninth and tenth, or eighth, ninth and tenth primaries longest, the tenth (outermost) usually with inner web slightly emarginated near tip. Tail less than two-thirds (sometimes but little more than half) as long as wing, graduated for from less than one-fourth to two-fifths its length, the rectrices more or less strongly tapering terminally, with tip narrowly rounded (the middle ones sometimes subacuminate). Tarsus not shorter than inner anterior toe without claw, sometimes longer (but always shorter than inner anterior toe with claw).

*Plumage and coloration.*—Head completely feathered except orbital region, chin, and cere, the latter very broad toward culmen,

<sup>a</sup> Βροτος, mortalis; γηρυς, vox—Agassiz.

and with nearly straight anterior outline; plumage in general rather harsh, not blended. General color green, the under surface of remiges greenish blue or bluish green (dusky next to shaft); chin or primary coverts (sometimes both) orange in some species, sometimes the forehead yellow, one species with under wing-coverts orange, pileum light greenish blue, and sides of head pale grayish.

*Range*.—Southern Mexico to northwestern Peru, Amazon Valley, and Guiana. (Eight species.<sup>a</sup>)

KEY TO THE SPECIES OF BROTOGERIS.<sup>b</sup>

- a. Primary-coverts green; forehead green (sometimes tinged with yellowish).
  - b. Lesser and middle wing-coverts olive-brown (raw-umber); smaller under wing-coverts chrome yellow; primaries bluish green. (Southern Mexico to Colombia.).....*Brotogeris jugularis* (p. 183).
  - bb. Lesser and middle wing-coverts, also smaller under wing-coverts, green, primaries deep blue edged with bluish green.
    - c. Alula and whole edge of wing green. (Central Colombia to upper Rio Negro and upper Amazon Valley.).....*Brotogeris devillei* (extralimital).<sup>c</sup>
    - cc. Alula, edge of wing, and bend of wing yellow. (Eastern Peru.)
      - Brotogeris gustavi* (extralimital).<sup>d</sup>
- aa. Primary coverts orange; forehead (narrowly) orange. (Lower Amazon Valley.)
  - Brotogeris tuipara* (extralimital).<sup>e</sup>

BROTOGERIS JUGULARIS (Müller).

TOVI PAROQUET.

*Adults (sexes alike)*.—Pileum and hindneck clear paris green, the sides of head and neck similar but slightly lighter or more yellowish; upper back and anterior scapulars oil green passing into paris green or more bluish green on lower back and posterior scapulars; rump,

<sup>a</sup> Of these I have not seen *Sittace devillei* Gray, *Brotogerys gustavi* Berlepsch, nor *B. chrysosema* Sclater; but these seem to be congeneric with the type of *Brotogeris*.

<sup>b</sup> Only those extralimital species which agree with *B. jugularis* in having an orange colored chin-spot being given.

<sup>c</sup> *Brotogerys devillei* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 261 (Amazon R.; coll. Brit. Mus.; ex [*Sittace*] *devillei* Gray, Hand-list, ii, 1870, 150, no. 8159).

<sup>d</sup> *Brotogerys gustavi* Berlepsch, Ibis, sixth ser., no. ii, April, 1889, 181, pl. 6 (Tuanfué, upper Rio Huallaga, e. Peru; coll. Count von Berlepsch); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 262.

<sup>e</sup> (??) *Psittacus cajenneus* Müller, Syst. Nat. Suppl., 1776, 81 (not of p. 78; based on *Petit Perruche de Cayenne* Daubenton, Pl. Enl., pl. 456, fig. 2).—(??) *Psittacus notatus* (not of Müller, 1776) Boddaert, Tabl. Pl. Enl., 1783, 27 (based on Pl. Enl., pl. 456, fig. 2).—*Brotogerys notatus* Sclater, Cat. Am. Birds, 1862, 352.—*Brotogerys notata* Reichenow, Vogelbild., 1882, p, fig. 3; Journ. für Orn., 1881, 344 (Consp. Psitt., p. 184).—[*Psittacus*] *tuipara* Gmelin, Syst. Nat., i, pt. 1, 1788, 348 (Brazil; based on *Tuipara Tupinambis* Ray, Av., p. 35; Willughby, Orn., p. 117; *Psittacula brasiliensis erythrocephala* Brisson, Orn., iv, 383; *Red-fronted Parrot* Latham, Synopsis Birds, i, pt. 1, 308).—[*Sittace*] *tuipara* Wagler, Consp. Psitt., 1832, 633 (descr. adult).—[*Onurus*] *tuipara* Gray, Gen. Birds, ii, 1845, 414.—*Psittovius tuipara* Bonaparte, Rev. et Mag. de Zool., 1854, 151.—*Brotogerys tuipara* Finsch, Die Papag., ii, 1868, 104, part; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 262.—*Psittaculus tuipara* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 28.—*Psittacus sosove*, var. Kuhl, Consp. Psitt., 1820, 27.—*Brotogeris aurifrons* Cassin, Journ. Ac. Nat. Sci. Phila., iii, 1855, 155, pl. 14, fig. 2 (South America).

upper tail-coverts, and tail clear, bright green (nearly emerald green); lesser and middle wing-coverts raw-umber brown (the feathers greenish below surface), passing into oil green on outermost (distal) coverts; greater coverts yellowish green (between apple green and parrot green); secondaries, except inner ones (tertials) darker green, the primaries similar but sometimes more bluish, margined terminally (more or less distinctly) with dusky, their shafts black; primary coverts usually darker and more bluish green; a large spot of pure orange or cadmium orange on lower chin and upper throat (the upper chin being naked); rest of under parts clear light yellowish green (nearly apple green), the posterior portions tinged, more or less, with light emerald or paris green; smaller under wing-coverts clear chrome yellow, tinged with green toward edge of wing, which is partly light yellowish green;<sup>a</sup> under primary coverts and inner web of remiges malachite green, the primaries with a broad mesial stripe of dusky; bill pale buffy brownish (pale flesh color in life); cere, bare orbital space, and bare chin space whitish; iris brown; legs and feet light brownish (pale flesh color in life).

*Adult male*.—Length (skins), 158–180 (160); wing, 105–117 (110.9); tail, 53–65 (63.6); culmen, 13–17 (15.6); tarsus, 12–14 (12.7); outer anterior toe, 15.5–17 (16.4).<sup>b</sup>

*Adult female*.—Length (skins), 156–176 (167); wing, 101.5–114 (108.4); tail, 55–66 (61.1); culmen, 13.5–17 (15.2); tarsus, 11.5–13 (12.3); outer anterior toe, 15–17 (15.7).<sup>c</sup>

<sup>a</sup> As a rule, females have the under wing-coverts somewhat less purely or less extensively yellow than adult males, and some (perhaps younger birds) have them yellowish green rather than yellow.

<sup>b</sup> Eight specimens.

<sup>c</sup> Eighteen specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Oaxaca, s. Mexico.....	114	58	16.5	12.5	17
One adult male from Salvador.....	112	62	15	12.5	16.5
Four adult males from Costa Rica (3) and w. Panama (1).....	110.7	59.5	16.4	12.9	16.6
Ten adult males from Panama (Canal Zone).....	109.6	60.9	15.2	12.6	16.3
Two adult males from Santa Marta, Colombia.....	114.2	63.7	15.7	12.5	16.2
FEMALES.					
One adult female from Oaxaca.....	109.5	60	15	13	16
Three adult females from Costa Rica.....	111.2	62	16.3	12.7	15.8
Ten adult females from Panama.....	106.4	59.5	14.6	12	15.5
One adult female (type of <i>Psittovius subcaruleus</i> Lawrence) from Panama.....	113	64.5	16.5	12.5	17
One adult female from Darien (Rio Atrato).....	104	62.5	15.5	.....	.....
Two adult females from Santa Marta, Colombia.....	113.2	64.5	15.5	12.7	16

The series from southern Mexico, Guatemala, etc., is much too small to show whether there is any difference from those from more southern localities. The very few specimens of the former show differences, which may or may not prove constant.

Southwestern Mexico, in States of Guerrero (Acapulco), Oaxaca (Tapana; Cacoprieto; Santa Efigénia; Zanátepec) and Chiapas (Tonalá), and southward through western Guatemala (Cobán; Constancia; La Concepción Chiapám; Retalhuleu; San José); Salvador (San Salvador; San Carlos; Acajutla; La Libertad), western Honduras (Tigre Island), western Nicaragua (Manágua; Omotepe; San Juan del Sur; San Carlos; San Emilio; Chinandega), western Costa Rica (Volcán de Miravalles; Tenório; Bolsón; Cerro Santa Maria; Bebedero; San Carlos; Nicoya; La Palma de Nicoya; Punta Arenas; Barranca de Punta Arenas; Esparta; Santo Domingo de San Mateo; San Mateo; Pigres; Palmár; Las Ajuntas de Térraba; Pozo del Río Grande; Paso Real; Pozo Azul de Pirrís) and Panamá (Divala; Bugaba; Volcán de Chiriquí; Mina de Chorchá; Calobre; Verágua; Colón; Panamá; Sabana de Panamá; Punta de Sabana; Paraiso; Lion Hill; Río Indio; Río Gatún; Río Trinidad; Tabernilla; Cana; Puerto Bello; Boca de Cupa) to Colombia (Darién; Río Atrato; Cartagena; Naranjo; lower Río Magdalena; Naranjo, Bonda, Santa Marta and Sierra Nevada, Santa Marta; Bucaramanga; Bogotá; Medellín and Remédios, Antioquia).

(??) *Psittacus caudacutus* PALLAS, in Vroeg's Catal., 1764, Adumbr., 1, no. 28 ("Surinam"; cites Edwards, pl. 235, which=*Psittacula vivida* Ridgway=*P. passerina* of authors but not of Linnæus).

*Psittacus jugularis* MÜLLER, Syst. Nat. Suppl., 1776, 80 ("America"; based on *Petit Perruche à gorge jaune d'Amérique* Daubenton, Pl. Enl., pl. 190, fig. 1).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1864, 240 (crit. nomencl.).

[*Sittace*] *jugularis* GRAY, Hand-list, ii, 1870, 150, no. 8160.

*Brotogeris jugularis* (not of Sclater and Salvin, 1866 and authors ex Ecuador and Peru)<sup>a</sup> SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 259 (La Concepcion; Chiapam, and Retalhuleu, Guatemala; Bebedero and Nicoya, Costa Rica, Mina de Chorchá, Bugaba, Volcan de Chiriqui, Calobre, Panama, and Paraiso, Panama; Cartagena, Santa Marta, Medellin, Remedios, and Bogota, Colombia); Ibis, 1906, 465.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 582 (Santa Efigenia, Tapana, and Cacoprieto, Oaxaca; Tonalá, Chiapas; La Concepcion, etc., Guatemala; La Libertad, Salvador; Tigre I., Honduras; Omotepé, San Juan del Sur, San Carlos, San Emilio, and Chinandega, Nicaragua; La Palma de Nicoya, Punta Arenas, San Mateo, Miravalles, etc., Costa Rica; Lion Hill, etc., Panama; Colombia).—STONE, Proc. Ac. Nat. Sci. Phila., 1899, 304 (near Bogota, Colombia).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 132 (Bonda, Santa Marta, Colombia).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 25 (Bugaba, Panama); Auk, xxiv, 1907, 292 (Paso Real., Pozo del Río Grande, and Barranca de Punta Arenas, Costa Rica).—RIDGWAY, Condor, vii, 1905, 155, in text (Pigres, Costa Rica).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1906, 215 (Sabana de Panama).—DEARBORN, Pub. Field Mus. N. H., 1907, 85 (San Jose, Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 485 (Pacific slope of Costa Rica; habits).

[*Brotogeris*] *jugularis* SHARPE, Hand-list, ii, 1900, 19.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 13.

<sup>a</sup> = *Brotogeris devillei* (Gray).

- Brotogeris jugularis* BANGS, Proc. Biol. Soc. Wash., xii, 1898, 132 (Santa Marta, Colombia).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, 9 (Punta de Sabana, Panama).
- Psittacula flavigula* BODDAERT, Tabl. Pl. Enl., 1783, 12 (based on *Petit Perruche à gorge jaune d'Amerique* Daubenton, Pl. Enl., pl. 190, fig. 1).
- Psittacus tiriacula* BODDAERT, Tabl. Pl. Enl., 1783, 51 (Brazil [and Jamaica]; based on *Petit Perruche appelée, petit jascuse* Daubenton, Pl. Enl., pl. 837).
- [*Psittacus*] *tovi* GMELIN, Syst. Nat., i, pt. 1, 1788, 351 (based on *Psittacula gutture luteo* Brisson, Orn., iv, 396, pl. 30, fig. 3; *Petit Perruche à gorge jaune d'Amerique* Daubenton, Pl. Enl., pl. 190, fig. 1).
- Psittacus* *tovi* BECHSTEIN, Kurze Ueb., 1811, 86.
- Psittacula* *tovi* WAGLER, Mon. Psitt., 1832, 624, 725.
- Psittaculus tovi* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 29 (Colombia; Panama); no. 38 (Revue), 1874, 7 (Bogota, Colombia; Panama; La Concepcion and Constanca, Guatemala).
- Psittovius tovi* BONAPARTE, Rev. et Mag. de Zool., 1854, 151; Naumannia, 1856 (Consp. Psitt., no. 73).—SCLATER, Proc. Zool. Soc. Lond., 1855, 162 (Bogota, Colombia).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 64.—SALVIN and SCLATER, Ibis, 1860, 44 (Coban, Guatemala; crit.).—TAYLOR, Ibis, 1860, 121 (Tigre I, Honduras).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 299 (Lion Hill, Panama).
- Conurus tovi* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 47.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 137.
- Brotogerys tovi* SCLATER, Cat. Am. Birds, 1862, 352 (Bogota and Cartagena, Colombia).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 367 (Panama; crit.); 1879, 538 (Remedios, Antioquia, Colombia).—FINSCH, Die Papag., i, 1867, 99.—SALVIN, Proc. Zool. Soc. Lond., 1870, 214 (Bugaba and Volcan de Chiriqui, Panama); Ibis, 1871, 93 (Middle American range).—WYATT, Ibis, 1871, 381 (Naranjo, Colombia).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 36 (Zanatepec and Tapaná, Oaxaca; habits).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 46 (San Carlos, Costa Rica).—SALVIN and GODMAN, Ibis, 1880, 176 (Sierra Nevada de Santa Marta, Colombia).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 402 (La Palma de Nicoya, Costa Rica; habits); vi, 1883, 377, 395 (San Juan del Sur and Omotepe, Nicaragua).—BERLEPSCH, Journ. für Orn., 1884, 316 (Bucaramanga, Colombia; crit.).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. C. R., i, 1887, 124 (Punta Arenas and San Mateo, Costa Rica).—CHERRIE, Expl. Zool. Merid. Costa Rica, 1893, 50 (Palmar, Costa Rica).—UNDERWOOD, Ibis, 1896, 445 (Volcan de Miravalles and Bebedero, Costa Rica).
- [*Brotogerys*] *tovi* SCLATER and SALVIN, Non. Av. Neotr., 1873, 113.—GARROD, Proc. Zool. Soc. Lond., 1873, 634 (muscular anatomy); 1874, 587 (anatomy).
- Brotogerys* *tovi* RIDGWAY, Man. N. Am. Birds, 1887, 268, footnote.
- Brotogeris tovi* LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Gulf of Nicoya, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 364 (Costa Rica).
- [*Psittacus*] *tovi* LATHAM, Index Orn., i, 1790, 134 (= *P. tovi* Gmelin).
- Psittacus tovi* SHAW, Gen. Zool., viii, pt. 2, 1811, 546.—VIELLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 379.
- Psittacus tiriaca* (not of Gmelin) KUHLE, Consp. Psitt., 1820, 95 (based on Pl. Enl., pl. 837).
- Psittacus (Caica) chrysopogon* LESSON, Rev. Zool., v, May, 1842, 135 (San Carlos, Salvador; coll. A. Lesson).
- Caica chrysopogon* LESSON, Descr. Man. et Ois., 1847, 197.
- (?) *Psittovius chrysopogon* BONAPARTE, Rev. et Mag. de Zool., 1854, 151.



- Brotogerys chrysopogon* REICHENOW, Journ für Orn., 1881, 343 (monogr.; Colombia; Panama); Consp. Psitt., 1882, 183; Vogelbild., 1882, pl. 28, fig. 5.
- Psittovius subcaeruleus* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1862, 475 (Lion Hill, Panama; coll. G. N. Lawrence; = specimen with yellow coloring-matter of plumage absent).—SCLATER, Proc. Zool. Soc. Lond., 1864, 367 (crit.).—SALVIN, Ibis, 1871, 94 (crit.).
- Brotogerys subcaeruleus* FINSCH, Die Papag., ii, 1868, 97, pl. 2.

### Genus PSITTACULA Illiger.

- Psittacula* ILLIGER, Prodr. Mam. et Av., 1811, 200. (Type, *Psittacus passerinus* Linnæus.)
- Psittaculus* (error) SPIX, Av. Bras., i, 1824, 38.
- Forpus* BOIE, Journ. für Orn., 1858, 363. (Type, *Psittacus passerinus* Linnæus.)

Very small,<sup>a</sup> short-tailed Psittacidæ (length about 100–140 mm.) with tip of tenth (outermost) primary attenuated, tail about half as long as wing, with rectrices acuminate, sexes different in coloration, and furcula undeveloped.

Bill moderate in size, much deeper than long; depth of maxilla at base much less than its width at same point and equal to about half the length of culmen; maxillary unguis broadly cuneate and obtusely pointed in vertical profile, its width at base of palatal surface about equal to its length; maxillary tomium faintly concave basally and with a more or less prominent angular lobe or "tooth" next to the distinct, angular, post-ungual notch; culmen about as long as middle toe without claw, gradually and strongly decurved from base, rounded; depth of mandible at base less than either its width at base or length of gonys, the mandible very broadly rounded beneath, not distinctly if at all flattened laterally, the slightly but distinctly produced tip more or less flattened and truncate. Wing moderate pointed, the longest primaries exceeding distal secondaries by one-third to two-fifths the length of wing; ninth and tenth, or eighth, ninth, and tenth primaries longest, the tenth (outermost) with tip abruptly attenuated. Tail about half as long as wing, slightly graduated (graduation less than length of gonys), the rectrices acuminate at tip (the outer ones sometimes subacuminate or narrowly rounded); tail-coverts extending over much the greater part of tail. Tarsus shorter than middle toe without claw, sometimes shorter than outer hind toe without claw.

*Plumage and coloration.*—Head completely feathered, except a small orbital space, chin, and part of cere, the latter naked only as far back as nostrils, which are more or less exposed; plumage in general soft and blended. Colors green and blue (ranging from light greenish blue to dark violet-blue) sometimes with brownish gray or

<sup>a</sup> The smallest of American Psittacidæ. The genus is further unique among American members of the group in the absence of a furcula, difference in coloration of the sexes, and attenuated tip of the outermost primary.

yellow (or both)—never with red or orange; sexes different, females being without any blue.

*Range.*—Western Mexico; Colombia to Peru, Bolivia, Brazil, and Guiana; apparently wanting in whole of area from southern Mexico to Panama. (About twelve species.)

KEY TO THE SPECIES AND SUBSPECIES OF PSITTACULA.

- a. Wings with more or less of blue. (*Adult males.*)
- b. Rump blue.
- c. Forehead, cheeks, and throat clear yellow. (Eastern Peru.)  
*Psittacula xanthops* (extralimital).<sup>a</sup>
- cc. Forehead, cheeks, and throat, green.
- d. Orbital or postocular region blue.
- e. Forehead and cheeks light yellowish green (apple green); postocular region light azure blue; under parts light pea green; back, scapulars, and proximal secondaries light grayish olive-green. (*Psittacula celestis.*)
- f. Back, etc., gray; under parts more grayish green; blue of rump darker (deep hyacinth blue). (Western Peru and Ecuador.)  
*Psittacula celestis celestis*, adult male (extralimital).<sup>b</sup>
- ff. Back, etc., more brownish, more strongly contrasted with color of hindneck; under parts more yellowish green, becoming olive-buff on flanks; blue of rump lighter (smalt blue). (Colombia.)  
*Psittacula celestis lucida*, adult male (extralimital).<sup>c</sup>
- ee. Forehead and cheeks deep emerald green; orbital region cobalt blue; under parts light bluish green (nearly malachite green); back, scapulars, and proximal secondaries light parrot green. (Colombia and eastern Ecuador.).....*Psittacula conspicillata*, adult male (extralimital).<sup>d</sup>
- dd. Sides of head wholly green.
- e. Smaller under wing-coverts wholly uniform blue (except carpo-metacarpal edge); proximal primaries blue.

<sup>a</sup>*Psittacula xanthops* Salvin, Novit. Zool., ii, no. 1, Feb. 1, 1895, 19, pl. 2, fig. 2 (Viña, Huamachuco, c. Peru; coll. Tring Mus.); Baron, Novit. Zool., iv, 1897, 6 (Viña, Marañon); Salvadori, Ibis, 1906, 462 (reprint orig. descr.; crit.).

<sup>b</sup>*Agapornis celestis* Lesson, Compl. Œuvr. de Buffon (Lévêque), xx, April, 1847, 198 (near Guayaquil, w. Ecuador; quotes Echo du Monde Savant, 1844, pl. 2).—*Psittacula celestis* Lafresnaye, Rev. Zool., 1848, 172; Finsch, Die Papag., ii, pt. 2, 1868, 666; Ridgway, Proc. U. S. Nat. Mus., x, 1887, 537 (monogr.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 241.—*Psittaculus celestis* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 32.

<sup>c</sup>*Psittacula celestis lucida* Ridgway, Proc. U. S. Nat. Mus., x, sig. 34, Aug. 6, 1888, 532, 538 (Colombia; coll. Bost. Soc. Nat. Hist.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 242, footnote.

<sup>d</sup>*Psittacula conspicillata* Lafresnaye, Rev. et Mag. de Zool., xi, 1848, 172 (Colombia or Mexico; coll. Lafresnaye, now in coll. Bost. Soc. Nat. Hist.); Finsch, Die Papag., ii, pt. 2, 1868, 663, part; Ridgway, Proc. U. S. Nat. Mus., x, 1887, 536 (monogr.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 243.—*Psittaculus conspicillatus* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 32.—[*Psittacula*] *cyanopsis* Lichtenstein, Nom. Mus. Berol., 1854, 71 (Colombia; *nomen nudum!*).—"Psittacula orbitula, Reichb., in Schaufuss Catal. 1862" (Finsch, Die Papag., ii, 1868, 663).

- f. Maxilla dusky or dark horn color. (Eastern Peru and Ecuador to British Guiana.).....*Psittacula modesta*, adult male (extralimital).<sup>a</sup>
- ff. Maxilla whitish, like mandible.
- g. Width of maxilla at base 8.85 or more, depth of bill at base 14 or more, wing not more than 77 mm. (Eastern Peru.)  
*Psittacula crassirostris*, adult male (extralimital).<sup>b</sup>
- gg. Width of maxilla at base less than 8.85, depth of bill at base less than 14, wing 87.6 or more.
- h. Rump and under wing-coverts not lighter than cobalt blue. (*Psittacula vivida*.)
- i. Green color deeper and less yellowish; blue of rump and under wing-coverts darker (smalt blue). (Southern Brazil, south of Cape St. Roque, southward to Paraguay and northern Argentina.).....*Psittacula vivida vivida* (extralimital).<sup>c</sup>
- ii. Green color lighter and more yellowish; blue of rump and under wing-coverts lighter (cobalt blue). (Middle Brazil, between Cape St. Roque and Rio Amazon, and westward to Bolivia.)  
*Psittacula vivida flavescens* (extralimital).<sup>d</sup>
- hh. Rump and under wing-coverts not darker than light cerulean blue.
- i. Under parts of body apple green, in slight (if any) contrast with color of cheeks; rump and under wing-coverts bright turquoise blue. (*Psittacula cyanopygia*.)
- j. Green color deeper and more yellowish, especially the under parts; blue of rump slightly deeper. (Western Mexico, in States of Sinaloa, Colima, Jalisco, Durango, and Zacatecas and Territory of Tepic.)  
*Psittacula cyanopygia cyanopygia*, adult male (p. 191).
- jj. Green color lighter and less yellowish, especially the under parts; blue of rump slightly lighter. (Northwestern Mexico, in State of Sonora.)  
*Psittacula cyanopygia pallida*, adult male (p. 193).

<sup>a</sup> *Psittacula modesta* Cabanis, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 727 (British Guiana); Ridgway, Proc. U. S. Nat. Mus., x, 1887, 547 (monogr.).—*Psittacula sclateri* Gray, List Birds Brit. Mus., Psittacidæ, 1859, 86 (Rio Javari, e. Peru; coll. Brit. Mus.); Finsch, Die Papag., ii, pt. 2, 1868, 660; Ridgway, Proc. U. S. Nat. Mus., x, 1887, 535 (monogr.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 244, pl. 6.—*Psittaculus sclateri* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 32.

<sup>b</sup> *Psittacula crassirostris* Taczanowski, Proc. Zool. Soc. Lond., 1883, 72 (Yurimaguas, e. Peru; coll. —?); Orn. du Pérou, iii, 1886, 100 (tabl.), 215; Ridgway, Proc. U. S. Nat. Mus., x, 1887, 534 (monogr.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 247.

<sup>c</sup> *Psittacula passerina* (not *Psittacus passerinus* Linnæus) of Authors generally, part.—*Psittacula passerina vivida* Ridgway, Proc. U. S. Nat. Mus., x, sig. 34, Aug. 6, 1888, 539 (Bahia, Brazil; coll. U. S. Nat. Mus.); Ibis, 1889, 128; Hartlaub, Journ. für Orn., 1889, 113; Hellmayr, Abh. K. B. Ak. Wiss., ii Kl., xxii Bd., iii Abt., 1905, 587 (crit.).—*Psittacula vivida* Boucard and Berlepsch, Humming Bird, ii, 1892, 42 (Porto Real, Brazil); Berlepsch, Novit. Zool. xv, 1908, 276, footnote (crit.); Chubb, Ibis, 1910, 264 (Sapucay, Paraguay; synonymy).—*Psittacula passerina* subsp. *vivida* Dabbene, Orn. Argent., 1910, 259 (Misiones, Argentina).

<sup>d</sup> *Psittacula passerina* (not *Psittacus passerinus* Linnæus) of Authors generally, part; Ridgway, Proc. U. S. Nat. Mus., x, 1887, 538 (monogr.).—*Psittacula flavescens* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 248 (Bolivia; coll. Brit. Mus.).—*Psittacula cyanopygia* (not of Souancé) Gray, List Birds Brit. Mus., Psittacidæ, 1859, 86 (Bolivia). *Psittacula* *vivida flavescens* Berlepsch, Novit. Zool., xv, Nov., 1908, 285, footnote, in text.

- ii. Under parts of body light malachite green, in strong contrast with yellowish green (apple green) of cheeks; rump and under wing-coverts bright cerulean blue. (Tres Marias Islands, western Mexico). . . . . *Psittacula insularis*, adult male (p. 193).
- ee. Smaller under wing-coverts bicolored, the exterior ones light bluish green, the central ones dark hyacinth blue; proximal primaries green. (Caribbean coast district of Colombia; Panama?)  
*Psittacula spengeli*, adult male (p. 194).
- bb. Rump emerald green or vivid yellowish green. (*Psittacula passerina*.)
- c. Rump yellowish green (night green); axillars mostly if not wholly green; primary coverts, greater coverts, and secondaries with much less of blue, the latter almost wholly green.
- d. Under wing-coverts with only a central area of dark blue (as in *P. spengeli*); green of upper parts purer.
- e. Blue on under wing-coverts more extensive; axillars partly dark blue. (Guianas). . . . *Psittacula passerina passerina*, adult male (extralimital).<sup>a</sup>
- ee. Blue on under wing-coverts much more restricted; axillars wholly green. (Venezuela; Trinidad?).  
*Psittacula passerina viridissima*, adult male (extralimital).<sup>b</sup>
- dd. Under wing-coverts wholly dark blue except along edge of wing (as in *P. deliciosa*); green of upper parts much duller (tinged with buffy olivaceous, as in *P. deliciosa*). (Rio Branco Valley, northern Brazil.)  
*Psittacula passerina cyanochlora*, adult male (extralimital).<sup>c</sup>
- cc. Rump emerald green, tinged with turquoise on upper portion; axillars almost wholly dark blue; primary and greater wing-coverts and secondaries with much more of blue, the latter mostly blue, except along edges. (South side of lower Amazon). . . . *Psittacula passerina deliciosa*, adult male (extralimital).<sup>d</sup>
- aa. Wings without any blue. (*Adult females*.)

<sup>a</sup> [*Psittacus*] *passerinus* Linnæus, Syst. Nat., ed. 10, i, 1758, 103 (America; based on Mus. Adolphi Friderici, i, p. 14); ed. 12, i, 1766, 150 (cites *Psittacus brasiliensis* Brisson, Orn., iv, 384; Edwards, Av., v, pl. 235, etc.).—*Psittacula passerina* (not of most authors) Berlepsch, Novit. Zool., xv, 1908, 285 (Cayenne; crit. nomencl.; designates type locality as Surinam).—*Agapornis guianensis* Swainson, Anim. in Menag., Jan. 1, 1838, 320 (Demerara, Brit. Guiana).—*Psittacula guianensis* Souancé, Rev. et Mag. de Zool., 1856, 156; Icon. Perr., 1857, pl. 39; Ridgway, Proc. U. S. Nat. Mus., x, 1887, 543, part (monogr.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 251, part (in synonymy).

<sup>b</sup> *Psittacula viridissima* Lafresnaye, Rev. Zool., 1848, 172 (Venezuela).—*Psittacula cyanoptera* (not *Psittacus cyanopterus* Boddaert) Gray, List Birds Brit. Mus., Psittacidae, 1859, 86 (Trinidad; Venezuela).—*Psittacula guianensis* (not *Agapornis guianensis* Swainson) Salvadori, Cat. Birds Brit. Mus., xx, 1891, 251, part.

<sup>c</sup> *Psittacula cyanochlora* Hartlaub, Proc. Zool. Soc. Lond., 1885, 615, pl. 38, fig. 2 (Rio Branco, n. Brazil; coll. Bremen Mus.).—*Psittacula cyanochlora* Ridgway, Auk, v, 1888, 461, 462 (diagnosis; crit.); Hartlaub (in Riker and Chapman), Auk, viii, 1891, 160 (crit.).—*Psittacula guianensis* (not *Agapornis guianensis* Swainson) Salvadori, Cat. Birds Brit. Mus., xx, 1891, 251, part (in synonymy).

<sup>d</sup> *Psittacula deliciosa* Ridgway, Proc. U. S. Nat. Mus., x, sig. 34, Aug. 6, 1888, 533, 545 (Diamantina Creek, near Santarem, lower Amazon; coll. U. S. Nat. Mus.); Chapman, Auk, viii, 1891, 160 (crit.); Salvadori, Ibis, 1906, 465 (crit.); Hellmayr, Novit. Zool., xiv, 1907, 38 (Obidos, Brazil; crit.).—*Psittacula guianensis* (not *Agapornis guianensis* Swainson) Salvadori, Cat. Birds Brit. Mus., xx, 1891, 251, part (in synonymy).

b. Width of maxilla at base 8.9 mm. or more, depth of bill at base about 14 mm., wing not more than 76.2 mm. . . . . *Psittacula crassirostris*, adult female (extralimital).

bb. Width of maxilla at base less than 8.9 mm., depth of bill at base less than 14 mm., or else wing decidedly more than 76.2 mm.

c. Upper parts (except forehead and rump) dull grayish green.

*Psittacula coelestis*, adult female (extralimital).

cc. Upper parts bright green, more vivid on rump (forehead sometimes yellow).

d. Forehead green, like cheeks.

e. Anterior portion of head (cheeks as well as forehead) decidedly more yellowish green than occiput and hindneck. (*Psittacula passerina*, adult female.)

f. Lighter colored, with under parts more yellowish green.

*Psittacula vivida flavescens*, adult female (extralimital).

ff. Darker, with under parts purer green.

*Psittacula vivida vivida*, adult female (extralimital).

ee. Anterior portion of head not distinctly more yellowish green than occiput and hindneck (though sometimes distinctly lighter green).

f. Under wing-coverts light bluish green; inner webs of secondaries without distinct yellow edgings; feet light colored.

*Psittacula conspicillata*, adult female (extralimital).

ff. Under wing-coverts apple green or light parrot green; inner webs of secondaries edged with yellow; feet horn color or dusky.

g. Above light parrot green, below apple green; culmen (chord), 11.6–12.2 mm., width of maxilla at base 8.9–9.6 mm. (*Psittacula cyanopygia*, adult female.)

h. General green color deeper and purer.

*Psittacula cyanopygia cyanopygia*, adult female (p. 192).

hh. General green color paler and more yellowish.

*Psittacula cyanopygia pallida*, adult female (p. 193).

gg. Above deeper parrot green, below apple green or light parrot green; culmen (chord), 13.4–14 mm., width of maxilla at base 10.1 mm.

*Psittacula insularis*, adult female (p. 194).

dd. Forehead yellow or greenish yellow, the cheeks light yellowish green.

e. Greater wing-coverts very indistinctly edged with lighter green; yellow of forehead more restricted; green of under parts less yellowish. (*Psittacula passerina*, adult female.)

f. Yellow of forehead more restricted.

*Psittacula passerina passerina*, adult female (extralimital).

ff. Yellow of forehead more extended.

*Psittacula passerina deliciosa*, adult female (extralimital).<sup>a</sup>

ee. Greater wing-coverts distinctly edged with light yellowish green (apple green); yellow of forehead more extended, covering lores and tinging crown; under parts more yellowish green.

*Psittacula spengeli*, adult female (p. 195).

## PSITTACULA CYANOPYGIA CYANOPYGIA Souancé.

### MEXICAN PARROTLET.

*Adult male*.—Above light parrot green becoming lighter and more yellowish (apple green) on forehead; greater wing-coverts, whole rump (including lower back), under wing-coverts, and axillars, very bright turquoise blue, the secondaries (except proximal ones or

<sup>a</sup> The adult female of *P. passerina cyanochlora* not seen by me.

terials) darker greenish blue (nearly cerulean blue) edged distally with light yellowish green; inner (proximal) primaries greenish blue passing into green distally; under primary coverts and under surface of remiges dull glaucous-green, the primaries dusky toward shaft; sides of head and under parts light yellowish green (apple green); bill dull whitish terminally, abruptly grayish horn color or dusky basally (wholly light colored in life?); iris yellow; legs and feet deep brownish or dusky (in dried skins); length (skins), 129-140 (133); wing, 88.5-92 (90.6); tail, 42.5-51.5 (47); culmen, 12.5-13 (12.8); tarsus, 11.5-13.5 (12.1); outer toe, 13-14 (13.6).<sup>a</sup>

*Young male in transition plumage.*—Similar to the adult male but blue of rump and under wing-coverts intermixed with green, and greater wing-coverts bluish green instead of blue.

*Young male, first plumage.*—Lower back and rump, and under wing-coverts wholly green (nearly paris green); otherwise like the transition plumage described above.

*Adult female.*—Similar to the young male but greater wing-coverts green, concolor with back, etc., the secondaries darker green; length (skins), 129-142 (133.5); wing, 86-93 (88.6); tail, 38.5-43 (41.6); culmen, 11.5-13 (12.6); tarsus, 11.5-13 (12.1); outer anterior toe, 13.5-14 (13.9).<sup>b</sup>

Northwestern Mexico, in States of Sinaloa (Mazatlán; Presidio de Mazatlán; Escuinapa; Cosala), Durango (Chacalá), Zacatecas (Hacienda San Juan Capistrano), Jalisco (Ixtapa), Colima (Manzanillo Bay), and Territory of Tepic (Tepic).

*Psittacula cyanopygia* SOUANCÉ, Rev. et Mag. de Zool., 1856, 157 (no locality mentioned); Icon. Perr., 1857-'58, pl. 42.—BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 134).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 570 (monogr.).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 249, part (Presidio de Mazatlan, Sinaloa; Manzanillo Bay, Colima); Ibis, 1906, 464 (additional references).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 581, part (Mazatlan and Presidio de Mazatlan, Sinaloa; Manzanillo Bay; Jalisco).

<sup>a</sup> Seven specimens.

<sup>b</sup> Eight specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Seven adult males of <i>P. c. cyanopygia</i> .....	90.6	47	12.8	12.1	13.6
Five adult males of <i>P. c. pallida</i> .....	91	43.2	12.6	12	13.4
Six adult males of <i>P. insularis</i> .....	91.1	43.4	13.7	13	13.8
FEMALES.					
Eight adult females of <i>P. c. cyanopygia</i> .....	88.6	41.6	12.6	12.1	13.9
Ten adult females of <i>P. c. pallida</i> .....	89.7	40.1	12.3	11.8	13.5
Three adult females of <i>P. insularis</i> .....	90.2	44.8	13.8	13.2	13.8

- [*Psittacula*] *cyanopygia* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 115.—SHARPE, Hand-list, ii, 1900, 19.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 13.
- Psittacula cyanopyga* FINSCH, Die Papag., i, 1867, 662, part.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 297, part (Mazatlan; Manzanillo Bay).—SALVIN and GODMAN, Ibis, 1889, 242, in text (w. Mexico).—NELSON, N. Am. Fauna, no. 14, 1899, 41, 42 (characters).
- P[sittacula] cyanopyga* RIDGWAY, Man. N. Am. Birds, 1887, 269, footnote.
- Ps[ittacula] cyanopygia* HARTLAUB, Jour. für Orn., 1889, 113, in text (w. Mexico).
- [*Psittacula passerina*.] Subspecies *cyanopyga* REICHENOW, Journ. für Orn., 1881, 350 (monogr.); Consp. Psitt., 1882, 190; Vogelbild., 1882, in text to pl. 28, fig. 2.
- Psittaculus cyanopygius* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 33 ("Bolivia"); no. 38 (Revue), 1874, 9.
- Psittacula cyanopygia cyanopygia* MILLER (W. DeW.), Bull. Am. Mus. N. H., xxi, Nov. 24, 1905, 348 (Cosala and Escuinapa, S. Sinaloa; habits).

### PSITTACULA CYANOPYGIA PALLIDA Brewster.

#### SONORAN PARROTLET.

Similar to *P. c. cyanopygia* but the green color paler and less yellowish, both above and below.<sup>a</sup>

*Adult male*.—Length (skins), 128–135 (131); wing, 89.5–93 (91); tail, 41–47 (43.2); culmen, 12–13 (12.6); tarsus, 11.5–12.5 (12); outer anterior toe, 12.5–14 (13.4).<sup>b</sup>

*Adult female*.—Length (skins), 125–134 (131); wing, 88.5–95 (89.7); tail, 39–43.5 (40.1); culmen, 12–13.5 (12.3); tarsus, 11.5–12.5 (11.8); outer anterior toe, 13–14 (13.5).<sup>c</sup>

Northwestern Mexico, in State of Sonora (Álamos; Sierra de Álamos.)

*Psittacula cyanopyga pallida* BREWSTER, Auk, vi, April, 1889 (author's separates published Jan., 1889), 85 (Alamos, Sonora; coll. W. Brewster).

*Psittacula pallida* SALVADORI, Ibis, July, 1906, 464 (synonymy).

[*Psittacula*] *pallida* SHARPE, Hand-list, ii, 1900, 19.

*Psittacula cyanopygia* var. *pallida* DUBOIS, Synopsis Avium, 1903, 1053.

*Psittacula cyanopygia* (not of Souancé) SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 249, part (Sierra de Alamos, Sonora).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 581, part (Alamos and Sierra de Alamos, Sonora).—(?) LANTZ, Trans. Kansas Ac. Sci. for 1896-'97 (1899), 220 (Limoncito, Sonora [Sinaloa?]).

### PSITTACULA INSULARIS Ridgway.

#### GRAYSON'S PARROTLET.

Similar to *P. c. cyanopygia cyanopygia* but larger (especially the bill) and darker; adult male with rump, etc., cerulean, instead of turquoise, blue, and with under parts of body more bluish or glaucous green, in strong contrast with yellowish green of cheeks.

<sup>a</sup> In the original description of the subspecies Mr. Brewster says "lower parts lighter and more yellowish"; but with a much larger series of *P. c. cyanopygia* and a considerable series of *P. c. pallida* (the latter, however, not seen by Mr. Brewster), I find that while the under parts are distinctly lighter in *P. c. pallida* they are by no means more yellowish, being, in fact, at least in adult males, decidedly less so than in *P. c. cyanopygia*.

<sup>b</sup> Five specimens.

<sup>c</sup> Ten specimens.

*Adult male*.—Above dull (somewhat grayish) parrot green or grass green, becoming more yellowish green (apple green) on forehead; whole rump (including lower back), greater wing-coverts, under wing-coverts, and axillars bright cerulean blue; secondaries (except proximal ones or tertials) and proximal primaries darker and duller blue, edged with cerulean blue; loreal, suborbital, and malar regions bright yellowish green (clear apple green); under parts dull light bluish green (malachite green), passing into bright paris green on under tail-coverts, which are pale yellow or yellowish white basally; under primary-coverts and under surface of remiges dull glaucous-green, the primaries with a broad stripe of dusky next to shaft; bill dull whitish terminally, dusky basally; legs and feet dusky brownish (in dried skins); length (skins), 134–138(137); wing, 88.5–93(91.1); tail, 42–44.5(43.4); culmen, 13–14(13.7); tarsus, 12.5–13.5(13); outer anterior toe, 13.5–14.5(13.8).<sup>a</sup>

*Adult female*.—Above light parrot green, becoming much brighter green on rump and upper tail-coverts; sides of head and under parts (including under wing-coverts and axillars) much lighter green (less yellowish than apple green) passing into bright paris green posteriorly; otherwise as in adult male; length (skins), 136–145 (141); wing, 88.5–91.5 (90.2); tail, 43.5–46 (44.8); culmen, 13.5–14 (13.8); tarsus, 13–13.5 (13.2); outer anterior toe, 13.5–14.5 (13.8).<sup>b</sup>

Tres Marias Islands, northwestern Mexico.

*Psittacula cyanopygia* (not of Souancé) FINSCH, Abh. nat. Ver. Bremen, ii, Heft iii, 1871, 353 (Tres Marias Islands).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 270, 271 (Tres Marias).—SALVIN, Ibis, 1873, 353, in text (Tres Marias).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 249, part (Tres Marias).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 581, part (Tres Marias).

*Psittacula cyanopyga* SALVIN, Ibis, 1871, 100 (Tres Marias).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 297, part (Tres Marias).

*Psittacula insularis* RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 34, Aug. 6, 1888, 534, 541 (Tres Marias Islands, off n. w. Mexico; coll. U. S. Nat. Mus.).—NELSON, N. Am. Fauna, no. 14, 1899, 41 (Tres Marias; habits; crit.).—SALVADORI, Ibis, 1906, 464 (Synonymy; crit.).

*Psittacula insularis* SCLATER, Ibis, 1889, 128, in text (crit.).

*Psittacula insularis* HARTLAUB, Journ. für Orn., 1889, 113, in text (Tres Marias).  
*Psittacula insularis* SHARPE, Hand-list, ii, 1900, 19.

### PSITTACULA SPENGLI Hartlaub.

#### SPENGL'S PARROTLET.

*Adult male*.—Above light yellowish green (apple green), paler and tinged with grayish on hindneck, brightening into vivid yellowish green on forehead and sides of head; entire rump, including lower back, and greater wing-coverts, exquisite Nile blue or pale turquoise blue; innermost primary coverts dark blue, the outer ones deep green; distal secondaries bluish green passing into greenish blue

<sup>a</sup> Six specimens

<sup>b</sup> Three specimens.



basally; primaries narrowly margined terminally with black; upper tail-coverts and tail clear light yellowish green, the feathers passing into yellow basally, the inner webs of rectrices greenish yellow passing into pure yellow basally; anterior under parts light apple green, passing into clear light yellowish green on posterior under parts, the feathers (especially under tail-coverts) light yellow basally; central smaller under wing-coverts intense hyacinth blue, those near edge of wing light Nile blue tinged with emerald green; axillars light emerald green broadly tipped with deep hyacinth blue; under primary coverts dull bluish green narrowly margined at tips with bluish dusky; under surface of wings much paler dull bluish green, the secondaries and proximal primaries edged with pale yellow; bill wholly dull whitish; legs and feet pale brownish (in dried skin); length (skins), 114–118 (117); wing, 75.5–85 (79.4); tail, 36–39 (37.1); culmen, 11.5–12.5 (12); tarsus, 10.5–11.5 (11.1); outer anterior toe, 12.5–13.5 (12.6).<sup>a</sup>

*Adult female*.—Similar to adult male but without any blue; rump and lower back vivid Paris green, primary coverts and secondaries deep grass green, edged with paler; forehead gamboge yellow; under wing-coverts and axillars light Paris green; length (skins), 113–130 (122); wing, 79.5–80.5 (80); tail, 39–43.5 (41); culmen, 11–11.5 (11.3); tarsus, 10.5–11 (10.7); outer anterior toe, 12–13 (12.5).<sup>b</sup>

*Immature female*.—Similar to the adult female but forehead light yellowish green or greenish yellow.

Caribbean coast of Colombia (Cartagena; Ciénega and Fundación, Santa Marta; Valle de Upáre; Valéncia; Barranquilla), and eastern Panamá?

(?) *Psittacula cyanoptera* (not *Psittacus cyanopterus* Boddaert?) WYATT, Ibis, 1871, 382 (Ciénega, Colombia).—SALVIN and GODMAN, Ibis, 1880, 176 (Valle de Upare, 700 ft., and Valencia, Colombia).

*Psittacula cyanoptera* (not *Psittacus cyanopterus* Boddaert) CASSIN, Proc. Ac. Nat. Sci. Phila., vii, 1860, 137 (Cartagena, Colombia).

*Psittacula spengeli* HARTLAUB, Proc. Zool. Soc. Lond., 1885, 614 (Barranquilla, Colombia; coll. Bremen Mus.)—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 250 (Barranquilla and Cartagena, Colombia; Panama?).

*P[ittacula] spengeli* RIDGWAY, Auk, v, 1888, 461, 462 (crit.).—HARTLAUB, Ibis, 1888, 493, in text (crit.).

*Ps[ittacula] spengeli* HARTLAUB, Journ. für Orn., 1889, 113, 114, in text (crit.).

*[Psittacula] spengeli* SHARPE, Hand-list, ii, 1900, 19.

*Psittacula spengleri* [error] HARTLAUB, Proc. Zool. Soc. Lond., 1885, pl. 38, fig. 1.

*Psittacula exquisita* RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 34, Aug. 6, 1888, 533, 542 (Cartagena, Colombia; coll. U. S. Nat. Mus.)—HARTLAUB, Journ. für Orn., 1889, 114, in text (crit.).

*Ps[ittacula] exquisita* HARTLAUB, Journ. für Orn., 1889, 113, in text.

*P[ittacula] exquisita* RIDGWAY, Auk, v, 1888, 461, 462 (crit.).—HARTLAUB, Ibis, 1888, 493, in text (crit.).

<sup>a</sup> Four specimens.

<sup>b</sup> Three specimens.

## Genus UROCHROMA Bonaparte.

- Pyrrhulopsis* (not of Reichenbach, 1850) BONAPARTE, Rev. et Mag. de Zool., (2), vi, 1854, 152. (Type, *Psittacus huetii* Temminck.)
- Touit* GRAY, List Gen. and Subgen. Birds, 1855, 89. (Type, *Psittacus huetii* Temminck.)
- Urochroma* BONAPARTE, Naumannia, 1856, Conspectus Psittacorum, genus 30. (Type, *Psittacus huetii* Temminck.)
- Euchroa* (emendation; not of Gould, 1856) SUNDEVALL, Met. Nat. Av. Disp. Tent., 1872, 70. (New name for *Urochroma* Bonaparte, on grounds of purism.)
- Euchroua* REICHENOW, Journ. für Orn., Oct., 1881, 257. (Type, *Psittacus purpuratus* Gmelin.)

Small short-tailed parrots (length about 140–180 mm.) with very strongly arched culmen and gonys, wide, naked cere, tarsus much shorter than outer front toe (without claw), and the short, truncate or slightly rounded tail purple, red, golden, or yellowish, crossed by a terminal or subterminal band of black or green.

Bill relatively stout, with very strongly curved outlines (in lateral profile); culmen equal to or slightly longer than outer anterior toe (without claw), very strongly decurved, broadly rounded (not ridged); depth of maxilla at base less than its width at same point; maxillary tomium more or less distinctly sinuated, the more or less distinct (sometimes obtusely angulated) prominence situated relatively far back (near middle of tomium); palatal surface of maxillary unguis rather deeply excavated, apparently smooth or with very indistinct V-shaped corrugations; mandible much wider than deep at base, the very broad gonys strongly convex, the tomium deeply excised or obtusely notched subterminally, elevated and obtusely angulated or lobed subbasally; cere very broad, naked, that of the mandible narrower but conspicuous. Nostril small, roundish, exposed, the immediately surrounding portion of cere distinctly (sometimes conspicuously) tumid. Wing long and pointed, the longest primaries exceeding distal secondaries by much more than one-third the length of wing; tenth (outermost) or ninth primaries longest (eighth sometimes longer than tenth), the outermost very faintly, if at all, sinuated on subterminal portion of inner web; three outer primaries with tips sometimes slightly attenuated and decurved. Tail decidedly less than half as long as wing, for greater part overlaid by coverts, truncate or slightly rounded, the rectrices rigid and relatively broad. Tarsus about equal in length to inner anterior toe (without claw).

*Coloration*.—Tail purplish, red, golden, or yellowish, with a more or less distinct terminal or subterminal band of black or green.

*Range*.—Eastern Panamá to Guiana and southeastern Brazil. (Nine species, of which only two occur within the geographic area of this work.)

## KEY TO THE SPECIES OF UROCHROMA.

- a. Scapulars green (like general color of upper parts).
- b. Rectrices without red or purple (more or less yellowish, in part).
- c. Head entirely green; under wing-coverts green.
- d. Wing-coverts brown with paler tips, the distal greater coverts orange. (Central Colombia.)..... *Urochroma stictoptera* (extralimital).<sup>a</sup>
- dd. Wing-coverts, including distal greater coverts, green with black centers. (Central Colombia.)..... *Urochroma emmæ* (extralimital).<sup>b</sup>
- cc. Head partly blue or red; under wing-coverts red and yellow.
- d. Forehead (broadly) dull blue. (Venezuela to eastern Panama.)  
*Urochroma dilectissima* (p. 199).
- dd. Forehead and more or less of crown red. (Eastern Costa Rica.)  
*Urochroma costaricensis* (p. 200).
- bb. Rectrices purplish red tipped with green. (Trinidad, Venezuela, and Guianas to eastern Ecuador and Peru.)... *Urochroma huetii* (extralimital).<sup>c</sup>
- aa. Scapulars brown or black.
- b. Scapulars dull black or dark sooty brown (also interscapulars, lesser and middle wing-coverts, and rump).
- c. Greater wing-coverts greenish yellow tipped with dull blue. (Venezuela and Trinidad.)..... *Urochroma batavica* (extralimital).<sup>d</sup>

<sup>a</sup> *Urochroma stictoptera* Sclater, Proc. Zool. Soc. Lond., 1862, 112, pl. 11 (interior of Colombia; coll. P. L. Sclater); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 357 (Bogota).—*Psittacula stictoptera* Finsch, Die Papag., ii, 2, 1868, 330.—*Euchrourea stictoptera* Reichenow, Journ. für Orn., 1881, 358 (Consp. Psitt., p. 198).

<sup>b</sup> *Urochroma emmæ* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 357 (Bogota, Colombia; ex Berlepsch, Journ. für Orn., 1889, 202=nomen nudum).

<sup>c</sup> *Psittacus huetii* Temminck, Pl. Col., livr. 83, Feb., 1830, pl. 491 and text (Peru?).—*Psittacula huetii* Wagler, Mon. Psitt., 1832, 619; Finsch, Die Papag., ii, 1868, 684.—*Pyrrhulopsis huetii* Bonaparte, Rev. et Mag. de Zool., 1854, 152.—*Urochroma huetii* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 124; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 355.—*Euchrourea huetii* Reichenow, Journ. für Orn., 1881, 360 (Consp. Psitt., p. 200).

<sup>d</sup> *Psittacus batavica* Boddaert, Tabl. Pl. Enl., Dec., 1783, 49 ("Batavia"; based on *Petit Perruche de Batavia* Daubenton, Pl. Enl., pl. 791, fig. 1).—*Psittacula batavica* Gray, Gen. Birds, ii, 1846, 423.—*Psittacula batavica* Léotaud, Ois. Trinidad, 1866, 331.—[*Urochroma*] *batavica* Gray, Hand-list, ii, 1870, 167, no. 8359.—*Psittacus (cingulatus)* Scopoli, Delic. Flor. et Faun. Insubr., ii, 1786, 86 ("Luzon"; based on *La Petite Perruche de l'Isle de Luçon* Sonnerat, Voy. Nouv. Guinée, p. 78, pl. 41).—*Psittacula cingulata* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 69; Finsch, Die Papag., ii, 1868, 678.—[*Urochroma*] *cingulata* Sclater and Salvin, Nom. Av. Neotr., 1873, 115.—*Urochroma cingulata* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 351.—*Eucinetus cingulatus* Reichenow, Vogelbild., 1881, pl 24, fig. 2.—*Euchrourea cingulata* Reichenow, Journ. für Orn., 1881, 360 (Consp. Psitt., p. 200).—[*Psittacus*] *melanopterus* (not of Scopoli) Gmelin, Syst. Nat., i, 1788, 350.—*Psittacus micropterus* Kuhl, Consp. Psitt., 1820, 67 ("Luçon"; based on Sonnerat, Voy. Nouv. Guinée, pl. 41).—*Loriculus (Cyclopsitta?) micropterus* von Martius, Journ. für Orn., 1866, 22.—*Psittacula melanoptera* Stephens, Gen. Zool., xiv, 1826, 142; Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 197.—*Psittacula melanoptera* Wagler, Mon. Psitt., 1832, 619.—[*Pyrrhulopsis*] *melanopterus* Bonaparte, Rev. et Mag. de Zool., 1854, 152.—*Urochroma melanoptera* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 129; Sclater, Cat. Am. Birds, 1862, 356.

cc. Greater wing-coverts green. (Southeastern Brazil.)

*Urochroma wiedi* (extralimital).<sup>a</sup>

bb. Scapulars olive-brown or slaty brown, in strong contrast with green of interscapulars and wing-coverts.

c. Rump blue; rectrices (except middle pair) red tipped with green and black. (Guianas and Lower Amazon Valley). *Urochroma purpurata* (extralimital).<sup>b</sup>

cc. Rump green; rectrices (except middle pair) golden, margined distally with black. (Southeastern Brazil.)..... *Urochroma surda* (extralimital).<sup>c</sup>

<sup>a</sup> *Psittacus melanonotus* (not *P. melanotus* Shaw) Maximilian, Reis. Bras., i, 1820, 275; Kuhl, Consp. Psitt., 1820, 59.—*Psittacula melanonota* Bourjot, Perr., 1837-38, pl. 95; Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 196; Schlegel, Mus. Pays-Bas, Psittaci, 1864, 70; Finsch, Die Papag., ii, 1868, 675.—[*Psittacula*] *melanonotus* Lichtenstein, Nom. Av. Mus. Berol., 1854, 71.—*Urochroma melanonota* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 128; Selater, Cat. Am. Birds, 1862, 356.—[*Urochroma*] *melanonota* Selater and Salvin, Nom. Av. Neotr., 1873, 115.—*Pyrrhulopsis melanonotus* Sousa, Mus. Nac. Lisb., Psittaci, 1869, 13.—*Euchroua melanonota* Reichenow, Journ. für Orn., 1881, 359 (Consp. Psitt., p. 199); Vogelbild., 1883, Nachtr. 114.—*Psittacula melanotus* (not *Psittacus melanotus* Shaw) Stephens, Gen. Zool., xiv, 1826, 142.—*Psittacus melanotus* Maximilian, Beitr., iv, 1832, 256; Küster, Orn. Atlas, Papag., 1836, 83, pl. 63.—*Psittacula melanota* Wagler, Mon. Psitt., 1832, 620.—[*Pyrrhulopsis*] *melanonotus* Bonaparte, Rev. et Mag. de Zool., 1854, 152.—*Urochroma wiedi* Allen, Bull. Am. Mus. N. H., ii, no. 3, Dec., 1889, 264 (southeastern Brazil; coll. Am. Mus. Nat. Hist.); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 352.

<sup>b</sup> [*Psittacus*] *purpuratus* Gmelin, Syst. Nat., i, pt. i, 1788, 350 (Cayenne; based on *Purple-tailed Parrakeet* Latham, Synop., i, pt. i, 315).—*Psittacus purpuratus* Kuhl, Consp. Psitt., 1820, 60.—*Psittacula purpurata* Stephens, Gen. Zool., xiv, 1826, 142.—*Psittacula purpurata* Wagler, Mon. Psitt., 1832, 618.—[*Pyrrhulopsis*] *purpuratus* Bonaparte, Rev. et Mag. de Zool., 1854, 152.—*Urochroma purpurata* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 125; Souancé, Icon. Perr., 1857, pl. 27; Selater, Cat. Am. Birds, 1862, 356; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 353.—*Eucinetus purpuratus* Reichenow, Vogelbild., 1881, in text to pl. 24, fig. 3.—*Euchroua purpurata* Reichenow, Journ. für Orn., 1881, 358 (Consp. Psitt., p. 198).—*Psittacus porphyurus* Shaw, Nat. Misc., i, no. 6, Jan., 1790, 547, pl. 16 (Cayenne); Gen. Zool., viii, 2, 1811, 547.—[*Pyrrhulopsis*] *porphyurus* Bonaparte, Rev. et Mag. de Zool., 1854, 152.—*Urochroma porphyura* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 127.—*Psittacus marginatus* (not of Müller, 1776 nor Gmelin, 1788) Vieillot, Nouv. Dict. d'Hist. Nat., xiv, 1826, 142.—? *Psittacus madagascariensis* Schomburgk, Reis. Brit. Guiana, iii, 1848, 723.—*Psittacula viridicauda* Gray, List Birds Brit. Mus., Psitt., 1859, 88 (=female; Brazil; nomen nudum); Schlegel, Mus. Pays-Bas, Psittaci, 1864, 68.—[*Urochroma*] *viridicauda* Gray, Hand-list, ii, 1870, 167, no. 8363.—*Eucinetus viridicauda* Reichenow, Vogelbild., 1881, pl. 24, fig. 3.—*Euchroua viridicauda* Reichenow, Journ. für Orn., 1881, 359 (Consp. Psitt., p. 199).

<sup>c</sup> *Psittacus surdus* Kuhl, Consp. Psitt., 1820, 59 (Brazil; ex Illiger, manuscript); Maximilian, Beitr. Naturg. Bras., iv, 1832, 252; Hahn, Orn. Atlas, Papag., 1835, 55, pl. 40.—*Psittacula surda* Stephens, Gen. Zool., xiv, 1826, 141; Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 195; Finsch, Papag., ii, 1868, 672.—[*Pyrrhulopsis*] *surdus* Bonaparte, Rev. et Mag. de Zool., 1854, 152.—*Urochroma surda* Bonaparte, Naumannia, 1856, Consp. Psitt., no. 126; Souancé, Icon. Perr., 1857, pl. 38; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 354.—*Eucinetus surdus* Reichenow, Vogelbild., 1881, pl. 24, fig. 1.—*Euchroua surda* Reichenow, Journ. für Orn., 1881, 359 (Consp. Psitt., p. 199).—*Psittacus ochrurus* Maximilian, fide Kuhl, Consp. Psitt., 1820, 59.—*Psittacus chryseurus* Swainson, Zool. Illustr., ser. 1, 3, no. 28, Jan., 1823, pl. 141 and text (near Pernambuco, e. Brazil; coll. W. Swainson).

## UROCHROMA DILECTISSIMA Sclater and Salvin.

## BLUE-FRONTED PARROTLET.

*Adult male*.—General color bright parrot green, lighter and more yellowish green on under parts; forehead and crown greenish blue (verditer blue), gradually passing into green of hindneck, etc.; a supraloral streak of dull vermilion or poppy red, and another of same color along lower edge of bare orbital space; chin and lower portion of malar region wax yellow or dull gamboge yellow; innermost anterior lesser wing-coverts black; lower or outermost lesser middle, and greater wing-coverts, together with alula and innermost primary coverts, pure poppy red (the greater coverts narrowly tipped with yellow), forming a very conspicuous elongated patch on wing; outermost primary coverts, secondaries (except proximal ones), and primaries black, the last (except outermost and proximal quills) edged (rather broadly) with bluish green; axillars and under wing-coverts rich chrome yellow, the coverts along margin of wing red, slightly intermixed with yellow; under primary coverts dusky, tipped with green or yellowish, the outermost ones mostly dull bluish green; under surface of remiges bluish green (deep malachite), the primaries with a broad stripe of dusky next to shaft; tail clear canary yellow on inner webs, light yellowish green or greenish yellow edged with green on outer webs, and crossed by a terminal or subterminal band of black (narrow and subterminal, the tip being green, on lateral rectrices, very broad and terminal, or with only a very narrow green tip, on middle rectrices), this margined anteriorly on outer webs with green; bill pale brownish buffy, the basal portion horn color; feet horn color (in dried skins); length (skin), 142; wing, 112; tail, 42; culmen (chord), 15.5; tarsus, 12; outer anterior toe, 16.<sup>a</sup>

*Adult female*.—Similar to the adult male but without red on outer surface of the wing, the coverts being wholly green, the black edge to humeral region continued to and involving the bend; alulæ black, suffused with bluish green, primary coverts all black with outer webs partly bluish green, outer webs of distal secondaries mostly green, and outer webs of primaries wholly green; black tail-band much restricted, wanting on outermost rectrix, reduced to a spot on each web on middle rectrices; length (skin), 138; wing, 107; tail, 42; culmen, 15; tarsus, 10; outer anterior toe, 15.<sup>a</sup>

Eastern Panamá (near head of Rio Limón, Mt. Pirri, 5,200 ft.); Venezuela (Mérida; Esquique, Trujillo).

*Urochroma dilectissima* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870 (pub. April, 1871), 788, pl. 47 (south of Merida, Venezuela; coll. P. L. Sclater).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 356 (Merida and Esquique, Trujillo, Venezuela).

[*Urochroma*] *dilectissima* SCLATER and SALVIN, Nom. Av. Neotr, 1873, 115.

*Euchroua dilectissima* REICHENOW, Journ. für Orn., Oct., 1881, 361 (monogr.); Consp. Psitt., 1882, 201; Vogelbild., 1883, Nachtr., 116.

<sup>a</sup> One specimen, from Mt. Pirri, eastern Panama.

## UROCHROMA COSTARICENSIS Cory.

## RED-FRONTED PARROTLET.

Similar to *U. dilectissima* but forehead and anterior part of crown red, instead of blue, a large red suborbital spot, and with more red on under wing-coverts.

*Adult male*.—Whole forehead together with anterior half or more of crown, and a large suborbital spot dull scarlet-red or chinese vermilion; rest of head, together with neck, dull oil green, slightly tinged with dull blue on subloral region, beneath red suborbital spot, and on sides of crown, lighter and more yellowish toward throat, which, with chin, are decidedly yellow, sometimes lemon chrome along median line; general color of upper parts bright parrot green; anterior lesser wing-coverts black, the outermost (distal) ones, together with distal middle and greater coverts, alulae, and innermost (proximal) primary coverts dull spectrum red or pure chinese vermilion, the concealed bases of the feathers yellow; distal primary coverts and secondaries black, the innermost of the latter edged with bluish green; primaries black, their outer webs broadly edged with bluish green; middle pair of rectrices with basal two-thirds (approximately) pure lemon chrome on inner web, bright green-yellow on outer web, the distal third grass green with a large roundish subterminal spot of black; remaining rectrices with inner webs rich lemon chrome, their outer webs more greenish and rather lighter yellow, the outermost broadly margined terminally with grass green, the others with green and black, the black gradually increasing in extent toward the middle rectrices; under parts (except throat) clear light yellowish green (deep cosse green to yellowish parrot green); axillars and proximal under wing-coverts lemon chrome yellow, the outermost (distal) under coverts (broadly) vermilion red; under primary coverts and under surface of remiges dull green (chromium), the primaries with a broad stripe of dusky slate next to shaft; bill light yellowish horn color, darker basally; legs and feet dusky; length (skins), 146–154 (150); wing, 119.5–122 (120.7); tail, 45–47.5 (46.2); culmen, 16.5–17 (16.7); tarsus (one specimen), 12.5; outer anterior toe (one specimen), 16.5.<sup>a</sup>

*Adult female*.—Similar to the adult male but with red of head somewhat lighter, and without any red on distal middle and primary wing-coverts, alulae, or proximal primary coverts, the first green, tinged with blue, the last black tinged with blue on outer webs; distal secondaries with outer webs bluish green (more bluish basally), and red of under wing-coverts much narrower, restricted to margin of wing; length (skin), 151; wing, 115.5; tail, 43.5; culmen, 16; tarsus, 12; outer anterior toe, 15.<sup>b</sup>

<sup>a</sup> Two specimens.

<sup>b</sup> One specimen.

## Eastern Costa Rica (Puerto Limón).

*Urochroma costaricensis* CORY, Field Mus. Nat. Hist., Pub. 167, Orn. Ser., vol. i, no. 7, May 31, 1913, 283 (vicinity of Puerto Limon, Costa Rica; coll. Field Mus. Nat. Hist.).

## Genus PYRILIA Bonaparte.

*Caica* (not of Bonaparte, 1850) GRAY, List Gen. and Subgen. Birds, 1855, 88. (Type, *Psittacus caica* Latham.)

*Pyrilia* BONAPARTE, Naumannia, 1856 (Consp. Psittacorum, genus 20). (Type, *Psittacula pyrilia* Bonaparte.)

*Eucinetus* REICHENOW, Journ. für Orn., 29 Jahrg., Heft 4, Oct., 1881, 353. (Type, *Psittacus histrio* Boddaert=*Psittacus caica* Latham.)

Rather small, short-tailed Psittacidae (length about 180–200 mm.) with bill rather compressed, the greatest width of maxilla at base little if any greater than length of gonys, and less than two-thirds the length of culmen; tenth (outermost) primary not much, if any, longer than seventh; tail less than half as long as wing, graduated for much less than half the length of culmen; lores scantily feathered, sometimes with sparse bristles only, and coloration varied (usually with red on under wing-coverts or axillars, the tail tipped with bluish and with inner webs of rectices, except terminals, yellow or red.

Bill moderate to rather large, shorter than head, slightly deeper than long; depth of maxilla at base slightly less than its width at same point, slightly less than half the length of culmen, the latter as long as outer front toe without claw (sometimes slightly longer), regularly and strongly decurved from base, usually rounded though sometimes flattened for basal half or more; maxillary unguis rather large, narrowly conical or cuneate and obtusely pointed in vertical profile, its width at base of corrugated palatal surface decidedly less than its length; depth of mandible at base much less than its width at same point, slightly to decidedly less than length of gonys, the mandible broadly rounded (rarely with a median ridge) beneath, more or less flattened laterally, the short, truncated, recurved tip deeply concave above; maxillary tomium nearly straight to the very shallow post-ungual excision, sometimes very slightly lobed (never "toothed") just behind the latter; mandibular tomium concavely excised (never very deeply) anteriorly, more or less convex posteriorly. Wing rather large and pointed (the closed wings reaching nearly to tip of tail), the longest primaries exceeding distal secondaries by nearly to quite two-fifths the length of wing; eighth or ninth primary longest, the tenth (outermost) usually shorter than eighth, rarely longer. Tail less than half as long as wing, graduated for less than half the length of culmen, the rectrices abruptly narrowed terminally, with tip subacuminate. Tarsus about as long as outer hind toe without claw.

*Plumage and coloration.*—Head normally feathered except chin, orbital region and lores, the first more or less extensively naked, the

last scantily feathered, sometimes with short bristle-like feathers only; cere unfeathered, but with short, erect bristles, at least on top, its anterior outline very strongly sinuate, that portion beneath the rather large and fully exposed nostrils conspicuously curved backward and then downward to the rictus; feathers of cheeks (malar region) usually short, closely appressed. General color green, but this varied with black (on head), orange-yellow (on head), red (on under wing-coverts or axillars), or dark blue (on primaries and tip of tail), the inner webs of rectrices (except terminally) yellow or red.

*Range*.—Southern Mexico to upper Amazon Valley and Guiana. (Six species.)<sup>a</sup>

KEY TO THE SPECIES AND SUBSPECIES OF PYRILIA.

- a. Inner webs of lateral rectrices (except terminal portion) red. (*Pyrilia hæmatotis*.)  
 b. Throat without any red; red of axillars invading innermost under wing-coverts; feathers of pileum and hindneck with dusky reddish margins (in adults); chin and throat without white. (Southern Mexico to western Panamá.)  
*Pyrilia hæmatotis hæmatotis* (p. 203).  
 bb. Throat with more or less of red; red of axillars not invading innermost wing-coverts; feathers of pileum and hindneck without dusky reddish margins; chin or upper throat (or both) with more or less of white. (Eastern Panamá.)  
*Pyrilia hæmatotis coccinicollaris* (p. 206).  
 aa. Inner webs of lateral rectrices (except terminal portion) yellow (more greenish on under surface).  
 b. Axillars and under wing-coverts green. (*Pyrilia caica*.)  
 c. Head black, bordered posteriorly by a tawny collar. (Guianas; Rio Javari, eastern Peru?).....*Pyrilia caica*, adults (extralimital).<sup>b</sup>  
 cc. Pileum green, sides of head olive-greenish; collar indistinct.  
*Pyrilia caica*, young (extralimital).  
 bb. Axillars and under wing-coverts red; anterior outer lesser wing-coverts yellow or orange.

<sup>a</sup> Of the species referable to this genus I have not seen *Pionopsitta pulchra* Berlepsch, which is said to closely resemble *P. hæmatotis*.

<sup>b</sup> *Psittacus histrio* (not of Müller, 1776) Boddaert, Tabl. Pl. Enl., 1783, 46 (Cayenne; based on *Perruche à tête noir*, de Cayenne Daubenton, Pl. Enl., pl. 744).—*Caica histrio* Sclater, Proc. Zool. Soc. Lond., 1857, 266.—*Amazona histrio* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 64.—*Pionias histrio* Finsch, Die Papag., ii, 1868, 429.—*Euclinetus histrio* Reichenow, Journ. für Orn., 1881, 356; Consp. Psitt., 1882, 196; Vogelbild., 1881, pl. 24, fig. 6.—[*Psittacus*] *pileatus* Gmelin, Syst. Nat., i, pt. i, 1788, 347 (Cayenne; based on *Caica* Buffon, Hist. Nat. Ois., vi, 253; *Perruche à tête noir*, de Cayenne Daubenton, Pl. Enl., pl. 744; *Hooded Parrot* Latham, Synopsis Birds, i, pt. i, 306).—*Psittacula pileata* Stephens, Shaw's Gen. Zool., xiv, 1826, 142.—[*Poicephalus*] *pileatus* Swainson, Classif. Birds, ii, 1837, 301.—[*Caica*] *pileatus* Bonaparte, Rev. et Mag. de Zool., 1854, 151 (Consp. Psitt., p. 8).—*Pionus pileatus* Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 193, footnote.—[*Psittacus*] *caica* Latham, Index Orn., i, 1790, 128 (new name for *P. pileatus* Gmelin, preoccupied).—*P[ionus] caica* Wagler, Mon. Psitt., 1832, 609.—*Pionopsittacus caica* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 345.



- c. Head black with a large malar patch of yellow or orange-yellow. (Upper Amazon Valley.).....*Pyrilia barrabandi* (extralimital).<sup>a</sup>  
 cc. Head (all round) yellow. (Colombia; Venezuela.)...*Pyrilia pyrilia* (extralimital).<sup>b</sup>

**PYRILIA HÆMATOTIS HÆMATOTIS** (Sclater and Salvin).

**RED-EARED PARROT.**

*Adult male*.—Pileum dull slate color or slate-gray, more or less tinged or washed with olive, the feathers sometimes narrowly margined with dark brownish red; a dull white or pale brownish buffy supraloral spot (sometimes one at base of culmen also); hindneck tawny-olive; back, scapulars, most of wing-coverts, inner (proximal) secondaries, rump, upper tail-coverts, and middle rectrices yellowish parrot green, the last passing into or tinged with dark blue at tip; carpal region mostly blue; alulæ black, edged on outer webs with blue; outer (distal) wing-coverts and secondaries greenish blue passing into green on edge of outer webs; primary coverts and primaries black, the outer ones indistinctly edged with dark blue, some of the longer primaries edged distally with pale buffy; inner webs of rectrices with proximal half or more vermilion red (duller on rectrices next to middle pair), the distal portion bluish green and dark blue, with reddish dusky next to the red; outer webs blackish, or reddish dusky, suffused with dark blue terminally and basally, narrowly edged with green on subterminal portion (except on outermost rectrix), this green becoming more extended inwardly until the rectrix next to middle pair has outer web mostly if not wholly green; sub-orbital and malar regions, anterior portion of auricular region, and middle portion of throat similar in color to pileum, or somewhat lighter (sometimes decidedly grayer), passing posteriorly into dusky or blackish, especially immediately behind auricular region; posterior portion of auricular region with a patch of red (usually more or less

<sup>a</sup> *Psittacus barrabandi* Kuhl, Consp. Psitt., 1820, 61 ("Brasilia"; coll. Paris Mus.); Brehm, Mon. Papag., 1842, pl. 53.—*Psittacula barrabandi* Stephens, Shaw's Gen. Zool., xiv, 1826, 142.—*P[ionus] barrabandi* Wagler, Mon. Psitt., 1832, 610.—[*Poiccephalus*] *barrabaudi* Swainson, Classif. Birds, ii, 1837, 301.—[*Caica*] *barrabandi* Bonaparte, Rev. et Mag. de Zool., 1854, 151 (Consp. Psitt., p. 8).—*Amazona barrabandi* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 65.—*Pionias barrabandi* Finsch, Die Papag., ii, 1868, 425.—*Eucinetus barrabandi* Reichenow, Journ. für Orn., 1881, 357; Consp. Psitt., 1882, 197; Vogelbild., 1882, pl. 26, fig. 4.—*Pionopsittacus barrabandi* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 346.

<sup>b</sup> *Psittacula pyrilia* Bonaparte, Compt. Rend., xxxvii, 1853, 807, footnote (Colombia; coll. Paris Mus.).—[*Evopsitta*] *pyrilia* Bonaparte, Rev. et Mag. de Zool., 1854, 151 (Consp. Psitt., p. 8).—*Chrysotis pyrilia* Gray, List Birds Brit. Mus., Psittaci, 1859, 84 (Colombia).—*Pionias pyrilia* Finsch, Die Papag., ii, 1868, 419.—[*Pyrilia*] *pyrilia* Gray, Hand-list, ii, 1870, 165, no. 8347.—*Caica pyrilia* Wyatt, Ibis, 1871, 126, in text (Canta, Colombia), 381 (Canta and San Nicolas, Colombia); Sclater and Salvin, Ibis, 1871, 381, footnote (Rio Acha, above Santa Marta, Colombia).—*Pionopsittacus pyrilia* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 347.—*Eucinetus pyrillus* Reichenow, Journ. für Orn., 1881, 386; Consp. Psitt., 1882, 196; Vogelbild., 1883, Nachtr., 112.

broken by intermixture of dusky feathers), the red feathers with narrow shaft-streaks of paler; foreneck and chest bright tawny-olive, similar to color of hindneck, but somewhat lighter; rest of under parts clear light yellowish green (bright apple green), more or less broken on sides by intermixture of pure red feathers; axillars and contiguous portion of sides and adjacent under wing-coverts pure red; outermost smaller under wing-coverts deep blue margined with green, the rest mostly green, sometimes intermixed with red feathers; under primary coverts and under surface of remiges deep glaucous-green or dull beryl green, the primaries with a broad blackish stripe next to shaft; bill dull light buff; naked loreal and orbital space; iris green;<sup>a</sup> legs and feet brownish (in dried skins); length (skins), 186-222 (209); wing, 143-157 (146.8); tail, 56-69 (63); culmen, 17.5-20.5 (19.5); tarsus, 16-18 (17.2); outer anterior toe, 19-21.5 (20).<sup>b</sup>

*Adult female.*—Similar to the adult male and possibly not always distinguishable, but usually, at least, appreciably duller in color, with red auricular spot less distinct, chest more greenish (less "golden") olive, red of axillars, etc., much more restricted (mainly confined to axillars alone), and general color of head lighter, less strongly contrasted with color of neck and chest; length (skins), 185-220 (201); wing, 142.5-155.5 (147.7); tail, 56-66.5 (61.6); culmen, 17.5-20 (18.8); tarsus, 16.5-18 (17.1); outer anterior toe 18-21.5 (19.9).<sup>b</sup>

*Young.*—Similar to adults, but head less dusky, without red on auricular region, which is merely tinged with dark brownish red.

<sup>a</sup> According to Morton E. Peck. Twenty-eight specimens.

<sup>b</sup> Twenty specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Six adult males from Vera Cruz.....	149.2	59.6	19.8	17.2	20.6
Four adult males from British Honduras.....	147.4	63.2	19	16.1	19.4
Three adult males from Honduras.....	149.7	61.8	18.8	17.5	20.2
Ten adult males from Costa Rica.....	150.7	64.5	19.4	17.2	20
Five adult males from western Panama (Veragua and Chiriqui).....	153.3	64.2	20	17.7	20.4
Eight adult males from eastern Panama ( <i>P. h. coccin collaris</i> )....	152.1	67.3	20.1	17.2	20.6
FEMALES.					
Seven adult females from Vera Cruz.....	148.1	61.1	18.9	17.1	19.9
One adult female from British Honduras.....	148	61	18.5	17.5	19
Two adult females from Honduras.....	144	61.5	18.5	16.5	19.2
One adult female from Nicaragua.....	142.5	61	18.5	17.5	19.5
Six adult females from Costa Rica.....	147.2	61.3	18.7	17.1	20.1
Three adult females from western Panama.....	152	64	19.8	17.7	20.7
Six adult females from eastern Panama ( <i>P. h. coccin collaris</i> )....	152.7	66	19.4	17.5	20.7

Specimens from western Panama agree with examples from Costa Rica and more northern localities in coloration, but are as large as those from eastern Panama.

Southeastern Mexico, in State of Vera Cruz (Playa Vicente; San Lorenzo, near Córdoba; Buena Vista; Tolosa; Motzorongo) and southward through Guatemala (Cobán; Choctúm; Rasché; Yaxcamnal; Chimuchuch; sources of Rio de la Pasión; sources of Rio Sestoon; Yzabál; Santo Tomás), British Honduras (Orange Walk; Toledo District; near Manatee Lagoon), Honduras (San Pedro; Yaruca; Rio Segóvia), Nicaragua (Savalá; Matagalpa), and Costa Rica (Angostura; Pacuare; Naranjo de Cartago; La Estrella de Cartago; Guayabo; Bonilla; Coliblanco; Peralta; Cachí; Rio Frio; Puerto Limón; El General; La Vijagua; Pozo Azul de Pirris) to western Panamá (Divala; Santa Fe de Veragua; Sona).

*Pionus hæmatotis* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1860, 300 (Vera Paz., Guatemala; coll. O. Salvin).—SALVIN and SCLATER, Ibis, 1860, 401, pl. 13 (Coban and Choctum, Vera Paz., Guatemala; habits).—SALVIN, Ibis, 1860, 147, footnote.—FRANZTIUS, Journ. für Orn., 1869, 366 (Costa Rica).

[*Pionus hæmatotis* GRAY, Hand-list, ii, 1870, 163, no. 8308.

*Pionius hæmatotis* LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Pacuare, Costa Rica).

*Pionias hæmatotis* FINSCHE, Die Papag., ii, 1868, 420.—GIEBEL, Thesaurus Orn., iii, 1877, 190, part.—PELZELN and LORENZ, Ann. K. naturhist. Hofmus., iii, 1888, 40.

*Caica hæmatotis* SCLATER, Proc. Zool. Soc. Lond., 1862, 20 (Playa Vicente, Vera Cruz); Cat. Am. Birds, 1862, 356 (Choctum, Guatemala).—SALVIN, Proc. Zool. Soc. Lond., 1867, 158 (Santa Fe de Veragua, w. Panama); Ibis, 1871, 96, part (range); 1874, 329, in text (Veragua).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 837 (Honduras).—BOUCARD, Liste Ois. récol. Guatemala, 1878, 23.—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica); Anal. Mus. Nac. C. R., i, 1887, 124 (Pacuare and Naranjo de Cartago, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 592 (Rio Segovia, Honduras).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 220 (Santo Tomas, Guatemala).

[*Caica hæmatotis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 114, part.

*Amazona hæmatotis* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 65 (Mexico).

*Eucinetus hæmatotis* REICHENOW, Journ. für Orn., 1881, 355, part (monogr.); Consp. Psitt., 1882, 195, part; Vogelbild., 1883, Nachtr., 110, part.

[*Eucinetus hæmatotis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 232 (Mexico).

*Pionopsittacus hæmatotis* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 343 (San Lorenzo, near Cordova, Vera Cruz; Rasche, Choctum, Yaxcamnal, and sources of Rio de la Pasion, Guatemala; San Pedro, Honduras; Orange Walk, Brit. Honduras; Angostura, Costa Rica; Santa Fe de Veragua, Panama); Ibis, 1906, 652.—SALVIN and GODMAN, Biol. Centr.-Am., ii, 1897, 597 (Playa Vicente, etc., Vera Cruz; sources of Rio Sarstoon, near Chimuchuch, etc., Guatemala; Rio Frio, Pacuare, etc., Costa Rica; Santa Fe de Veragua, Panama).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 25 (Sona, w. Panama).—FERRY, Pub. 146, Field Mus. N. H., 1910, 262 (Guayabo and Coliblanco, Costa Rica; habits).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 490 (Pozo Azul de Pirris, La Vijagua, La Estrella de Cartago, El General de Terraba, Cachí, Peralta, etc., Costa Rica, habits).

[*Pionopsittacus hæmatotis* SHARPE, Hand-list, ii, 1900, 24.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14 (Yzabal, Guatemala).

*Pionopsitta hæmatotis* RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 520 (Rio Frio, Costa Rica).—RIDGWAY, Condor, vii, 1905, 156, in text (Bonilla, Costa Rica).

*Pionopsittacus hæmatotis hæmatotis* BANGS, Bull. Mus. Comp. Zool., xxxix, July, 1903, 143 (Yaruca, Honduras; crit.)

## PYRILIA HÆMATOTIS COCCINICOLLARIS (Lawrence).

## RED-NECKLACED PARROT.

Similar to *P. h. hæmatotis* but usually with admixture of red (light vermilion) feathers on foreneck or upper chest, often forming a distinct, though more or less broken, collar; chin or upper throat always(?) white or partly white; feathers of pileum and hindneck never (?) with dusky reddish margins; red of axillars not invading under wing-coverts, which are wholly bluish green passing into greenish blue toward edge of wing.

*Adult male*.—Length (skins), 206–220 (212); wing, 147–157.5 (152.1); tail, 63–69 (67.3); culmen, 19.5–21.5 (20.1); tarsus, 16.5–17.5 (17.2); outer anterior toe, 19.5–21 (20.6).<sup>a</sup>

*Adult female*.—Length (skins), 208–232 (216); wing, 146–158 (152.7); tail, 64–68 (66); culmen, 18.5–20.5 (19.4); tarsus, 16.5–18 (17.5); outer anterior toe, 19.5–21.5 (20.7).<sup>b</sup>

Eastern Panamá (Lion Hill; Paraiso; La Chorrera; Laguna del Pita; Mt. Pirri; Rio Indio).

[*Pionius hæmatotis?* var. LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 299 (Lion Hill, Panama; crit.).

[*Pionius hæmatotis* GRAY, Hand-list, ii, 1870, 163, no. 8308, part.

*Caica hæmatotis* (not *Pionus hæmatotis* Sclater and Salvin, 1860) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 368 (Panama; crit.).—SALVIN, Ibis, 1871, 87, 96, part.

[*Caica hæmatotis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 114, part.

*Pionias hæmatotis* FINSCH, Die Papag., ii, 1868, 420, part.—GIEBEL, Thesaurus Orn., iii, 1877, 190, part.

*Amazona hæmatotis* SCHLEGEL, Mus. Pays-Bas, iii, no. 38 (Revue), 1874, 29 (Panama).

*Eucinetus hæmatotis* REICHENOW, Journ. für Orn., 1881, 355, part; Consp. Psitt., 1882, 195, part; Vogelbild., 1883, Nachtr., 110, part.

*Pionias coccinicollaris* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1862, 475 (Lion Hill, Panama; coll. G. N. Lawrence).

*Pionius coccineicollaris* INDEX to Proc. Zool. Soc. Lond., 1860–1870 (1872), 385. *Caica coccineicollaris* SALVIN, Ibis, 1871, 96.

*Pionopsittacus coccineicollaris* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 344 (Paraiso Station and Panama, Panama); Ibis, 1906, 652 (descr. young).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 598 (Paraiso and Lion Hill, Panama).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, p. 9 (Laguna del Pita, Panama).

[*Pionopsittacus*] *coccineicollaris* SHARPE, Hand-list, ii, 1900, 24.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.

[*Pionius*] *hæmatotis coccineicollaris* BANGS, Bull. Mus. Comp. Zool., xxxix, July, 1903, 143, in text.

## Genus PIONUS Wagler.

*Pionus* WAGLER, Mon. Psitt., 1832, 497. (Type, *Psittacus menstruus* Linnæus.)

*Pionias* (emendation) FINSCH, Mon. die Papag., ii, 1868, 366.

Medium-sized, short-tailed Psittacidæ (length about 225–300 mm.) with tail less than half as long as wing, wing not more (usually much

<sup>a</sup> Eight specimens.

<sup>b</sup> Six specimens.

less) than 190 mm. and without any red, and with under tail-coverts at least partly red.

Bill moderate in size (about half as long as head or a little more), much deeper than long; culmen about as long as outer front toe without claw (longer in *P. fuscus* and *P. chalcopterus*, slightly shorter in *P. menstruus*), regularly and strongly decurved from base, flattened (sometimes broadly but shallowly grooved) proximally; maxilla rather strongly compressed toward culmen (especially in front of nostril), with unguis rather long (much longer than wide), its palatal surface distinctly corrugated and nearly flat; maxillary tomium with a deep and broad post-ungual notch, preceded by a more or less prominent, sometimes obtusely angular, lobe; depth of mandible at base decidedly less to much less than length of gonys, very much less than basal width; mandible more or less flattened laterally and beneath, sometimes with a distinct ridge separating the lateral and under surfaces, the latter sometimes with a more or less distinct median ridge,<sup>a</sup> the width of its chisel-like, more or less flattened and truncate tip equal to less than half the length of the gonys, its tomium deeply and broadly incised (concave) distally and more or less convex proximally, its base beneath broadly and more or less deeply concave. Cere very strongly sinuated, the upper (prenasal) portion strongly convex, the lower half drawn backward nearly (sometimes quite) to the loreal feathering. Nostrils fully exposed, rather large, circular, nearly in center of cere. Wing moderate, rather pointed, the longest primaries exceeding distal secondaries by about one-third to two-fifths the length of wing; ninth, eighth and ninth, or seventh, eighth, and ninth primaries longest, the tenth (outermost) equal to or shorter than seventh. Tail less than half as long as wing (nearly half as long in *P. maximiliani*, only about two-fifths as long in *P. chalcopterus*), slightly double-rounded, slightly emarginate, or truncate, the rectrices with extreme tip narrowly rounded or (usually) subacuminate. Tarsus shorter than outer hind toe without claw, very slightly to decidedly longer than inner front toe without claw.

*Plumage and coloration.*—Cere, orbital region, extreme anterior portion of malar region (mostly if not wholly concealed by feathering of cheeks) and chin naked, the rest of the head (including at least anterior portion of lores) densely feathered, the feathers, for the most part, distinctly outlined or imbricated; those of the neck not distinctly enlarged. Under tail-coverts always mostly red; inner webs of rectrices with more or less of red on proximal portion; no red on wings nor on axillars.

*Range.*—Southern Mexico to Peru, Bolivia, Paraguay, Argentina, southeastern Brazil, and Guiana. (Twelve species.)<sup>b</sup>

<sup>a</sup> In these ridges and flattened surfaces there is an approximation in the form of the mandible in *Pionus* to that of *Triclaria* (see p. 116), in which, however, these characters are developed to an extreme degree.

<sup>b</sup> The above description of generic character is based on *P. menstruus*, *P. maximiliani*, *P. senilis*, *P. chalcopterus*, and *P. fuscus*.

## KEY TO THE SPECIES OF PIONUS.

## a. Primaries green.

- b. Head blue (more or less deep); maxilla black (including unguis) with a reddish spot on lower basal portion. (Costa Rica to Brazil, Bolivia, and Peru.)

**Pionus menstruus** (p. 210).

- bb. Head not blue; maxilla not black (the unguis always light-colored).

- c. Forehead dusky; bill reddish or partly dusky; lateral rectrices partly blue.

- d. Bill partly dusky.

- e. Bill yellowish, with basal portion dusky; back bronzy green or olive-green, the under parts of body similar but paler.

- f. Green color less olivaceous; under tail-coverts without distinct dusky mesial streaks; feathers of malar region indistinctly margined with dusky. (Southeastern Brazil; Paraguay.)

**Pionus maximiliani** (extralimital).<sup>a</sup>

- ff. Green color more olivaceous; under tail-coverts with distinct mesial streaks of dusky; feathers of malar region conspicuously margined with black. (Bolivia and northern Argentina.)

**Pionus bridgesi** (extralimital).<sup>b</sup>

- ee. Bill reddish or pinkish, with part of maxilla dusky; back grayish olive-green, under parts of body pale grayish brown. (Venezuela; Colombia.)

**Pionus sordidus** (extralimital).<sup>c</sup>

- dd. Bill wholly red. (Colombia; Ecuador.) **Pionus corallinus** (extralimital).<sup>d</sup>

- cc. Forehead red or red and white; bill wholly yellowish; lateral rectrices without any blue.

<sup>a</sup> *Psittacus maximiliani* Kuhl, Consp. Psitt., 1820, 72 (Brazil).—*P[ionus] maximiliani* Wagler, Mon. Psitt., 1832, 603.—*Pionus maximiliani* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 148 (monogr.); Souancé, Icon. Perr., 1857, pl. 34, fig. 2; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 327.—*Pionias maximiliani* Finsch, Die Papag., ii, 1868, 448; Pelzeln, Orn. Bras., 1871, 264, 447, lüi; Reichenow, Journ. für Orn., 1881, 362; Consp. Psitt., 1882, 202; Vogelbild., 1880, pl. 10, fig. 7.—*Psittacus flavirostris* Spix, Av. Bras., i, 1824, 42, pl. 31, fig. 2 (plains forests of Piauhy, s. Brazil; coll. Munich Mus.)—*Pionias flavirostris* Reichenow, Journ. für Orn., 1881, 363 (monogr.); Consp. Psitt., 1882, 203; Vogelbild., 1882, pl. 26, fig. 5.—*Pionus siy* Souancé, Rev. et Mag. de Zool., 1856, 155 (Paraguay; Bolivia); Icon. Perr., 1857, pl. 34, fig. 1.—*Psittacus siy* Gray, List Birds Brit. Mus., Psittacidae, 1859, 75.

<sup>b</sup> *Pionus bridgesi* Boucard, The Humming Bird, i, April 1, 1891, 27 (Bolivia and Corrientes, Argentina; coll. A. Boucard); Salvadori, Cat. Birds Brit. Mus., xx, 1891, 329.

<sup>c</sup> [*Psittacus*] *sordidus* Linnæus, Syst. Nat., ed. 10, i, 1758, 99 ("Mexico"; based on *Psittacus fuscus* Edwards, Birds, pl. 167).—*Psittacus sordidus* Vieillot, Nouv. Dict. d'Hist. Nat., xxv, 1817, 329; Kuhl, Consp. Psitt., 1820, 74.—*P[ionus] sordidus* Wagler, Mon. Psitt., 1832, 607.—*Pionus sordidus* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 325.—*Pionias sordidus* Finsch, Die Papag., ii, 1868, 452, part, 956; Reichenow, Journ. für Orn., 1881, 363 (monogr.); Consp. Psitt., 1882, 203; Vogelbild., 1880, pl. 10, fig. 4.—*Chrysotis sordidus* Swainson, Classif. Birds, ii, 1837, 301.

<sup>d</sup> *Pionus corallinus* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 148 ("Am[erica] m[eridionali]"); coll. Paris Mus.); Consp. Psitt., 1854, 5; Slater, in Rowley's Orn. Misc., iii, 1877, 6, 7, 8, pl. [80]; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 326.—*Pionias corallinus* Reichenow, Journ. für Orn., 1881, 363 (monogr.); Consp. Psitt., 1882, 203; Vogelbild., 1882, pl. 26, fig. 1.

d. Under parts of body green; whole head more or less reddish. (Peru; Bolivia.)

*Pionus tumultuosus* (extralimital).<sup>a</sup>

dd. Under parts purplish brown (passing into green on flanks); forehead white, the feathers margined with red. (Colombia; Ecuador.)

*Pionus seniloides* (extralimital).<sup>b</sup>

aa. Primaries blue.

b. Forehead (broadly) white; under parts more or less green. (Southern Mexico to Costa Rica.).....*Pionus senilis* (p. 214).

bb. Forehead wholly blackish; under parts without any green.

c. Under parts dusky, washed with dark blue; wing-coverts light brownish, in strong contrast with color of back; under surface of remiges bluish green. (Colombia and eastern Ecuador.).....*Pionus chalcopterus* (extralimital).<sup>c</sup>

cc. Under parts grayish brown, washed with reddish purple; wing-coverts dusky, concolor with back; under surface of remiges violet-blue. (Guianas and lower Amazon Valley.).....*Pionus fuscus* (extralimital).<sup>d</sup>

<sup>a</sup> *P[sittacus] tumultuosus* Tschudi, Wiegmann's Archiv für Naturg., x, pt. i, 1844, 304 (Peru); Fauna Peruana, Aves, 1844-'46, 270.—[*Chrysotis*] *tumultuosa* Bonaparte, Rev. et Mag. de Zool., vi, 1854, 151 (Consp. Psitt., p. 9).—*Chrysotis tumultuosa* Gray, List Birds Brit. Mus., Psittacidae, 1859, 82 (Peru).—*Pionias tumultuosus* Finsch, Die Papag., ii, 1868, 457; Reichenow, Journ. für Orn., 1881, 363 (monogr.); Consp. Psitt., 1882, 203; Vogelbild., 1882, pl. 26, fig. 2.—[*Pionus*] *tumultuosus* Sclater and Salvin, Nom. Av. Neotr., 1873, 114.—*Pionus tumultuosus* Sclater, Rowley's Orn. Misc., iii, 1877, 6, 7, 8, pl. [81]; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 330.

<sup>b</sup> *Psittacus selinoides* [typ. error] Souancé, Rev. et Mag. de Zool., vi, 1854, 73 (Colombia).—*Psittacus seniloides* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 147 (crit.); Gray, List Birds Brit. Mus., Psittacidae, 1859, 76 (Colombia).—*Pionus seniloides* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 149 (monogr.); Souancé, Icon. Perr., 1857, pl. 36; Sclater, Rowley's Orn. Misc., iii, 1877, 6, 7; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 330.—*Pionias gerontodes* Finsch, Die Papag., ii, 1868, 454 (new name for *P. seniloides* Souancé on grounds of purism!); Reichenow, Journ. für Orn., 1881, 364 (monogr.); Consp. Psitt., 1882, 204; Vogelbild., 1882, pl. 26, fig. 7.—*Amazona gerontodes*, Schlegel, Mus. Pays-Bas, Revue, 1874, 29.

<sup>c</sup> *Psittacus chalcopterus* Fraser, Proc. Zool. Soc. Lond., pt. viii, no. xc, March, 1841, 59 (Bogota, Colombia; coll. Earl of Derby); Gray, List Birds Brit. Mus., Psittaci, 1859, 76.—[*Pionus*] *chalcopterus* Hartlaub, Syst. Verz., 1844, 87 (Colombia).—*Pionus chalcopterus* Bonaparte, Rev. et Mag. de Zool., vi, (2), 1854, 148 (monogr.); Sclater, Rowley's Orn. Misc., iii, 1877, 6, 7; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 333.—*Pionias chalcopterus* Finsch, Die Papag., ii, 1868, 462; Reichenow, Journ. für Orn., 1881, 364 (monogr.); Consp. Psitt., 1882, 204; Vogelbild., 1882, pl. 26, fig. 6.—*Amazona chalcoptera* Schlegel, Mus. Pays-Bas, Psittaci, 62; Revue, 1874, 29.

<sup>d</sup> *Psittacus fuscus* Müller, Syst. Nat. Suppl., 1776, 78 (Cayenne; based on *Perroquet varié, de Cayenne* Daubenton, Pl. Enl., pl. 408).—*Pionus fuscus* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 334.—*Psittacus violaceus* Boddaert, Tabl. Pl. Enl., 1783, 25 (Cayenne; based on *Perroquet varié, de Cayenne* Daubenton, pl. Enl., pl. 408).—*Pionus violaceus* Sclater, Cat. Am. Birds, 1862, 355; in Rowley's Orn. Misc., iii, 1877, 6, 7.—*Pionias violaceus* Finsch, Die Papag., ii, 1868, 463; Reichenow, Journ. für Orn., 1881, 365 (monogr.); Consp. Psitt., 1882, 205; Vogelbild., 1882, pl. 26, fig. 3.—*Amazona violacea* Schlegel, Mus. Pays-Bas, Psittaci, 63; Revue, 1874, 29.—[*Psittacus*] *purpureus* (not of Müller, 1776) Gmelin, Syst. Nat., i, pt. i, 1788, 346 (Surinam; based on *Perroquet violet* Barrière, Fr. Équin., 144; *Papagei violet* Buffon, Hist. Nat. Ois., vi, 244; *Perroquet varie, de Cayenne* Daubenton, Pl. Enl., pl. 408; etc.)—[*Pionus*] *purpureus* Wagler, Mon. Psitt., 1832, 606.—*Pionus purpureus* Bonaparte, Rev. et Mag. de Zool., (2) vi, 1854, 148 (monogr.)—*Psittacus infuscatus* Shaw, Naturalists' Misc., xix, no. 3, Nov., 1807, pl. 789 and text (new name for *P. purpureus* Gmelin).

In addition to the generally recognized species of *Pionus*, two others have been described, and may represent valid species, as follows:

*Pionus reichenowi*.—*Pionias reichenowi* Heine, Journ. für Orn., April, 1884, 264 (Brazil; coll. Heine Mus.).—*Pionus reichenowi* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 324, footnote. Allied to *P. menstruus* and, according to Salvadori, possibly a color variety of that species.

*Pionus lacerus*.—*P[ionias] lacerus* Heine, Journ. für Orn., April, 1884, 265 (Tucuman, Argentina).—*Pionus lacerus* Salvadori, Cat. Birds Brit. Mus., xx, 1891, 329, footnote. Allied to *P. maximiliani*.

### PIONUS MENSTRUUS (Linnæus).

#### BLUE-HEADED PARROT.

*Adults (sexes alike)*.—Head and neck violaceous blue or gentian blue, the feathers narrowly and indistinctly margined terminally with darker, the concealed portion of each passing through greenish into dark olive, the base grayish white; a large auricular spot (more or less distinct) of dull black; back, scapulars, and proximal secondaries deep parrot green; rump and upper tail-coverts more grass green, changing to scheele's green in certain lights; lesser wing-coverts warbler green (or between this and pyrite yellow) to light oil green glossed with javel green, the middle and greater coverts more decidedly green; alulæ, primary coverts, primaries, and distal secondaries (sometimes proximal secondaries also) grass green, indistinctly edged with lighter green; middle pair of rectrices grass green, usually tinged with blue at tip, sometimes (old feathers?) wholly olivaceous-black; second pair of rectrices with outer web grass green passing into greenish blue terminally, the inner web with basal half (approximately) dusky; remaining rectrices with outer webs deep violet-blue edged with light blue, the inner webs red (dull spectrum red or Chinese vermilion) for proximal two-thirds or more, bluish green on distal portion; throat usually mostly grayish white, but this more or less broken by dusky mesial streaks and suffusions of dull blue, the lower portion more or less suffused or intermixed with light red, forming a more or less distinct patch; chest grayish blue or dull blue, sometimes nearly uniform but usually more or less broken by indistinct, partly concealed broad bars of olive or dusky; rest of under parts light parrot green glossed with scheele's green, the posterior flanks usually with concealed spots of red; under tail-coverts red (dull spectrum red) with narrow shaft-streaks of dusky and rather small triangular terminal spots of light green (sometimes tinged with light grayish blue); under surface of wing grass green, the remiges with a broad stripe of blackish slate next to shaft, broadest on longer primaries, which are also edged with dusky on distal (narrowed) portion; bill dusky horn color, paler on gonys, the lower basal portion of maxilla (beneath nostril) dull light red; bare orbital space dusky (in dried skins); iris brown; legs and feet dusky brownish or olivaceous.



*Young*.—Similar in general coloration to adults, but blue of head and neck much duller, more or less suffused or intermixed with green, the forehead usually with a broken band, or a patch on each side, of light red; under tail-coverts with the red paler and duller, as well as much more restricted (the green correspondingly more extended); wing-coverts greener, more nearly concolor with back.

*Adult male*.—Length (skins), 220-285 (246); wing, 167-195.5 (182.3); tail, 60.5-82.5 (73.9); culmen, 22-26.5 (24.4); tarsus, 18-21 (19.4); outer anterior toe, 22-25.5 (23.8).<sup>a</sup>

*Adult female*.—Length (skins), 217-272 (241); wing, 161.5-195 (175.7); tail, 65-80 (72); culmen, 22.5-25 (23.8); tarsus, 17-20.5 (18.9); outer anterior toe, 21.5-25 (23.2).<sup>b</sup>

<sup>a</sup> Forty-one specimens.

<sup>b</sup> Twenty-five specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Costa Rica.....	181.5	76	24	19	24
Eight adult males from western Panama.....	176.4	72.1	23.7	19.4	23.6
Six adult males from eastern Panama.....	175	71.7	23.8	18.9	23.2
One adult male from Santa Marta, Colombia.....	166.5	74	25	19.5	24.5
Eight adult males from Colombia (except Santa Marta).....	187.6	76.8	23.9	19.9	24.2
One adult male from northern Ecuador.....	177	69	24	18.5	23
Two adult males from Peru.....	185.7	73	25.2	20.2	24
Five adult males from Venezuela.....	189.9	75.3	24.7	18.8	23.9
One adult male from Trinidad.....	182	72	25.5	19.5	23
One adult male from British Guiana.....	184	73.5	26	18.5	23.5
One adult male from lower Amazon (Diamantina).....	176.5	71.5	26.5	19.5	24
Six adult males from western Brazil (Chapada, Matto Grosso).....	187.3	75.1	25.1	19.5	23.9
FEMALES.					
One adult female from Costa Rica.....	183	69.5	.....	19	23
Three adult females from western Panama.....	171.5	71.3	24	19.5	23.5
Three adult females from eastern Panama.....	170.8	71	23.3	18.2	23.8
Five adult females from Santa Marta, Colombia.....	167.3	70.1	23.1	18.5	22.6
Eight adult females from Colombia (except Santa Marta).....	180.4	73.8	23.7	19	22.9
One adult female from Peru.....	183	72.5	25	19.5	25.5
One adult female from Venezuela.....	183	69.5	23.5	19	23
One adult female from Trinidad.....	180	77.5	.....	19	23.5
Two adult females from western Brazil (Chapada, Matto Grosso).....	178.2	66.7	24.7	19.7	23.5

After careful examination and comparison of about one hundred specimens, from practically all parts of the range of the species, I am unable to detect sufficiently constant variations in coloration or measurements to admit of the definition of geographic forms or subspecies. In the first place, it may be stated that the alleged greater amount, or greater frequency, of red on the throat in examples from Panama and Costa Rica is not shown by the series examined. The only tendency toward geographic differences in coloration that I am able to find is in the brighter, or more intense, coloration shown by many specimens from Venezuela and Colombia (especially the former) as compared with those from Panama and Costa Rica.

Southeastern Costa Rica (Talamanca), Panamá (Boquerón, Boquete, Bugaba, Divala, and David, Chiriquí; Calobre, Calderas, Mina de Chorchá, Santiago, and Santa Fe, Verágua; Lion Hill, Panamá, Chepo, Rio Indio, and Puerto Bello, Canal Zone), and Colombia (Cali, Guengue, Rio Frio, Florida, Rio Coqueta, and Guabinas, Rio Cauca, Cauca; Puerto Bérrio, Rio Magdalena; Buena Vista, above Villavicencio; Barbacoa, Narina; Gavia, Don Diego, Santa Marta, Bonda, and Mametoco, Santa Marta; Ambalema, Tolima; Remedios, Antioquia; Cucuta; Bogotá), and southward through Ecuador (Salidero; Rio Napo; Sarayacu; Babahoyo; Cachaví; Gualaquiza; Foreste del Rio Peripa), Peru (Rio Javarri; Rio Huallaga; La Mercéd; San Ramón; Lagunas; Xeberos; Cosnipata; Chamicuros; Yurimaguas), Venezuela (El Llqual, Caura; Munduapo, Orinoco Valley; Lagunita de Aroa; Guanoco; Cariaquito; Rio Guarapiche), Trinidad (Princetown), British Guiana (Demerara; Camacusa; Bartica Grove; Roraima; Merumé Mts.; Donza), French Guiana (Cayenne Mornes du Mahury), and Brazil (Barro de Rio Negro; Rio Purús; Rio Juruá; Rio Tocantins; Rio Solimões; Santarém; Diamantina, and Pará, lower Amazon Valley; São Paulo; Maranhão; Novo Fribourgo; Chapada, Mattogrosso) to Bolivia (lower Rio Beni; Pillón) and northern Argentina (Tucumán).

[*Psittacus*] *menstruus* LINNÆUS, Syst. Nat., ed. 12 i, 1766, 148 (Surinam; based on *Psittacus guianensis cyanocephalus* Brisson, Orn., iv, 247; *Blue-headed Parrot* Edwards, Gleanings, 226, pl. 314).—GMELIN, Syst. Nat., i, 1788, 345.—LATHAM, Index Orn., i, 1790, 113.

*Psittacus menstruus* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 252, 711.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 331.—KÜHL, Consp. Psitt., 1820, 72.—SPIX, Av. Bras., i, 1824, 46 (Rio Solimões, Brazil).—HAHN, Orn. Atlas, Papag., 1836, pl. 44.—BREHM, Mon. Papag., 1842, pl. 48 (not pl. 61).—LÉOTAUD, Ois. Trinidad, 1866, 329.—GRAY, List. Birds Brit. Mus., Psittacidae, 1859, 75 (South America; Rio Javarri).

*Psittacus menstruus* BECHSTEIN, Kurze Uebers., 1811, 91.—LICHTENSTEIN, Verz. Doubl., 1823, 6 (Brazil).

*Psittacus menstruus* GRAY, Gen. Birds, ii, 1846, 421.—CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 723.

*Psittacus menstruis* [typ. error] TEMMINCK, Cat. Syst., 1807, 32.

*Pionus menstruus* BONAPARTE, Rev. et. Mag. de Zool., (2) vi, 1854, 148 (monogr.).—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 190; Journ. für Orn., 1860, 243 (Tucumán, Argentina).—SCLATER, Proc. Zool. Soc. Lond., 1857, 19 (Bogotá and Santa Marta, Colombia; Barro do Rio Negro, n. w. Brazil), 266 (Rio Javarri, e. Peru); 1858, 460; 1860, 287 (Babahoyo, w. Ecuador); Cat. Am. Birds, 1862, 354 (Barro do Rio Negro, n. Brazil; Bogotá).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 368 (Panama), 1867, 753 (Xeberos, e. Peru), 588 (Rio Tocantins, Brazil); 1873, 186 (Cosnipata, Peru); 1879, 538 (Remedios, Antioquia, Colombia; descr. nest and eggs), 634 (Pillón, Bolivia).—SALVIN, Proc. Zool. Soc. Lond., 1867, 158 (Santa Fe and Santiago, Veragua, w. Panama); 1870, 214 (Calobre, Mina de Chorchá, and Bugaba, Veragua); Ibis, 1871, 95 (Central American range); 1886, 69

- (Bartica Grove, Camacusa, Merume Mts., and Roraima, Brit. Guiana).—BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 119 (Babahoyo, w. Ecuador); Journ. für Orn., 1889, 317 (Yurimaguas, n. e. Peru; crit.); Novit. Zool., xv, 1908, 286 (Cayenne).—TACZANOWSKI, Orn. du Pérou, iii, 1886, 218.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 124 (Costa Rica).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 104 (lower Rio Beni, Bolivia; voice); v, 1893, 141 (Chapada, Mattogrosso, w. Brazil).—RIKER, Auk, viii, 1891, 160 (Santarem, lower Amazon).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 322 (Bugaba, Santa Fe, Calobre, Chepo, and Panama, Panama; Bogota, Colombia; Sarayacu, e. Ecuador; Rio Javarri and Cosnipata, e. Peru; Roraima and Bartica Grove, Br. Guiana; Barro do Rio Negro, Rio Tocantins, Chapada, and Maranh, Brazil; Pillon, Bolivia); Ibis, 1906, 650 (crit.; additional references).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 66 (Trinidad).—KOENIGSWALD, Journ. für Orn., 1896, 381 (São Paulo, s. Brazil).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 595 (Bugaba, Mina de Chorchá, Santa Fe de Veragua, Calobre, Lion Hill, and Chepo, Panama; Colombia to Guiana, Amazon Valley, Peru, and Bolivia).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 132 (Santa Marta, Colombia).—HARTERT, Novit. Zool., v, 1898, 500 (Cachavi, n. w. Ecuador, 500 ft.; descr. young; nesting date).—STONE, Proc. Ac. Nat. Sci. Phila., 1899, 304 (Ambalema, centr. Colombia).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, no. 368, 26 (Gualaquiza, e. Ecuador; Babahoyo and Foreste del Rio Peripa, w. Ecuador; crit.).—IHERING, Revista Mus. Paulista, iv, 1900, 162 (Novo Fribourgo, s. Brazil); iv, 1904, 449 (Rio Jurua, Brazil).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1902, 40 (La Merced, Peru).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 110 (Munduapó, etc., Orinoco Valley, Venezuela).—GOODFELLOW, Ibis, 1902, 219 (Rio Napo, e. Ecuador).—MENEGAUX, Bull. Mus. d'Hist. Nat. Paris, 1904, 107 (Mornes du Mahury, French Guiana).—HELLMAYR, Novit. Zool., xii, 1905, 302 (near Para, Brazil); xiii, 1906, 44 (Trinidad).—SNETHLAGE, Journ. für Orn., 1908, 22 (Rio Purus, w. Brazil); Boll. Mus. Goeldi, v, 1908, 66 (Rio Purus).—BEEBE, Zoologica, i, 1909, 84 (Rio Guarapiche, n. e. Venezuela).
- P[ionus] menstruus* WAGLER, Mon. Psitt., 1832, 602, 719.
- [*Pionus*] *menstruus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 114.—FORBES and ROBINSON, Bull. Liverp. Mus., i, 1897, 14 (Panama; Bolivia).—SHARPE, Hand-list, ii, 1900, 22.
- Pionius menstruus* LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 299 (Lion Hill, Panama).
- Pionias menstruus* FINSCH, Die Papag., ii, 1868, 441; Proc. Zool. Soc. Lond., 1870, 586 (Trinidad).—PELZELN, Orn. Bras., 1870, 264.—REICHENOW, Journ. für Orn., 1881, 362; Cons. Psitt., 1882, 202.
- [*Pionias*] *menstruus* PELZELN, Orn. Bras., 1870, 447.
- Pionus menstrea* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1873, 300 (Xeberos, Chamicuros, and Rio Javarri, e. Peru).
- Amazona menstrea* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 60; no. 38 (Revue), 1874, 28.
- Psittacus cyanocephalus* SCOPOLI, Ann. Hist. Nat., 1769, 33 (no locality mentioned; coll. Mus. Turrianum).
- Psittacus cyanogula* BODDAERT, Tabl. Pl. Enl., 1783, 23 (Guiana; based on *Perroquet à tête bleue, de la Guiana* Daubenton, Pl. Enl., pl. 384; *Le Papagei à tête & gorge bleue* Buffon, Hist. Nat. Ois., vi, 243).
- Psittacus cobaltinus* MASSENA and SOUANCÉ, Rev. et Mag. de Zool., Feb., 1854, 74 (Colombia).
- Ps[ittacus] cobaltinus* BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 147 (crit.).

- Pionus cobaltinus* BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 148 (monogr).—  
SCLATER, Proc. Zool. Soc. Lond., 1855, 163 (Bogota, Colombia).  
[*Pionus*] *cobaltinus* SHARPE, Hand-list, ii, 1900, 22 (Colombia).  
*P[sittacus]* *maximiliani* (not of Kuhl) CABANIS, in Schomburgk's Reis. Brit.  
Guiana, iii, 1848, 723.  
*Psittacus maximiliani* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 75, part (in  
synonymy).  
*Pionus maximiliani* (not of Kuhl) SOUANCÉ, Rev. et Mag. de Zool., 1856, 155;  
Icon. Perr., 1858, pl. 34, fig. 2.  
*Pionus rubrigularis* CABANIS, Journ. für Orn., April, 1881, 22, in text ("Central  
Amerika"); 1882, 119 (crit.); Orn. Centralb., no. 9, May 1, 1881, 70, in text.  
*Pionus menstruus rubrigularis* CABANIS, Journ. für Orn., April, 1881, 222, in text;  
Orn. Centralb., no. 9, May 1, 1881, 70, in text.—BANGS, Proc. New Engl.  
Zool. Club, ii, 1900, 16 (Loma del Leon, Panama; crit.); iii, 1902, 25 (Bugaba,  
Chiriquí, w. Panama); Auk, xviii, 1901, 359 (Divala and David, Chiriquí,  
w. Panama).  
[*Pionus menstruus*.] Subspecies: *rubrigularis* REICHENOW, Journ. für Orn.,  
1881, 362 (monogr.); Consp. Psitt., 1882, 202.

### PIONUS SENLIS (Spix).

#### WHITE-CROWNED PARROT.

*Adult male*.—Forehead, crown, and upper half of loreal region immaculate white (usually more or less soiled); rest of head, except chin and throat, dark bluish green, the feathers narrowly margined with bluish black, producing a squamate effect; hindneck similar, but ground color less bluish green; back, scapulars, proximal secondaries, and proximal greater wing-coverts olivaceous green (dark oil green), the feathers narrowly margined with black, especially on upper back; rump and upper tail coverts bright parrot green; lesser wing-coverts greenish olive or olive-green to raw-umber brown on exposed portion (oil green on concealed part), more or less distinctly tipped with paler (at least the more anterior coverts), the middle coverts oil green passing into olive-green, greenish olive, or brownish terminally; distal greater coverts and secondaries blue (deep cobalt or paris blue) next to shaft, passing into green on edge of outer web; primaries rich smalt blue, passing into greenish blue on tip and narrowly edged with light (cerulean) blue, the outer webs of longer primaries passing into green distally; middle pair of rectrices bright parrot green, passing into blue on median terminal portion; remaining rectrices dark blue on outer webs, the inner webs pure poppy red for more than proximal half, the distal portion dark blue, passing into green on edge; chin and upper throat dull white, sometimes suffused with pale red or pinkish on lower portion; chest and breast bluish green broadly barred with dull dark blue (the latter on tips of the feathers, the former as a subterminal band); sides, flanks, and abdomen green, the last, however, usually (always in full plumage?) broken by broad bluish tips to the feathers, at least on upper portion; posterior portion of thighs white; under

tail-coverts light vermilion red or dull geranium red, with dusky shaft-streaks and margined terminally (more or less distinctly) with bluish or greenish; under wing-coverts bluish green, sometimes tipped with blue; under primary coverts and under surface of remiges bluish green (malachite), the primaries with a broad stripe of slate-black along shaft; bill dull light greenish yellow (in life), the tip of maxilla whitish; cere light ochraceous-brown; naked orbital space brick red; iris brown; feet deep ochraceous-yellow;<sup>a</sup> length (skins), 220-247 (234); wing, 169-180.5 (175.8); tail, 67-79.5 (73.7); culmen, 24-26.5 (24.9); tarsus, 18-19.5 (18.7); outer anterior toe, 22-24.5 (23.5).<sup>b</sup>

*Adult female*.—Similar to the adult male, but distinctly duller in color, the blue of head, chest, and breast much less pronounced, usually confined to bars on chest (and there much duller) the bars narrower and never(?) continued to abdomen; length (skins), 215-245 (230); wing, 166-177.5 (172.9); tail, 67.5-74 (70.8); culmen 22-24 (23.5); tarsus, 18-19 (18.5); outer anterior toe, 22.5-23.5 (23.1).<sup>c</sup>

*Immature male*.—Similar to adult female.

*Young*.—Forehead and crown dull green, the feathers of the former edged with dull white, those of the latter tipped with light paris green; a dull white supraloral spot or broad streak; rest of head, together with neck (except throat) dull green (nearly bice green), the chest and other under parts similar but slightly paler; chin and throat dull white, with narrow shaft-streaks of dusky; under tail-coverts light yellowish green medially (broadly) and terminally with an elongated spot of pale red on each web; lesser wing-coverts nearly uniform oil green; otherwise essentially as in adults.

Southeastern Mexico, in States of Vera Cruz (Miradór; Córdoba; Potrero, near Córdoba; Orizaba; Motzorongo; Cuesta de Misantla),

<sup>a</sup> Fresh colors of specimens shot by the author in Costa Rica. According to Richmond (Proc. U. S. Nat. Mus., xvi, p. 519) the iris is orange, thus indicating considerable variation.

<sup>b</sup> Thirteen specimens.

<sup>c</sup> Nine specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Ten adult males from Costa Rica.....	175.7	73.7	24.9	18.7	23.4
One adult male from Nicaragua.....	174	73	25	18.5	23.5
One adult male from Honduras.....	175.5	70	25.5	19	23.5
One adult male from Vera Cruz (Motzorongo).....	178	78	24	18	23.5
FEMALES.					
Eight adult females from Costa Rica.....	173.6	70.9	23.5	18.4	23.1
One adult female from Nicaragua.....	167	69.5	23.5	19	23

Oaxaca (Villa Alta), and Yucatán (Xcopén and Camp Mengel, Quintana Roo), and southward through Guatemala (Cobán; Chiséc; Choctúm; Lanquín; Gualán; Santo Tomás), British Honduras (Belize; Orange Walk), Honduras (San Pedro; Santa Ana; Céiba; Rio Segóvia), and Nicaragua (Greytown; Rio Escondido; La Libertad; Rama; San Emilio), to Costa Rica (Angostura; San José; Tucurriqui; Alajuela; Zarcero de Alajuela; Las Trojas; Jiménez; Orosí; Monte Redondo; Guápiles; Guácimo; Bonilla; Guayabo; San Carlos; Sipúrio, Talamanca; Barranca; Pozo Azul de Pirris; Boruca; Lagarto; Paso Real; Buenos Aires; El General).

*Psittacus senilis* SPIX, Av. Bras., i, 1824, 42, pl. 31, fig. 1 (no locality; coll. Munich Mus.).—KÜSTER, Orn. Atlas, Papag., 1836, 79, pl. 59.—BOURJOT, Perr., 1837-'38, pl. 60.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 75.

*P[sittacus] senilis* GRAY, Gen. Birds, ii, 1846, 421.

*P[ionus] senilis* WAGLER, Mon. Psitt., 1832, 604, 720.

*Pionus senilis* BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 148 (monogr.); Naumannia, 1856 (Consp. Psitt., no. 119).—SOUANÉ, Rev. et Mag. de Zool., 1856, 155.—SCLATER, Proc. Zool. Soc. Lond., 1856, 306 (Cordova, Vera Cruz; crit.); 1857, 230, in text (s. Mexico); Cat. Am. Birds, 1862, 355 (Mexico).—SCLATER and SALVIN, Ibis, 1859, 138 (Guatemala); Proc. Zool. Soc. Lond., 1870, 837 (Honduras).—CABANIS, Journ. für Orn., 1862, 335 (Costa Rica; crit.).—FRANTZIUS, Journ. für Orn., 1869, 366 (Costa Rica).—SUMCHRAST, Mem. Bost. Soc. N. H., i, 1869, 561 (temperate zone, Vera Cruz).—SALVIN, Ibis, 1871, 95 (Middle American range).—BOUCARD, Liste Ois. récol. Guatemala, 1878, 23; Proc. Zool. Soc. Lond., 1878, 46 (San Carlos, Costa Rica).—ZELDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica).—RIDGWAY, Condor, vii, 1905, 156, in text (Bonilla, Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 331 (Cuesta de Misantla and Mirador, Vera Cruz; Villa Alta, Oaxaca; Choctum, Chisec, and Coban, Guatemala; Orange Walk and Belize, Brit. Honduras; Honduras; Angostura and San José, Costa Rica); Ibis, 1906, 650.—CHERRIE, Expl. Zool. Merid. Costa Rica, 1893, 49 (Lagarto, Boruca, and Buenos Aires, s. w. Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 519 (Rio Escondido, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 595 (Mirador, Potrero, Orizaba, etc., Vera Cruz; Lanquin, etc., Guatemala; San Pedro, Honduras; La Libertad, Rama, San Emilio, Greytown, etc., Nicaragua; Alajuela, Zarcero de Alajuela, Las Trojas, Barranca, Jimenez, Monte Redondo, Orosi, Tucurriqui, etc., Costa Rica).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 220 (Santo Tomas, Guatemala).—BANGS, Bull. Mus. Comp. Zool., xxxix, 1903, 143 (Ceiba, Honduras); Auk, xxiv, 1907, 292 (Paso Real, s. w. Costa Rica).—HELLMAYR, Abh. K. B. Ak. Wiss., ii Kl., xxii Bd., iii Abt., 1905, 590 (crit.).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 86 (Gualan, Guatemala).—FERRY, Pub. 146, Field Mus. N. H., 1910, 262 (Guayabo, Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 489 (Pozo Azul de Pirris, El General de Terraba, Guacimo, Guapiles, Boruca, etc., Costa Rica; habits).—PETERS, Auk, xxx, 1913, 573 (Xcopan and Camp Mengel, Quintana Roo, Yucatan).—*[Pionus] senilis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 114.—SCLATER, Rowley's Orn. Misc., iii, 1877, 6.—SHARPE, Hand-list, ii, 1900, 23.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14 ("Mexico").  
*P[ionus] senilis* SCLATER, in Rowley's Orn. Misc., iii, 1877, 7 (range).

- Pionius senilis* LAWRENCE, Ann. Lyc., N. Y., viii, 1867, 184 (Greytown, Nicaragua); ix, 1868, 131 (San Jose and Barranca, Costa Rica).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 124 (Alajuela, Zarcero de Alajuela, Las Trojas, Barranca, Jimenez, and Monte Redondo, Costa Rica.)
- Pionias senilis* FINSCH, Die Papag., ii, 1868, 460.—PELZELN, Orn. Bras., 1870, 264, footnote.—REICHENOW, Journ. für Orn., 1881, 364 (monogr.); Consp. Psitt., 1882, 204; Vogelbild., 1880, pl. 10, fig. 6.—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 592 (Rio Segovia, Honduras).
- Amazona senilis* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 62; no. 38 (Revue), 1874, 29.
- Psittacus leucorhynchus* SWAINSON, Philos. Mag., n. s., i, no. 6, June, 1827, 438 (purchased in city of Mexico; coll. Bullock).

## Genus AMAZONA Lesson.

- Amazona* LESSON, Traité d' Orn., 1831, 189. (Type, *Psittacus pulverulentus* Gmelin=*P. farinosus* Boddaert.)
- Chrysotis* SWAINSON, Classif. Birds, ii, 1837, 300. (Type, *Psittacus æstivus* Gmelin=*P. amazonicus* Linnæus.)
- Androglossa* "Vigors, Zool. Journ., ii [1825], p. 400" REICHENOW, Journ. für Orn., 1881, 365. (Type, *Psittacus farinosus* Boddaert.)
- Enochrus* BONAPARTE, Rev. et Mag. de Zool., (2) vi, 1854, 151. (Type, as fixed by Gray, *Psittacus vinaceus* Kuhl.)
- Onochrus* (emendation) BONAPARTE, Naumannia, 1856, Consp. Psittacorum, genus 22.

Medium sized or rather small to large, short-tailed Psittacidae (length about 235–460 mm.) closely resembling *Pionus* but with tail not less than half nor as much as two-thirds as long as wing, slightly rounded, the rectrices broadly rounded at tip; feathers of neck (especially hindneck) long and broad (to a greater or less degree), sometimes developed into a distinct erectile ruff, and with under tail-coverts never red but wing usually with red either on distal secondaries, primary coverts, or some part of anterior margin.

Bill much shorter than head, much deeper than long; culmen slightly shorter to much longer than outer front toe without claw, regularly and strongly decurved from base, more or less broadly flattened (except terminally), the flattened summit sometimes distinctly ridged laterally; depth of maxilla at base equal to or slightly less than its width, and slightly less than half to nearly two-thirds the length of culmen; maxillary unguis variable as to relative length but usually longer than wide (wider than long in *A. agilis*), never acute at tip, the distinctly ridged palatal surface usually slightly hollowed (sometimes nearly flat) but occasionally (in *A. agilis*) deeply excavated; maxillary tomium with a more or less broad and deep post-ungual notch (shallow rounded sinus or concave incision in *A. agilis* and *A. xantholora*) preceded by a more or less prominent (usually obtusely and broadly angular) projection; depth of mandible at base equal to less (usually much less) than length of gonys, much less than its width, the width of the more or less rounded to nearly flat tip less (usually decidedly less) than half the length of gonys; mandibular tomium with a broad, more or less deep sub-terminal concave excision, the proximal portion usually more or less

convex but sometimes straight. Anterior outline of cere strongly sinuated, the upper (prenasal) portion strongly convex, the lower part concave and drawn backward nearly or quite to the loreal feathering; cere with at least the circumnasal portion naked, often with small bristles or minute, scattered, feathers beneath or in front of nostrils. Wing rather large and rounded, the longest primaries exceeding distal secondaries by one-fourth to (rarely) one-third the length of wing; seventh, eighth, and ninth, eighth and ninth, or seventh and eighth primaries longest, the tenth (outermost) not longer than seventh, sometimes (in *A. imperialis*) shorter than fifth. Tail half as long as wing (*A. xantholora*) to more than three-fifths as long (*A. imperialis*), very slightly to distinctly rounded, the rectrices broadly rounded at tip. Tarsus shorter than outer hind toe without claw.

*Plumage and coloration.*—Head normally feathered except orbital region (sometimes including posterior portion of lores), cere (at least circumnasal portion), chin, and extreme anterior portion of malar region (the latter concealed by feathering of cheeks); feathers of head sometimes blended, sometimes distinctly indicated; feathers of neck decidedly longer and broader than those of head, sometimes (as in *A. vinacea* and *A. imperialis*) greatly developed, forming a conspicuous erectile ruff. Coloration very variable, but prevailing color usually green, this always relieved by red on some part of the plumage (never on under tail-coverts); inner webs of rectrices usually with more or less of red on proximal portion of inner webs; wings sometimes without any red, but usually the distal secondaries red with dark blue tip, forming a conspicuous "speculum"; one species with lower back and rump red, another with prevailing colors orange-brown and yellow.

*Range.*—Whole of Tropical America, except Galapagos Islands and part of the West Indies. (Nearly fifty species.)<sup>a</sup>

KEY TO THE SPECIES AND SUBSPECIES OF AMAZONA.

- a. Outer webs of distal secondaries with basal half (approximately) red or orange.
- b. Bend of wing without more than a trace of red or yellow, usually with none.
- c. Tail dark purplish brown, including inner webs of rectrices; under parts of body purplish; neck blackish.
- d. Without yellow on wings. (Dominica, Lesser Antilles.)

*Amazona imperialis* (p. 222).

<sup>a</sup> The above generic description is based on examination and comparison of a majority of the known species, among which the variations in details of form, etc., are very considerable. It is possible that the genus, as generally accepted, may require subdivision; but I have not been able to do this satisfactorily. There certainly is a great difference between the great *A. imperialis*, larger than some *Butorces*, with its well-defined neck-ruff and the little *A. xantholora*, smaller than most species of *Pionus*; or between either of these and many other species. *A. agilis* is peculiar in its short and broad-tipped bill, while *A. vinacea*, with its very conspicuous neck-ruff is approached in this character only by *A. imperialis*. Evidently some one who is able to get all the species of this group together would find a critical investigation of the matter interesting, at least.



dd. With yellow on wings. (Guadeloupe, Lesser Antilles; extinct.)

*Amazona violacea* (p. 224).

cc. Tail not purplish brown; under parts not purplish; neck not blackish.

d. Plumage more or less orange-brown, at least on under parts; tail crossed by a broad middle band of blue and green, a broad basal band of orange, and a terminal one of yellow. (Island of St. Vincent, Lesser Antilles.)

*Amazona guildingii* (p. 225).

dd. Plumage without any orange-brown; tail not colored as above.

e. Inner webs of rectrices with more or less of red on basal portion.

f. Cheeks (as well as forehead, etc.) and under surface of remiges blue, or greenish blue; foreneck with more or less of red.

g. Primary coverts blue; under parts of body strongly suffused or intermixed with light brownish red. (Island of Santa Lucia, Lesser Antilles.).....*Amazona versicolor* (p. 227).

gg. Primary coverts green; under parts of body wholly green.

h. Pileum green, passing into deep blue on forehead. (Dominica, Lesser Antilles.).....*Amazona arausiaca* (p. 229).

hh. Pileum slate color, with some red on crown. (Martinique, Lesser Antilles; extinct.).....*Amazona martinicana* (p. 231).

ff. Cheeks green or yellow; under surface of remiges green or bluish green.

g. Outer webs of distal secondaries and inner webs of outer rectrices red, proximally.

h. Forehead without red (bluish green, sometimes with a yellow median spot); adults with a yellow nuchal patch. (Southern Mexico to Costa Rica.).....*Amazona auripalliata* (p. 231).

hh. Forehead red; no yellow on forehead nor nape. (*Amazona autumnalis*.)

i. Suborbital region yellow (rarely red). (Southeastern Mexico to southern Honduras.)

*Amazona autumnalis autumnalis*, adults (p. 234).

ii. Suborbital region green.

j. Red on basal portion of inner webs of rectrices reduced, indistinct, except on outermost.

*Amazona autumnalis autumnalis*, young (p. 235).

jj. Red on inner webs of rectrices distinct. (Nicaragua to northern Colombia.).....*Amazona autumnalis salvini* (p. 237).

gg. Outer webs of distal secondaries and inner webs of lateral rectrices orange, proximally. (Colombia to the Guianas, Trinidad, and Amazon Valley.).....*Amazona amazonica* (extralimital).<sup>a</sup>

<sup>a</sup> [*Psittacus*] *amazonicus* Linnæus, Syst. Nat., ed. 12, i, 1766, 147 (Surinam; based on *Psittacus amazonicus* Brisson, Orn., iv, 257; *Psittacus viridis, capite luteo, fronte cærulea*, Fritsch, Av., pl. 47; *Ajurucuruva*, 2, Margrave, Bras., 205; Willughby, Orn., 76; Ray, Av. 33).—*Psittacus amazonicus* Spix, Av. Bras., i, 1824, 45; Brehm, Mon. Papag., 1842, 41, pl. 50.—*Chrysotis*] *amazonicus* Gray, Gen. Birds, ii, 1846, 422.—*Chrysotis*] *amazonica* Bonaparte, Rev. et Mag. de Zool., 1854, 151.—*Chrysotis amazonica* Gray, List Birds Brit. Mus., Psittacidae, 1859, 78 (Bogota, Colombia, Trinidad); Finsch, Die Papag., ii, 1868, 570; Reichenow, Vogelbild., 1878, pl. 1, fig. 6; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 283.—*Amazona amazonica* Schlegel, Mus. Pays-Bas, Psittaci, 1864, '53; Revue, 1874, 27.—*Androglossus*] *amazonicus* Sundeval, Meth. Nat. Av. Disp. Tent., 1872, 69.—*Androglossa amazonica* Reichenow, Journ. für Orn., 1881, 377 (monogr.); Consp. Psitt., 1882, 217.—*Psittacus amazonius* Selby, Naturalists' Libr., Parrots, 1836, 103.—*Psittacus amazonius* Schlegel, Die Dierent., 1864, 65.—*Psittacus*] *luteus* (not of Boddaert, 1783) Gmelin, Syst. Nat., i, pt. i, 1788, 341 ("America meridionali"; based on *Yellow-shouldered Parrot* Latham, Synopsis Birds, i, pt. i, 288).—*Psittacus*] *luteolus* Latham, Index Orn., i, 1790, 123 (new name for *P. luteus* Gmelin).

- ee. Inner webs of rectrices without red near base.<sup>a</sup>
- f. Larger (wing 233–268 mm.); no red on forehead, and no black terminal margins to feathers of under parts. (*Amazona farinosa*.)
- g. Pileum green (sometimes more or less tinged with blue or violet).
- h. Carpo-metacarpal edge of wing with distinct red line.
- i. Forehead usually (?) with more or less of yellow. (Guianas to eastern Brazil.) . . . . *Amazona farinosa farinosa* (extralimital).<sup>b</sup>
- ii. Forehead wholly green. (Eastern Panama to eastern Ecuador, and eastern Peru; Bolivia ?)
- Amazona farinosa inornata* (p. 239).
- hh. Carpo-metacarpal edge of wing without more than a trace of red (usually with none). (Western Panama to Nicaragua.)
- Amazona farinosa virenticeps* (p. 240).
- gg. Pileum blue, in conspicuous contrast with the general green color. (Guatemala to southern Mexico.)
- Amazona farinosa guatemalæ* (p. 241).
- ff. Smaller (wing 192–224 mm.); forehead red; under parts with black terminal margins to feathers.
- g. Forehead and crown bright red. (Northeastern Mexico.)
- Amazona viridigenalis* (p. 242).
- gg. Forehead (only) red; crown green, or green and lilac.
- h. Feathers of crown without lilac or pale violet-blue margins; forehead brighter red. . . . . *Amazona viridigenalis*, young (p. 243).
- hh. Feathers of crown (also occiput and nape) margined with lilac or pale bluish; forehead darker red. (Western Mexico.)
- Amazona finschi* (p. 244).
- bb. Bend of wing conspicuously red or yellow.
- c. Bend of wing red.
- d. Superciliary region yellow (whole head and neck yellow in adults). (*Amazona oratrix*.)
- e. Green of under parts more yellowish; bill narrower (transversely), especially the mandible. (Mexico to southern Honduras.)
- Amazona oratrix oratrix* (p. 246).
- ce. Green of under parts less yellowish; bill broader (transversely), especially the mandible. (Tres Marias Islands, western Mexico.)
- Amazona oratrix tresmariae* (p. 249).

<sup>a</sup> Sometimes there is a little red (usually a mere touch) beyond the middle portion, or on the proximal portion of the lighter green distal half; its position being thus essentially different from that in species of the foregoing group.

<sup>b</sup> *Psittacus farinosus* Boddaert, Tabl. Pl. Enl., Dec. 1, 1783, 52 (Cayenne; based on *Le Perroquet Meunier de Cayenne* Daubenton, Pl. Enl., pl. 861).—*[Chrysotis] farinosus* Gray, Gen. Birds, ii, 1846, 422.—*Chrysotis farinosa* Gray, List Birds Brit. Mus., Psittacidae, 1859, 77; Finsch, Die Papag., ii, 1868, 565; Reichenow, Vogelbild., 1881, pl. 19, fig. 1; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 280.—*Amazona farinosa* Schlegel, Mus. Pays-Bas, Psittaci, 1864, 52; Revue, 1874, 27.—*Androglossa farinosa* Reichenow, Journ. für Orn., 1881, 368 (monogr.); Consp. Psitt., 1882, 203.—*[Psittacus] pulverulentus* Gmelin, Syst. Nat., i, pt. i, 1788, 341 (Cayenne; based on *Meunier ou Crick poudré* Buffon, Hist. Nat. Ois., vi, 225; *Meunier de Cayenne* Daubenton, Pl. Enl., pl. 861; *Meally Green Parrot* Latham, Synopsis Birds, i, pt. i, 291); Latham, Index Orn., i, 1790, 123.—*Psittacus pulverulentus* Kuhl, Consp. Psitt., 1820, 81; Brehm, Mon. Papag., 1842, 34, pl. 45.—*[Chrysotis] pulverulentus* Swainson, Classif. Birds, ii, 1837, 301.—*[Chrysotis] pulverulenta* Bonaparte, Rev. et Mag. de Zool., 1854, 151.

dd. Superciliary region green. (*Amazona ochrocephala*.)

e. Yellow of crown not involving forehead, the latter green; larger (wing 206.5-224, tail 108.5-126). (Colombia to eastern Peru, Venezuela, and Trinidad.).....*Amazona ochrocephala ochrocephala* (extralimital).<sup>a</sup>

ee. Yellow of crown involving whole of forehead; smaller (wing 194.5-213, tail 99-112 mm.). (Northern Colombia to western Panama.)

*Amazona ochrocephala panamensis* (p. 249).

cc. Bend of wing yellow. (*Amazona barbadensis*.)

d. Cheeks wholly yellow; yellow of crown little, if any, tinged with red; tail shorter (109.5-123 mm.). (Venezuela; island of Aruba, Dutch West Indies.).....*Amazona barbadensis barbadensis* (p. 251).

dd. Cheeks partly green; yellow of crown much tinged with red; tail longer (124-142.5 mm.). (Island of Bonaire, Dutch West Indies; islands of Blanquilla and Margarita, Venezuela.)

*Amazona barbadensis rothschildi* (p. 253).

aa. Outer webs of distal secondaries wholly green, or blue and green.

b. Primary coverts red, at least in part.

c. Forehead (sometimes anterior part of crown also) white; orbital region red.

d. Lores wholly red; forehead wholly white; auricular region green; anterior under parts (only), faintly barred or squamated with black. (*Amazona albifrons*.)

e. Green color more yellowish.

f. Larger (wing averaging 183.9 in male, 178.2 in female; tail 94.9 in male, 89.6 in female). (Southwestern Mexico, from Sinaloa to Oaxaca.)

*Amazona albifrons albifrons* (p. 254).

ff. Smaller (wing averaging 166.5 in male, 162.5 in female; tail 79.6 in male, 76.3 in female). (Yucatan and Guatemala to western Costa Rica.)

*Amazona albifrons nana* (p. 257).

ee. Green color more bluish. (Northwestern Mexico, in State of Sonora.)

*Amazona albifrons saltuensis* (p. 259).

dd. Lores and sides of forehead yellow; auricular region black; under parts heavily barred or squamated with black. (Yucatan, including Cozumel Island, and British Honduras.).....*Amazona xantholora*, adults (p. 260).

cc. Forehead without white; orbital region without red.

d. Bill yellow; feet light brownish; loreal region partly yellow; primaries green proximally; back heavily squamated with black.

*Amazona xantholora*, young (p. 261).

dd. Bill and feet blackish; loreal region without any yellow; primaries blue (edged with green) proximally. (Jamaica.)

*Amazona agilis*, adults (p. 262).

<sup>a</sup> [*Psittacus*] *ochrocephalus* Gmelin, Syst. Nat., i, pt. i, 1788, 339 ("America Australi"; based on *Psittacus amazonicus brasiliensis* Brisson, Orn., iv, 272; *Amazon à tête jaune* Buffon, Hist. Nat. Ois., vi, 208; *Yellow-headed Amazon Parrot* Latham, Synopsis Birds, i, pt. i, 282).—*Psittacus ochrocephalus* Cassin, in Gillis, U. S. Naval Astr. Exped., ii, 1855, 189, pl. 22.—[*Chrysotis*] *ochrocephala* Bonaparte, Rev. et Mag. de Zool., 1854, 151.—*Chrysotis ochrocephala* Gray, List Birds Brit. Mus., Psittacidae, 1859, 78 (Trinidad); Finsch, Die Papag., ii, 1868, 584; Salvadori, Cat. Birds Brit. Mus., xx, 1891, 289.—*Androglossa ochrocephala* Reichenow, Journ. für Orn., 1881, 378 (monogr.); Consp. Psitt., 1882, 218; Vogelbild., 1883, pl. 32, fig. 9.—*Psittacus flavifrons* Hermann, Obs. Zool., pars prior, March, 1804, 126 (no locality).—*Psittacus poikilorynchos* Shaw, Gen. Zool., viii, pt. ii, 1812, 491 (based on *Psittacus poikilorynchos* Aldrovandus, Orn.; *Yellow-headed Amazon Parrot* Latham).—[*Psittacus*] *poecilorhynchus* Wagler, Mon. Psitt., 1832, 581.—[*Chrysotis*] *poecilorhynchus* Gray, Gen. Birds, ii, 1846, 422.—[*Chrysotis*] *poecilorhyncha* Bonaparte, Rev. et Mag. de Zool., 1854, 151.

- bb. Primary coverts green or blue (no red whatever on wing).
- c. Bill and feet blackish; primary coverts green. *Amazona agilis*, young (p. 262).
- cc. Bill and feet pale brownish or buffy; primary coverts blue.
- d. Forehead red (no white on head). (*Amazona vittata*.)
- e. Larger (adult male averaging: Wing, 189.9; tail, 102.9; culmen, 27.9; tarsus, 21.8; outer anterior toe, 28.4). (Porto Rico.)
- Amazona vittata vittata* (p. 263).
- ee. Smaller (adult male averaging: Wing, 172.5; tail, 95.5; culmen, 26.7; tarsus, 20; anterior toe, 25.2). (Culebra Island.)
- Amazona vittata gracilipes* (p. 265).
- dd. Forehead white.
- e. White of forehead not involving crown; suborbital and rictal regions green.
- f. Throat green; lower abdomen purplish red. (Haiti.)
- Amazona ventralis* (p. 265).
- ff. Throat pale wine red (the feathers margined with green); no red on abdomen. (Jamaica.)..... *Amazona collaris* (p. 267).
- ee. White of forehead extended over crown; suborbital and rictal regions pinkish red or pink and white. (*Amazona leucocephala*.)
- f. Abdomen with a considerable area of purplish red; red of throat, etc., deeper (especially that on cheeks), and less extended posteriorly.
- g. General color parrot green; posterior crown and occiput more bluish green.
- h. Red of throat, etc., slightly paler, less extended posteriorly; purplish red of abdomen more restricted; smaller (wing 184-195.5, tail 99-115 mm.). (Cuba.)
- Amazona leucocephala leucocephala* (p. 269).
- hh. Red of throat, etc., deeper, more extended posteriorly; purplish red of abdomen more extended, often occupying whole of abdominal region and lower breast; larger (wing 187-205, tail 96-119.5 mm.). (Isle of Pines, near Cuba.)
- Amazona leucocephala palmarum* (p. 272.)
- gg. General color yellowish green, including posterior crown and occiput. (Cayman Islands, near Cuba.)
- Amazona leucocephala caymanensis* (p. 272.)
- ff. Abdomen with much less of purplish red, usually a mere trace, often with none; red of throat, etc., paler (especially on cheeks), and extended to sides of neck and upper chest; largest form (wing 196-220, tail 113-131 mm.). (Bahamas.)
- Amazona leucocephala bahamensis* (p. 273).

### AMAZONA IMPERIALIS Richmond.

#### IMPERIAL PARROT.

*Adult male*.—Feathers of head dark sooty brown, or dark sepia, basally, those of forehead tipped with light reddish brown, those of crown tipped (more broadly) with light bluish green (malachite), the nape uniform dull parrot green, narrowly margined at tip with black; feathers of cheeks tipped with light brownish red, those of the auricular region and posterior portion of malar region (hinder cheeks) with pale brownish red and pale bluish green; neck black, forming a conspicuous collar, the feathers barred subterminally (mostly beneath surface though exposed on foreneck) with green and dark violet-blue

(the latter between the green band and the black tip); back, scapulars, wings, rump, and upper tail-coverts bright parrot green (more yellowish green on secondaries and upper tail-coverts), the more anterior scapulars and interscapulars very narrowly and indistinctly margined terminally with black; two outermost (distal) secondaries with outer web largely dull red (between dull vermilion and poppy red), margined internally and terminally with dull brown and proximally with yellowish, the third with an elongated space of reddish brown on middle portion of outer web; longer primaries with distal half (approximately) blackish brown, faintly glossed (in part) with bronzy olive; tail with basal half (more or less) green, except lateral rectrices, the distal portion purplish brown, inclining to coppery bronze on outer webs in certain lights, rather indistinctly tipped with vinaceous or vinaceous-pink, the middle pair of rectrices with green on outer side of terminal portion on both webs; chest, breast and abdomen vinaceous-pink or light wine purple, glossed with lilac superficially, dusky olive glossed with bronze-greenish beneath surface, the feathers margined terminally with black, producing narrow bars; sides, flanks, and thighs green, the feathers glossed at tips with light greenish blue; under tail-coverts yellowish green with terminal portion more yellowish olive, the longer ones indistinctly margined at tip with bluish; under wing-coverts bright parrot green tipped with light bluish green or greenish blue; carpo-metacarpal edge of wing vermilion or poppy red; under surface of primaries clear parrot green, the primaries with distal half (more or less) and a space next to shaft dull blackish slate or slate-blackish; bill dark horn color, paler basally; iris red;<sup>a</sup> legs and feet dusky (brown in life);<sup>a</sup> length (skins), 463-512 (486); wing, 285-305 (292.7); tail, 173.5-182.5 (177.1); culmen, 36.5-41.5 (39.2); tarsus, 29-31.5 (30.9); outer anterior toe, 34.5-39 (36.4).<sup>b</sup>

*Adult female*.—Similar to the adult male and perhaps not always distinguishable, but apparently averaging slightly duller in coloration; length (skins), 455-470 (463); wing, 285-292 (289); tail, 162-186 (175.8); culmen, 36-39.5 (38.2); tarsus, 29.5-31 (30.2); outer anterior toe, 36-38 (37.2).<sup>c</sup>

Island of Dominica, Lesser Antilles (base of Morne Diablotin; Basinville; watershed between Lagon and Medville Hall).

*Psittacus havanensis* (not of Gmelin) KUHLE, *Consp. Psitt.*, 1820, 79 ("Mexico").

*Psittacus havanensis* WAGLER, *Mon. Psitt.*, 1832, 746.

*Psittacus augustus* (not of Shaw, 1792)<sup>d</sup> VIGORS, *Proc. Zool. Soc. Lond.*, part iv, no. xlv, Jan. 16, 1837, 80 ("South America," coll. Zool. Gardens, Lond.); *Isis*, 1838, 195.—BOURJOT, *Per.*, 1837-38, pl. 63.—GRAY, *Gen. Birds*, ii, 1846, pl. 104.—GULLIVER, *Proc. Zool. Soc. Lond.*, 1862, 102; 1875, 489.

<sup>a</sup> H. Selwyn-Branch, on labels of specimens.

<sup>b</sup> Eight specimens.

<sup>c</sup> Three specimens.

<sup>d</sup> = *Anodorhynchus hyacinthinus* (Latham) Gray.

- [Chrysotis] augustus* GRAY, Gen. Birds, ii, 1846, 422.  
*Chrysotis augustus* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 84.  
*Enochrus augustus* BONAPARTE, Rev. et Mag. de Zool., 1854, 151.  
*Amazona augustus* SCHLEGEL, Mus. Pays-Bas., iii, no. 26 (Psittaci), 1864, 50.  
*Chrysotis augusta* SCLATER, Proc. Zool. Soc. Lond., 1865, 437; 1871, 266; 1874, 324; 1889, 326, 327.—FINSCH, Die Papag., ii, 1868, 557.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 62 (habits, etc.).—OBER, Camps in Caribbees, 1880, 112.—CORY, Auk, iii, 1886, 461 (synonymy; descr.); Birds West Ind., 1889, 184.—MARSCHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 274 (Dominica; "St. Thomas"); Ibis, 1906, 642 (crit. nomencl.).  
*[Chrysotis] augusta* GRAY, Hand-list, ii, 1870, 165, no. 8345.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885, 20.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 13.  
*[Chrysotis] augusta* SCLATER, Proc. Zool. Soc. Lond., 1881, 627.  
*Amazona augusta* SCHLEGEL, Mus. Pays-Bas, iii, no. 38 (Revue), 1874, 26.—CORY, Cat. West Ind. Birds, 1892, 101, 133.—VERRILL (G. E.), Trans. Conn. Acad. Arts and Sci., viii, 1892, 327 (habits).  
*Androglossa augusta* REICHENOW, Journ. für Orn., 1881, 379 (monogr.); Consp. Psitt., 1882, 219; Vogelbild., 1883, pl. 32, fig. 7.  
*Chrysotis augusti* LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 487.  
*[Chrysotis] augusti* CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.  
*Amazona imperialis* RICHMOND, Auk, xvi, April, 1899, 186, in text (new name for *Psittacus augustus* Vigors, preoccupied; ex Ridgway, manuscript).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.  
*[Amazona] imperialis* SHARPE, Hand-list, ii, 1900, 20.—CLARK (A. II.), Auk, xxii, 1905, 344.

### AMAZONA VIOLACEA (Gmelin).

#### GADELOUPE PARROT.

"Nearest to *A. imperialis* of Dominica. Size large; head and under parts violet or slaty gray. Wings green, varied with red and yellow; longest quills black."<sup>a</sup> (Clark.)

Island of Guadeloupe, Lesser Antilles. (Extinct.)

- [Psittacus] violaceus* GMELIN, Syst. Nat., i, pt. 1, 1788, 337 (Guadeloupe; based on *Psittacus aquarum lupiarum insulæ* Brisson, iv, 302; *Le craik à tête violette* Buffon, Hist. Nat. Ois., vi, 233; *Le perroquet de la Guadeloupe* Dutertre, Hist. Gén. des Isles des Christophe, de la Guadeloupe, etc., 298).—LATHAM, Index Orn., i, 1790.  
*Amazona violacea* CLARK (A. H.), Auk, xxii, Oct., 1905, 343 (crit.), 344.—SALVADORI, Ibis, 1906, 651 (crit.; identifies it with *Deroptyus accipitrinus*).  
*Amazona violaceus* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, Nov. 1, 1905, 15.  
*Amazona violaceus* ROTHSCHILD, Extinct Birds, 1907, 57, pl. 17.  
*Psittacus violaceus* VIELLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 328 (Guadeloupe; "Martinique").

<sup>a</sup> Du Tertre's description indicates a bird similar in size and coloration to *A. imperialis*, but differing in having yellow on the proximal primaries. The plate in "Extinct Birds" (cited above), however, shows a very different looking bird—slate colored on head, neck, and under parts, the yellow on wing involving all of the *coverts*, except along the edge of the wing, which is red.

## AMAZONA GUILDINGII (Vigors).

## ST. VINCENT PARROT.

*Adults (sexes alike).*—Forehead, crown, lores, rictal region and suborbital region dull buffy white or cartridge buff, the posterior portion of crown tinged with orange-yellow, the occiput usually orange-yellow (between cadmium and light cadmium); nape olive-grayish glossed with blue, passing, through light olive-greenish, into light brownish olive tinged with orange-brown (snuff brown) on lower hindneck, the feathers narrowly tipped with black and (except those of extreme lower hindneck) with a concealed basal area of dull orange-yellow or yellow ocher, the black tips (forming bars) becoming gradually broader toward lower hindneck; back, scapulars, rump, upper tail-coverts, and lesser and middle wing-coverts deep orange-brown (nearly russet), narrowly margined terminally with black and with blackish shafts, the smaller coverts near bend of wing light grayish green; greater wing-coverts with outer webs dull brownish orange or ochraceous-tawny, with distal half (approximately) dusky dull olive-greenish, except along edge; primary-coverts dusky olive-greenish distally, dull orange proximally; five distal secondaries with proximal half of outer web pure cadmium orange, forming a conspicuous "speculum," the distal half black, tinged with blue and green next to the orange; proximal secondaries dusky bluish passing into dark greenish olive on the innermost ones, all, except the innermost ones, edged basally, more or less, with orange-yellowish; primaries dull black, faintly tinged with violet-blue, the basal portion of outer webs orange-yellow, forming a second brightly colored area; middle pair of rectrices light yellow basally, dull olive-yellowish terminally, the extensive middle area dusky violet-blue for distal half, dusky olive-green for proximal half, with yellowish olive between the dusky and the yellow of basal portion; remaining rectrices with basal third (approximately) deep cadmium orange, the middle third dusky, faintly glossed with violet-blue and greenish olive, the terminal third dull orange passing into dull olive-yellow on edges (broadly); cheeks (i. e., malar region, lower portion of suborbital region and anterior portion of auricular region) dull light orange-yellow, the auricular region deeper yellow, usually with feathers broadly tipped with pale grayish violet-blue, as are, usually, also those of the lower part of malar region; upper throat dull whitish, the lower throat with feathers orange-yellow basally, pale grayish violet-blue terminally, narrowly margined at tip with black; rest of under parts deep orange-brown or russet (the abdomen more olivaceous), each feather with a rather broad terminal margin of black, producing distinct bars; thighs olive-yellowish; under tail-coverts

orange-yellow, tinged or suffused with brownish orange and light olive-greenish; smaller under wing-coverts orange-tawny, those near edge of wing pale greenish, except on carpo-metacarpal edge, where pure orange, all (except the pure orange ones) very narrowly and indistinctly tipped with blackish; under primary coverts light yellow tinged with orange distally, the shafts and a terminal edging (broader and more extensive on outer web) dusky; under surface (inner webs) of remiges with an extensive proximal area of clear lemon or empire yellow, the remaining portion dull black, with a much smaller area of dull dark green interposed between the black and the yellow; bill dull light pinkish buffy, passing into pale horn color on maxillary unguis (in life, "light bluish gray at base, becoming ivory white at tip")<sup>a</sup> iris orange;<sup>a</sup> bare orbital space grayish anteriorly, bright blue posteriorly (in life);<sup>a</sup> legs and feet dull pale grayish olive (light bluish gray in life).<sup>a</sup>

*Immature?*<sup>b</sup>—Head and neck as in the plumage described above but with more of blue on sides of head; back, scapulars, wing-coverts, rump, and upper tail-coverts nearly uniform green, instead of orange-brown, the upper back, however, more or less washed with olive-brown, the feathers without black terminal margins, except, sometimes, the scapulars and interscapulars; basal portion of primaries (on both webs) green, instead of orange-yellow; under parts more or less washed with green, especially posterior to chest, the under tail-coverts, however, essentially as in the orange-brown plumage.

*Adult male*.—Length (skins), 395–418 (406); wing, 258–270 (265); tail, 154.5–166 (160.7); culmen, 34–36.5 (35.3); tarsus, 26–27.5 (26.7); outer anterior toe, 30.5–36 (33.6).<sup>c</sup>

*Adult female*.—Length (skins), 427–460 (443); wing, 257–282 (268); tail, 156–181 (168.2); culmen, 34.5–37 (35.7); tarsus, 24.5–27 (25.7); outer anterior toe, 33.5–38 (35.7).<sup>d</sup>

Island of St. Vincent, Lesser Antilles (Wallilibo; Barrovallie; Peters Hope).

*Psittacus guildingii* VIGORS, Proc. Zool. Soc. Lond., pt. iv, no. xlv, Jan. 16, 1837, 80 (St. Vincent, Lesser Antilles; coll. Zool. Soc. Lond.).—BOURJOT, Perr., 1837-'38, pl. 64.—FRASER, Zool. Typ., 1849, pl. 57.

[*Chrysotis*] *guildingi* BONAPARTE, Rev. et Mag. de Zool., 1854, 151 (Consp. Psitt., p. 8); Naumannia, 1856 (Consp. Psitt., no. 86).—GRAY, Hand-list, ii, 1870, 164, no. 8319.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 13 (type in Liverpool Mus.).

<sup>a</sup> A. H. Clark.

<sup>b</sup> Mr. Austin H. Clark (Proc. Bost. Soc. N. H., Vol. 32, 1905, 268, 269) considers this an immature plumage; but I strongly suspect that in reality it represents a dichromatic phase, my reasons for this being that none of five specimens examined shows the slightest evidence of immaturity in texture of the plumage or any other character.

<sup>c</sup> Six specimens.

<sup>d</sup> Three specimens.



- Chrysotis guildingi* BOLLE, Journ. für Orn., 1856, 170.—GRAY, List Birds Brit. Mus., Psitt., 1859, 80.—FINSCH, Die Papag., ii, 1868, 559.—SCLATER, Proc. Zool. Soc. Lond., 1874, 324; 1877, 683; 1879, 300; 1889, 327.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 193 (St. Vincent; habits; descr.); i, 1879, 487 (St. Vincent).—LESTER, Ibis, 1880, 42.—CORY, Auk, iii, 1886, 462 (synonymy; descr.); Birds West Ind., 1889, 185.—MARSHALL, Papag., 1889, 55.—TRISTRAM, Cat. Coll. Birds, 1889, 79.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 273; Ibis, 1906, 142.—LOWE, Ibis, 1909, 303.
- C[hrysotis] guildingi* SCLATER, Proc. Zool. Soc. Lond., 1881, 627.
- Amazona guildingii* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 49; no. 38 (Revuc), 1874, 26.—CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 267 (St. Vincent; descr. of plumages; habits); Auk, xxii, 1905, 344.
- Amazona guildingi* CORY, Cat. West Ind. Birds, 1892, 101, 134.—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15 (nearly extinct).
- [*Amazona*] *guildingi* SHARPE, Hand-list, ii, 1900, 20.
- Androglossa guildingi* REICHENOW, Jour. für Orn., 1881, 380 (monogr.); Consp. Psitt., 1882, 220; Vogelbild., 1883, Nachtr. 127.

### AMAZONA VERSICOLOR (Müller).

#### SANTA LUCÍA PARROT.

*Adult male*.—Forehead, lores, and suborbital region light violaceous blue (between azure and campanula—tending more to one or the other in different specimens), passing into more greenish (turquoise) blue on crown and posterior portion of suborbital region, the former with feathers tipped with black, the latter with narrow shaft-streaks of the same; occiput, nape, hindneck, back, scapulars, rump, and smaller wing-coverts yellowish parrot green, the feathers margined terminally with black, forming more or less distinct crescentic bars, widest on hindneck; greater wing-coverts and proximal secondaries yellowish parrot green without black terminal margins, the upper tail-coverts similar but much more yellowish green, approaching bright greenish yellow; outer webs of three outer or distal secondaries scarlet vermilion with distal third (approximately) passing through violaceous blue into black terminally, the fourth secondary with a smaller red area margined with green; primary coverts and basal portion of fifth to eighth primaries deep violet-blue edged with green; proximal (shorter) primaries deep violet-blue passing into black terminally, the longer primaries (fifth to eighth, inclusive) with the basal green and blue passing through violet-blue into black on terminal half (more or less), the outermost primary wholly black; tail with basal two-thirds (approximately) green and blue (the green largely predominating on middle rectrix, wholly absent from outer web of outermost one, except terminal portion), the terminal third (more or less) light yellowish green; basal portion of inner webs of three outer rectrices red passing into yellow on edges; foreneck and chest yellowish oil green, more or less suffused with red, especially on center of foreneck, where the red predominates, sometimes forming a conspicuous patch; breast and abdomen light brownish red; sides,

flanks, and thighs bright yellowish green, passing into still more yellowish green on under tail-coverts—all the feathers of the under parts (except under tail-coverts and thighs) margined terminally with black, forming rather broad bars; under wing-coverts bright yellowish green (often suffused with light brownish red), narrowly tipped with black; under primary coverts and under surface of remiges bright light bluish green (verdigris to beryl green), the primaries, however, with distal portion (extensively) and a broad space next to shaft blackish slate or dusky; bill dark horn color, more yellowish on sides of maxilla (beneath nostrils); iris reddish;<sup>a</sup> legs and feet brown;<sup>a</sup> length (skins), 415–432 (426); wing, 272–281 (277.7); tail, 163.5–176 (170.5); culmen, 32.5–36 (34.2); tarsus, 25.5–28 (27); outer anterior toe, 35–36 (35.7).<sup>b</sup>

*Adult female*.—Similar to the adult male and perhaps not always distinguishable, but apparently averaging decidedly duller in coloration; length (skins), 415–445 (428.3); wing, 269–283 (274); tail, 170–172 (170.7); culmen, 32–34.5 (33.2); tarsus, 25–27 (26.2); outer anterior toe, 35.5–36 (35.8).<sup>b</sup>

#### Island of Santa Lucía, Lesser Antilles.

*Psittacus versicolor* MÜLLER, Syst. Nat. Suppl., 1776, 78 ("Havana"; based on *Perroquet, de la Havane* Daubenton, Pl. Enl. pl. 360).—BECHSTEIN, Lathams Uebers. Vög., i, 1793, 209, 701.—TEMMINCK, Cat. Syst., 1807, 23 and note (app.), p. 6.—VIEILLOT, Nouv. Dict. d' Hist. Nat., xxv, 1817, 365.—KÜHL, Consp. Psitt., 1820, 22.—CASSIN, Proc. Ac. Nat. Sci., Phila., 1864, 240 (crit. nomencl.).

*Psittacus versicolor* BECHSTEIN, Kurze Uebers., 1811, 78.

[*Chrysotis*] *versicolor* GRAY, Hand-list, ii, 1870, 165, no. 8344.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20 (Santa Lucia).—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 13.

[*Chrysotis*] *versicolor* SCLATER, Proc. Zool. Soc. Lond., 1881, 627 (Santa Lucia).

*Chrysotis versicolor* SCLATER, Ibis, 1881, 414; 1889, 565; Proc. Zool. Soc. Lond., 1889, 327, 395.—CORY, Auk, iii, 1886, 463 (synonymy; descr.); Birds West Ind., 1889, 186.—MARSHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 276; Ibis, 1906, 643.

*Androglossa versicolor* REICHENOW, Journ. für Orn., 1881, 369 (monogr.); Consp. Psitt., 1882, 209; Vogelbild., 1883, Nachtr., 121.

*Amazona versicolor* CORY, Cat. Birds West Ind., 1892, 11, 101, 133.—CLARK (A. H.), Auk xxii, 1905, 344; West Ind. Bull., xi, no. 3, 1911, 183.—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.

[*Amazona*] *versicolor* SHARPE, Hand-list, ii, 1900, 20.

*Psittacus cyano rynchus* BODDAERT, Tabl. Pl. Enl., 1783, 22 (based on *Perroquet de la Havane* Daubenton, Pl. Enl., pl. 360).

[*Chrysotis*] *cyanorhynchus* GRAY, Gen. Birds, iii, 1849, App., p. 20.

*Chrysotis cyanorhyncha* GRAY, List Birds Brit. Mus., Psittacidæ, 1859, 84.

*Amazona cyanorhyncha* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 50; no. 38 (Revue), 1874, 26.

<sup>a</sup> H. Selwyn Branch, on labels of specimens.

<sup>b</sup> Three specimens.

- [*Psittacus*] *havanensis* GMELIN, Syst. Nat., i, pt. 1, 1788, 342 (based on *Perroquet de la Havane* Daubenton, Pl. Enl., pl. 360).—LATHAM, Index Orn., i, 1790, 124.
- Psittacus havanensis* BECHSTEIN, Latham's Uebers. Vög., i, 1793, 245, 711.—SHAW, Gen. Zool., viii, pt. 2, 1811, 531.—STEPHENS, Shaw's Gen. Zool., xiv, 1825, 106.—LESSON, Traité d'Orn., 1831, 196.
- Psittacus havanensis* BECHSTEIN, Kurze Uebers., 1811, 98.—WAGLER, Mon. Psitt., 1832, 596, 718.
- [*Chrysotis*] *havanensis* SWAINSON, Classif. Birds, ii, 1837, 301.
- [*Chrysotis*] *havanensis* GRAY, Gen. Birds, ii, 1846, 422.
- Chrysotis havanensis* FINSCH, Die Papag., ii, 1868, 357.
- [*Enochrus*] *havanensis* BONAPARTE, Rev. et Mag. de Zool., 1854, 151 (Consp. Psitt., p. 8).
- [*Onochrus*] *havanensis* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 104).
- Psittacus cyanopsis* VIEILLIOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 325 (new name for *P. havanensis* Gmelin); Tabl. Enc. Méth., iii, 1823, 1372.
- Chrysotis cyanopsis* FINSCH, Die Papag., ii, 1868, 962.
- [*Chrysotis*] *cyanopsis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.
- Chrysotis cyanops* FINSCH, Die Papag., ii, 1868, 523.
- Chrysotis bouqueti* (not *Psittacus bouqueti* Bechstein) SCLATER, Proc. Zool. Soc. Lond., 1874, 323, 324 (Santa Lucia); 1875, 61, 316, 685, pl. 11 (Santa Lucia).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).

### AMAZONA ARAUSIACA (Müller).

#### BOUQUET'S PARROT.

*Adult male*.—Forehead (broadly), lores, anterior portion of suborbital and malar regions (broadly), chin, and throat, violaceous blue (nearly campanula blue), passing, posteriorly, into clear parrot green on rest of head; rest of plumage mostly clear parrot green, lighter and brighter on tail-coverts, the feathers of occiput, neck, back, scapulars, chest, and breast, together with smaller wing-coverts, more or less distinctly margined at tip with black, forming bars, which are most distinct on neck; three distal secondaries with outer webs mostly poppy red, their terminal portion black washed with violet-blue, with a wedge-shaped area of dull yellowish between the red and blackish; primaries (except outer quills) green proximally, passing through dark violet-blue into dull black distally, the outermost primaries mostly blackish; tail (except outermost rectrices) parrot green for basal two-thirds (approximately), clear light yellowish green for distal third, the outermost rectrix with outer web dull bluish black passing through dull bluish into yellowish green terminally; four outer pairs of rectrices with basal third or more of inner web vermilion red passing into yellow at extreme base, as well as toward edge of the web (except on outermost rectrix); usually, on the foreneck a greater or less number of red feathers, sometimes forming a distinct narrow transverse patch of that color; smaller under wing-coverts bright clear parrot green, very narrowly and indistinctly margined terminally with black; larger under coverts and under surface of inner webs of secondaries duller and more bluish

green, the under surface of primaries, for proximal portion greenish blue (verditer or dull cerulean), the distal portion, as well as a broad stripe next to shaft, dull blackish slate or slate-black; bill light yellowish horn color, more or less suffused with dusky horn color, the maxillary unguis wholly of the latter color; feet dusky (in dried skins); length (skins), 386–426 (406); wing, 250–263 (256.5); tail, 151–159 (155); culmen, 31–34.5 (32.7); tarsus, 24.5–25 (24.7); outer anterior toe, 34–34.5 (34.2).<sup>a</sup>

*Adult female*.—Similar to the adult male and probably not always distinguishable, but usually slightly duller in coloration, sometimes without trace of red on foreneck; length (skins), 375–405 (393); wing, 244–258 (251.8); tail, 147–156 (149.8); culmen, 30.5–34 (32.1); tarsus, 23–25 (23.8); outer anterior toe, 30.5–36 (32.6).<sup>b</sup>

Island of Dominica, Lesser Antilles.

*Psittacus arausiacus* MÜLLER, Syst. Nat. Suppl., 1766, 79 (Dominica; based on *Blue-faced Parrot* Edwards, Birds, pl. 230; type in coll. "Mr. Lemman, of Bishopsgate street, London").

[*Chrysotis*] *arausiacus* GRAY, Hand-list, ii, 1870, 165, no. 8339.

[*Psittacus autumnalis*]  $\beta$  GMELIN, Syst. Nat., i, pt. 1, 1788, 345 (based on *Crick à tête bleue* Buffon, Hist. Nat. Ois., vi, 230; *Blue-faced Green Parrot* Edwards, Gleanings, pl. 230).—LATHAM, Index Orn., i, 1790, 124.

*Psittacus bouqueti* BECHSTEIN, Kurze Uebers., 1811, 99 (based on *Le Perroquet Bouquet* Levaillant, ii, 104, pl. 135).—KUHLE, Consp. Psitt., 1820, 76.—DESMAREST, Dict. Sci. Nat., xxxix, 1826, 101.—BREHM, Mon. Papag., 1842, pl. 54.

[*Psittacus*] *bouqueti* WAGLER, Mon. Psitt., 1832, 593, 717.

[*Chrysotis*] *bouqueti* GRAY, Gen. Birds, ii, 1846, 422.—SCLATER, Proc. Zool. Soc. Lond., 1881, 627 (Dominica).

*Chrysotis bouqueti* BONAPARTE, Rev. et Mag. de Zool., 1854, 151; Naumannia, 1856 (Consp. Psitt., no. 96).—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 81.—FINSCH, Die Papag., ii, 1868, 555.—PELZELN, Orn. Bras., 1870, 266, footnote.—SCLATER, Proc. Zool. Soc. Lond., 1881, 627; 1889, 326, 327; Ibis, 1881, 412, 414; 1889, 565.—CORY, Auk, iii, 1886, 462 (synonymy; descr.); Birds West Ind., 1889, 185.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 277; Ibis, 1906, 643; 1907, 365, in text (not extinct, but still numerous).

[*Chrysotis*] *bouqueti* CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 13.

*Androglossa bouqueti* REICHENOW, Journ. für Orn., 1881, 370 (monogr.); Consp. Psitt., 1882, 210; Vogelbild., 1883, Nachtr., 122.

*Amazona bouqueti* CORY, Cat. West Ind. Birds, 1892, 11, 101, 133.—VERRILL (G. E.), Trans. Conn. Ac. Arts and Sci., viii, 1892, 328 (habits; crit.).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—CLARK (A. H.), Auk, xxii, 1905, 344.

[*Amazona*] *bouqueti* SHARPE, Hand-list, ii, 1900, 20.

*Psittacus caeruleifrons* SHAW, Gen. Zool., viii, 1811, 515 ("Guiana").—CUVIER, Règne Anim., ed. 2, i, 1829, 464, footnote.—VOIGT, Cuv. Uebers., 1831, 741.

(?) *Psittacus autumnalis*, var. VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 326.

[*Psittacus*] *cyaneocapillus* VIEILLOT, Tabl. Enc. Méth., iii, 1823, 1373, pl. 229, fig. 1 ("Guiana").—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 186, footnote.

<sup>a</sup> Two specimens.

<sup>b</sup> Five specimens.

[*Chrysotis*] *cynocephalus* SWAINSON, *Classif. Birds*, ii, 1837, 301 (based on *Le Peroquet Bouquet* Levaillant, pl. 135).

*Chrysotis nicholli* LAWRENCE, *Proc. U. S. Nat. Mus.*, iii, Sept. 4, 1880, 254 (island of Dominica, Lesser Antilles; coll. U. S. Nat. Mus.), 256 (habits).—SCLATER, *Proc. Zool. Soc. Lond.*, 1881, 627 (crit.); *Ibis*, 1881, 413 (crit.).—REICHENOW and SCHALOW, *Journ. für Orn.*, 1883, 417 (reprint of orig. descr.).

### AMAZONA MARTINICANA A. H. Clark.

#### MARTINIQUE PARROT.

Similar to *A. arausiaca*, but top of head slate color with a slight intermixture of red.

Island of Martinique, Lesser Antilles. (Extinct.)

*Psittacus leucocephalus* var. VIEILLOT, *Nouv. Dict. d'Hist. Nat.*, xxv, 1817, 332 (Martinique).

*Amazona martinicana* CLARK (A. H.), *Auk*, xxii, Oct., 1905, 343 (ex. Labat, *Nouveau Voy. aux Isles de l'Amérique*, ii, 1742, 214, 344).—ROTHSCHILD, *Bull. Brit. Orn. Club*, xvi, 1905, 15; *Extinct Birds*, 1907, 57, pl. 18.<sup>a</sup>

*Chrysotis martinicana* SALVADORI, *Ibis*, Oct., 1906, 643.

### AMAZONA AUROPALLIATA (Lesson).

#### YELLOW-NAPED PARROT.

*Adults (sexes alike).*—Pileum light green (varying from clear yellowish green to light oriental green), sometimes (in older individuals?) with a spot or patch of chrome yellow on median portion of forehead, sometimes extended to middle of crown, the green passing on occiput and upper part of nape into deeper yellowish green; lower nape and whole hindneck light cadmium yellow; general color of rest of upper parts clear bright yellowish parrot green, the scapulars and interscapulars with very indistinct broken black terminal margins, the wing-coverts (especially greater ones) and proximal secondaries indistinctly edged with lighter yellowish green or greenish yellow, the upper tail-coverts much lighter and brighter green (bright yellow green, cosse green, or neva green); outer webs of four outermost secondaries mostly pure poppy red (or between poppy and geranium red), passing into yellow on concealed basal portion, the distal portion first green (narrowly) more or less intermixed or suffused with yellow, then bluish black tinged with dark violet-blue; primaries clear parrot green on proximal half, bluish black tinged with dark violet-blue for distal half, their inner webs dull black or slate-black; basal two-thirds (approximately) of tail clear parrot green, the terminal third clear light yellow-green (bright cosse green changing to nearly neva green); inner webs of five lateral rectrices (on each side) with basal third (more or less) red and yellow, the red predominating

<sup>a</sup>The colored plate in "Extinct Birds" does not agree with descriptions quoted in the text, the head and neck, *all round*, being slate colored, with a red patch on center of the crown, and the two outermost rectrices with outer webs red for their entire length.

on outermost rectrix, the yellow prevailing (sometimes wholly replacing the red) on the innermost one;<sup>a</sup> outer web of outermost rectrix darker green, edged (in part at least) with dark blue; sides of head and neck and under parts light yellowish green, sometimes tinged with light bluish green; under wing-coverts light yellowish green, paler and more yellowish along carpo-metacarpal margin, the humeral edge, including bend, usually more or less intermixed with red and yellow (except in younger individuals); larger under wing-coverts dull bluish green passing into light dull yellowish green on margins; under surface of remiges dull bluish green (chromium to malachite), the primaries with distal portion and broad stripe along shaft dull blackish slate; bill horn color (more or less dark) with a light-colored (pale dull buffy) area on basal sides of maxilla; iris orange-red;<sup>b</sup> legs and feet dusky (grayish in life);<sup>b</sup> length (skins), 310-357 (343); wing, 215-226 (221.1); tail, 120.5-125 (122.5); culmen, 34-35 (34.6); tarsus, 25-27 (26.2); outer anterior toe, 33.5-36 (34.4).<sup>c</sup>

*Immature.*—Similar to adults but without any yellow on head or neck, the whole hindneck light green with feathers margined terminally with black, especially those of lower portion; little if any red or yellow on humeral margin of wing.

*Adult male.*—Length (skins), 310-357 (343); wing, 215-226 (221.1); tail, 120.5-125 (122.5); culmen, 34-35 (34.6); tarsus, 25-27 (26.2); outer anterior toe, 33.5-36 (34.4).<sup>c</sup>

*Adult female.*—Length (skins), 315-345 (331); wing, 201.5-215.5 (211); tail, 114.5-123.5 (119.3); culmen, 31-35 (33.1); tarsus, 23-25.5 (24.2); outer anterior toe, 31-35.5 (32.9).<sup>c</sup>

Southern Mexico, in States of Oaxaca (Santa Efigénia; Cacoprieto; Santa María, Chimalapa) and Chiapas (Tonalá; Tapachula; Huehuetán) and southward, through Guatemala (Huamachál; Retalhuleu; La Grande; San José; Naranjo), Salvador (San Salvador),

<sup>a</sup> The red and yellow usually encroach more or less on inner portion of outer web, except on outermost rectrix.

<sup>b</sup> F. Sumichrast, on labels.

<sup>c</sup> Four specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Two adult males from Chiapas.....	225	122.7	35	26.5	35
One adult male from Honduras.....	215	122	34	25	36.5
One adult male from western Costa Rica.....	219.5	122.5	34.5	27	34
FEMALES.					
One adult female from Chiapas.....	215	120	31	25.5	34
Three adult females from western Costa Rica.....	209.7	119	33.8	23.8	32.5

Honduras (Chasníguas; Rio Segóvia; Ruatán Island; Tigre Island), and Nicaragua (Realejo; Chinandega; Omotepe; Momotombo; San Juan del Sur) to western Costa Rica (San José; Bolsón; Libéria; Tenório; Volcán de Miravalles; Bagaces; Bebedero; La Palma de Nicoya; Punta Arenas; Pigres).

*Psittacus (Amazona) auro-palliatus* LESSON, Rev. Zool., v, May, 1842, 135 ("Realejo centre Amérique" i. e. Nicaragua; coll. A. Lesson).

*P[sittacus] auro-palliatus* GRAY, Gen. Birds, ii, 1846, 421.

*Chrysotis auro-palliata* SALVADORI, Ibis, 1906, 646 (crit. as to *C. schmidti* Ihering).

*Amazona auro-palliatus* LESSON, Descr. Mam. et Ois., 1847, 196.

*Chrysotis auropalliata* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 77.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 36 (Santa Efigenia, Oaxaca).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 291 (Huamuchal and Retalhuleu, Guatemala; San Salvador, Salvador; Ruatan I., Honduras).—UNDERWOOD, Ibis, 1896, 445 (Volcan de Miravalles and Bagaces, Costa Rica; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 586 (Santa Efigenia and Cacoprieto, Oaxaca; Tonalá and Tapachula, Chiapas; La Grande, San Jose, etc., Guatemala; Salvador; Ruatan I. and Tigre I., Honduras; Realejo, Chinandega, Momotombo, San Juan del Sur, and Omotepe, Nicaragua; Liberia, La Palma de Nicoya, etc., Costa Rica).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 220 (Naranjo, Guatemala).

[*Chrysotis*] *auropalliata* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 13.

*Amazona auropalliata* ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 124 (Liberia, Costa Rica).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 86 (San Jose, Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 486 (Pigres, Tenorio, Bolsón, and Bebedero, Costa Rica; habits).

*Chrysotis auripalliata* BONAPARTE, Compt. Rend., xxxvii, 1853, 807, in text; Notes Orn. Coll. Delattre, 1854, 2, in text.—SOUANCÉ, Rev. et Mag. de Zool., 1856, 154; Icon. Perr., 1857, pl. 27.—TAYLOR, Ibis, 1860, 121 (Tigre I., Honduras; habits).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 145 (San Jose, Costa Rica); Ibis, 1871, 251.—FINSCH, Die Papag., ii, 1868, 568.—SALVIN, Ibis, 1871, 87, 99 (range); 1889, 373 (Ruatán I., Honduras; crit.).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 402 (La Palma de Nicoya, Costa Rica; habits); vi, 1883, 377 (San Juan del Sur, Nicaragua).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica).

*Chr[ysotis] auripalliata* CABANIS, Journ. für Orn., 1874, 105, in text.

[*Chrysotis*] *auripalliatus* SALVIN, Ibis, 1890, 88 (Ruatán I., Honduras).

*Chrysotis auripalliatus* SCLATER and SALVIN, Ibis, 1859, 138 (Pacific coast district Guatemala).—FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).

[*Chrysotis*] *auripalliata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 114.

*Amazona auripalliata* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 52; no. 38 (Revue), 1874, 27.—RIDGWAY, Condor, vii, 1905, 155, in text (Pigres, Costa Rica).

[*Amazona*] *auripalliata* SHARPE, Hand-list, ii, 1900, 21.

(?) *Amazona auripalliata?* RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 592 (Rio Segovia, Honduras; crit.).

*Androglossa auripalliata* REICHENOW, Journ. für Orn., 1881, 368 (monogr.); Consp. Psitt., 1882, 208; Vogelbild., 1883, Nachtr., 119.

[*Chrysotis*] *aureipalliata* BONAPARTE, Rev. et Mag. de Zool., 1854, 141 (Consp. Psitt., p. 8); Naumannia, 1856 (Consp. Psitt., no. 79).

*Psittacus flavinuchus* GOULD, Proc. Zool. Soc. Lond., 1843 (pub. Dec.), 104 ("Shores of South America and the Pacific"; coll. Zool. Soc. Lond.); Zool. Voy. "Sulphur," 1844, 45, pl. 27; Ann. and Mag. N. H., xiii, 1844, 475.

*C[hrysotis] flavinuchus* GRAY, Gen. Birds, ii, 1846, 421.

(?) *Chrysotis farinosa* (not *Psittacus farinosus* Boddaert) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 36 (Santa Maria, Chimalapa, Oaxaca).

### AMAZONA AUTUMNALIS AUTUMNALIS (Linnæus).

#### YELLOW-CHEEKED PARROT.

*Adults (sexes alike).*—Forehead (broadly) and greater part of lores dull vermilion or bright nopal red; lower portion of lores, rictal region, and suborbital region chrome yellow (rarely red, like forehead and lores); crown and occiput with feathers banded with light yellowish green (on middle portion) and lavender or light lavender-violet (subterminally), and narrowly margined at tip with black, the feathers sometimes pale purplish red or pinkish basally (this concealed); hindneck clear parrot green, the feathers rather broadly margined terminally with black, this sometimes preceded by a narrow subterminal bar of lavender or light lavender-violet; general color of upper parts clear parrot green, the scapulars and interscapulars indistinctly margined terminally with black; four outer secondaries with outer webs pure poppy red for greater part, the distal portion blue-black or black tinged with dark violet-blue, sometimes with a narrow edging of green or lighter blue; basal half (approximately) of primaries clear parrot green, the distal portion blue-black or very dark violet-blue, their inner webs black or slate-black; distal third (more or less) of tail clear light yellowish green, the middle pair of rectrices mostly (sometimes wholly) green; inner webs of rectrices with the darker green proximal portion passing into dusky toward inner edge, those of the two outermost rectrices becoming light yellow basally and, usually, with a more or less distinct subbasal spot of red;<sup>a</sup> suborbital region (broadly), lower part of loreal region, and rictal region yellow (chrome yellow to light cadmium); auricular region, malar region (except upper anterior portion), and sides of throat (sometimes whole throat) clear bright yellowish green, the throat often intermixed or suffused with pale red; under parts lighter green, or more yellowish green, than upper parts, the feathers of chest and breast more or less distinctly margined terminally with black (except in worn plumage), the throat sometimes more or less intermixed with red; smaller under wing-coverts light yellowish green, those along carpo-metacarpal edge more yellowish (sometimes greenish yellow); under primary coverts dull green (malachite), passing into pale greenish yellow terminally and on edges (partly); under

<sup>a</sup> There is great variation among specimens which do not otherwise differ materially in the coloration of the lateral rectrices. Sometimes the red is so much reduced in extent as to amount to a mere trace, while, more rarely, it is wholly absent. Occasionally the red invades the outer web also.



surface of remiges malachite green, the primaries with distal portion and a broad stripe along inner edge of shaft blackish slate or slate-black; bill pale dull brownish buffy (more yellowish or fleshy in life), the maxilla with a dusky space occupying basal half of tomial portion; iris orange or orange-yellow; legs and feet brownish or horn color in dried skins, light greenish ash or olivaceous in life.

*Immature*.—Similar to adults but without any yellow on head, the entire suborbital and lower part of loreal region being yellowish green, like auricular region, etc.; red of forehead more restricted, sometimes broken by admixture of green feathers; feathers of hindneck without trace of subterminal lilaceous bar;<sup>a</sup> inner webs of lateral rectrices with the subbasal red spot much reduced (a mere trace, only, on next to the outermost).

*Adult male*.—Length (skins), 296–326 (313); wing, 190.5–217 (206.9); tail, 97.5–123 (113.8); culmen, 27–33 (30.6); tarsus, 22.5–24 (23.5); outer anterior toe, 28–31.5 (29.5).<sup>b</sup>

*Adult female*.—Length (skins), 300–320 (310); wing, 205.5–210 (207.7); tail, 110.5–119 (114.7); culmen, 29.5–30.5 (30); tarsus, 23–24 (23.5); outer anterior toe, 27–31.5 (29.7).<sup>c</sup>

Southern Mexico, in States of Tamaulipas (Tampico; Alta Mira; Tautina; Tamesí), Vera Cruz (Miradór; Jalapa; Córdoba; Potrero near Córdoba; Motzorongo; Tlalcotalpám; Sierra de las Mistecas; Playa Vicente; Plan del Rio; Colipa; San José Acateno; Vega de Casadero), Puebla (Metlatoyuca), Mexico (near City of Mexico), Guanajuato, and Oaxaca (Tehuántepec; Tuxtepec; Bárrio), and southward, through Guatemala (Choctúm; Rio Polochic; Las Salinas;

<sup>a</sup> The last character, however, often present in adults. The immature plumage of *A. a. autumnalis* is almost precisely similar to that of the adult *A. a. salvini*; in fact, the only difference that I can detect consists in the absence, in the former, of bluish, lavender, or lilaceous subterminal bars to the feathers of the hindneck, these being always present in the adult of *A. a. salvini*, and in great reduction of red on subbasal portion of lateral rectrices.

<sup>b</sup> Eleven specimens.

<sup>c</sup> Two specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from Vera Cruz.....	215	119.8	30.7	23.5	30
One adult male from Guanajuato.....	204	110	29	23.5	31.5
One adult male from Oaxaca.....	215	122	33	22.5	28
One adult male from Guatemala.....	200.5	111	32.5	24	30
Five adult males from Honduras.....	202.2	107.8	30	23.7	29.1
FEMALES.					
One Adult female from Vera Cruz.....	210	119	29.5	23	27
One adult female from Honduras.....	205.5	110.5	30.5	24	31.5

Santo Tomás; Rio Manágua; Los Amates, Yzabál), and British Honduras (Belize), to Honduras (Omoa; Truxillo; Ruatán Island; Chamelicón; Céiba; San Pedro; San Pedro Sula; Rio Segovia).

[*Psittacus*] *autumnalis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 102 (based on the Lesser Green Parrot Edwards, Birds, 164, pl. 164); ed. 12, i, 1766, 147.—GMELIN, Syst. Nat., i, pt. 1, 1788, 345, part (excl. var.).—LATHAM, Index Orn., i, 1790, 124, part (excl. var.).

*Psittacus autumnalis* BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 246, 711.—SHAW, Gen. Zool., viii, pt. 2, 1811, 516.—BECHSTEIN, Kurze Ueb., 1811-'12, 98.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 326, part (second var.); Tabl. Enc. Méth., iii, 1823, 1373.—KUHLE, Consp. Psitt., 1820, 79.—STEPHENS, Shaw's Gen. Zool., xiv, 1826, 106.—LESSON, Traité d'Orn., 1831, 196.—WAGLER, Isis, 1831, 525.—BREHM, Mon. Papag., Heft xii, 1854, pl. 57.—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 185.—SCHLEGEL, Dierent., 1864, 65.

*Psittacus autumnalis* BECHSTEIN, Kurze Uebers., 1811, 98.—WAGLER, Mon. Psitt., 1832, 591, part, 716.

*Chrysotis autumnalis* SWAINSON, Classif. Birds, ii, 1837, 301.—GRAY, Gen. Birds, ii, 1846, 422.—LAWRENCE, Ibis, 1871, 250, part (City of Mexico; Tehuantepec, Oaxaca).

*Chrysotis autumnalis* BONAPARTE, Rev. et Mag. de Zool., 1854, 151, excl. syn. part (monogr.); Naumannia, 1856 (Consp. Psitt., no. 99).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 154.—SCLATER, Proc. Zool. Soc. Lond., 1857, 205 (Jalapa, Vera Cruz), 230, in text (Mexico); 1859, 389 (Playa Vicente, Vera Cruz; crit.).—MOORE, Proc. Zool. Soc. Lond., 1859, 59 (Omoa, Honduras).—GRAY, List Birds Brit. Mus., Psittacidæ, 1859, 81.—SALVIN and SCLATER, Ibis, 1860, 401 (tierra caliente of Vera Paz, Guatemala).—FINSCH, Die Papag., ii, 1868, 547.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 560 (tierra caliente of Vera Cruz).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 837 (Honduras).—SALVIN, Ibis, 1871, 98 (range); 1889, 373 (Ruatán I., Honduras; crit.).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 36 (Barrio, Oaxaca).—BOUCARD, Liste Ois. récol. Guat., 1878, 23.—REICHENOW, Vogelbild., 1881, pl. 19, fig. 7.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 163 (Plan del Rio, Vera Cruz; Puebla).—SALVIN and GODMAN, Ibis, 1889, 373 (Ruatán Is., Honduras); Biol. Centr.-Am., Aves, ii, 1897, 591 (Tampico, Tamesi, and Tautina, Tamaulipas; Jalapa, Colipa, Potrero, Plan del Rio, San Jose Acateno, Vega de Casadero, etc., Vera Cruz; Belize, Brit. Honduras; Choctum and Las Salinas, Guatemala; San Pedro, etc., Honduras).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 302; Ibis, 1906, 647.

[*Chrysotis*] *autumnalis* GRAY, Hand-list, ii, 1870, 164, no. 8324.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—SALVIN, Ibis, 1890, 88 (Ruatán I., Honduras).—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 14.

*Amazona autumnalis* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 51, part; no. 38 (Revue), 1874, 26.—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 583 (Truxillo, Honduras), 592 (Rio Segovia, Honduras).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Alta Mira, s. Tamaulipas).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 220 (Santo Tomas, Guatemala).—BANGS, Bull. Mus. Comp. Zool., xxxix, 1903, 143 (Ceiba, Honduras).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 86 (Los Amates, Yzabal, Guatemala).

A[*mazona*] *autumnalis* RIDGWAY, Man. N. Am. Birds, 1887, 587; 2d ed., 1896, 595.

[*Amazona*] *autumnalis* SHARPE, Hand-list, ii, 1900, 21.

*Androglossa autumnalis* REICHENOW, Journ. für Orn., 1881, 374 (monogr.); Consp. Psitt., 1882, 214.

[*Androglossus*] *autumnalis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 232 (Mexico).

*Psittacus aurantius* VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 325 (based on *Psittacus autumnalis* var. Latham; Levaillant, Perroquets, pl. 109; etc.); Tabl. Enc. Méth., iii, 1823, 1373.

*Chrysotis astivalis* BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 100) (*nomen nudum*).—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 81 (Mexico).—SALVIN, Ibis, 1871, 88, footnote.

### AMAZONA AUTUMNALIS SALVINI (Salvadori).

#### SALVIN'S PARROT.

Similar to *A. a. autumnalis*, but adults without any yellow on sides of head or (in some examples from Costa Rica, Nicaragua, and southern Honduras) with the yellow area much reduced; red of forehead averaging much narrower; feathers of hindneck always (?) with a subterminal bar of bluish or lavender-violet.<sup>a</sup>

*Adult male*.—Length (skins), 291–332 (315); wing, 202–233 (217.8); tail, 102.5–131 (119.5); culmen, 29–33 (31.2); tarsus, 21.5–26 (24.5); outer anterior toe, 26.5–33 (30.8).<sup>b</sup>

*Adult female*.—Length (skins), 285–332 (311); wing, 201–214 (208.6); tail, 108–125 (113); culmen, 28–31.5 (29.9); tarsus, 21.5–25 (23.4); outer anterior toe, 28–32.5 (29.3).<sup>c</sup>

<sup>a</sup> There is the same great amount of individual variation in this form with respect to the extent of the red on subbasal portion of the lateral rectrices as in *A. a. autumnalis*. This red may form a large spot or area on the inner web alone, may invade the outer web also, or it may be wholly absent. Specimens from Panama apparently never have any yellow on the side of the head, and the same is the case with many of those from Costa Rica and Nicaragua; but a considerable proportion of specimens from the last-named two countries have a more or less distinct area of yellow on the lower part of the lores and upper part of the suborbital region, thus showing intergradation with *A. a. autumnalis*. The yellow area is never so large, however, as in specimens of the latter from southeastern Mexico, etc., and Carriker (Ann. Carnegie Mus., vi, p. 487) certainly erred in referring the Costa Rican birds with a yellow suborbital spot to *A. a. autumnalis*. The yellow spot seems to occur about equally in specimens from opposite sides of Costa Rica.

<sup>b</sup> Eleven specimens.

<sup>c</sup> Nine specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Nicaragua .....	217.5	116.5	30.5	25.5	31
Ten adult males from Costa Rica .....	217.8	119.5	31.2	23.9	30.7
FEMALES.					
One adult female from Nicaragua .....	214	125	28.5	23	28
Six adult females from Costa Rica .....	207.7	114.1	30.3	23.2	29.6
Two adult females from Panama .....	208.5	113	29.5	24	29

Intergradation between this form and *A. a. autumnalis* is complete, many specimens from Nicaragua and the Caribbean slope of Costa Rica being intermediate in character, though most of them are decidedly nearer to the present form. To the southward *A. a. salvini* probably grades into *A. lilacina* (Lesson), and *A. diademata* (Spix), of Amazonia, may also be conspecific; but I have not seen either of these forms.

Nicaragua (Rio Escondido; Greytown; Los Sábalos; Sucuyá; Matagalpa; San Emilio) and southward, through Costa Rica (Guápilas; Guayabál; Jiménez; Bonilla; Guayabo; Talamanca; San José; Peje; Pigres; Lagarto; Térraba; El Pozo de Térraba; Boruca; Buenos Aires), Panamá (Calovévora, Verágua; Dívala and Bugaba, Chiriquí; Rio Trinidad; Lion Hill; San Miguél Island) and Colombia (Remédios, Antioquia) to northwestern Brazil (Rio Negro).

- [Chrysotis] viridigenalis* (not of Cassin) SCLATER, Proc. Zool. Soc. Lond., 1864, 298, in text (Isthmus of Panama).
- Chrysotis viridigenalis* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 368 (Panama; crit.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (San José, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).
- [Chrysotis] viridigenalis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part (Colombia).
- Amazona autumnalis* (not *Psittacus autumnalis* Linnæus) SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 51, part.
- Chrysotis autumnalis* FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 388 (Sucuya, Nicaragua).
- [Chrysotis] autumnalis* LAWRENCE, Ibis, 1871, 250, part (Costa Rica).
- Amazona autumnalis autumnalis* CARRIKER, Ann. Carnegie Mus., vi, 1910, 487 (Guápilas, Costa Rica; crit.).
- Chrysotis diademata* (not *Psittacus diadema* Spix) FINSCH, Die Papag., ii, 1868, 545, part.—SALVIN, Proc. Zool. Soc. Lond., 1870, 214 (Calovevora and Bugaba, Veragua, Panama); Ibis, 1870, 113 (Costa Rica); 1871, 87, 97 (Central American range).—PELZELN, Orn. Bras., 1870, pp. liii, 265, 448, part (Rio Negro).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1879, 538 (Remedios, Antioquia, Colombia).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 407 (Los Sabalos, Nicaragua).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica).
- [Chrysotis] diademata* LAWRENCE, Ibis, 1871, 250 (Panama; crit.).
- [Chrysotis] diademata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part (Guiana to Panama).
- Amazona diadema* SCHLEGEL, Mus. Pays-Bas, iii, no. 38 (Revue), 1874, 27 ("Brésil").
- Androglossa diademata* REICHENOW, Journ. für Orn., 1881, 372, part (monogr.; Guina to Panama); Consp. Psitt., 1882, 212, part; Vogelbild., 1883, Nachtr., 124, part.
- Amazonia diademata* CHERRIE, Expl. Zool. Merid. C. R., 1893, 49 (Lagarto, Boruca, and Buenos Aires, s. w. Costa Rica).
- Chrysotis salvini* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 300, pl. 7, fig. 3 (Lion Hill, Panama; coll. Brit. Mus.); Ibis, 1906, 647.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 592 (Matagalpa, San Emilio, Greytown, Rio Escondido, and Los Sabalos, Nicaragua; San José, Peje, Talamanca, and Jiménez, Costa Rica; Calovevora, Bugaba, and Lion Hill, Panama; Colombia; Rio Negro Valley).
- [Chrysotis] salvini* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 14.
- Amazona salvini* RICHMOND, Proc. U. S. Nat. Mus., xvi, Oct. 4, 1893, 519 (Greytown and Rio Escondido, Nicaragua).—BANGS, Auk, xviii, 1901, 25 (San Miguel I., Bay of Panama).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 148 (San Miguel I.; crit.).—FERRY, Pub. 146, Field Mus. N. H., 1910, 262 (Guayabo, Costa Rica; crit.; habits).
- [Amazona] salvini* SHARPE, Hand-list, ii, 1900, 21.

*A[mazona] salvini* RIDGWAY, Condor, vii, 1905, 155, 156, in text (Pigres and Bonilla, Costa Rica).

*Amazona autumnalis salvini* CARRIKER, Ann. Carnegie Mus., vi, 1910, 487 (Bonilla, Pigres, Guayabal, Guapiles, and El Pozo de Terraba, Costa Rica; crit.; habits).

**AMAZONA FARINOSA INORNATA (Salvadori).**

**PLAIN-COLORED PARROT.**

Similar to *A. f. farinosa*<sup>a</sup> but averaging smaller, and without any yellow on pileum.

*Adults (sexes alike).*—General color parrot green, including whole head and neck, the hindneck, back, and scapulars more grayish green, the under parts lighter and often more yellowish green, the occiput or nape frequently suffused with a darker, more bluish or dull violaceous hue; feathers of pileum, hindneck, and upper back margined terminally with blackish, these blackish margins much broader and always conspicuous on lower hindneck, sometimes obsolete elsewhere; tail deep parrot green for proximal half or more, the distal half (approximately) much lighter and more yellowish green, especially on inner webs, which are dark green proximally; outer webs of three distal secondaries clear poppy red or dull spectrum red except terminally, where dark blue or bluish black, sometimes with more or less of green between the red and blue; distal half (more or less) of primaries black, passing into bluish black proximally; carpo-metacarpal edge of wing with more or less of red; maxilla horn color or dusky, usually with the lower basal portion paler, sometimes, together with mandible, dull ivory-yellowish or brownish buffy; iris yellow to orange-red; bare orbital space whitish (in life); legs and feet horn color or dusky (in dried skins).

*Adult male.*—Length (skins), 380–425 (393); wing, 233–268 (246.7); tail, 121.5–149 (134.8); culmen, 37–41 (39.8); tarsus, 26.5–29.5 (28.1); outer anterior toe, 34.5–39.5 (37.4).<sup>b</sup>

*Adult female.*—Length (skins), 380; wing, 240–255 (247.5); tail, 127.5–139 (133.2); culmen, 35–38.5 (36.7); tarsus, 26; outer anterior toe, 35.5–36 (35.7).<sup>c</sup>

<sup>a</sup> See p. 220.

<sup>b</sup> Six specimens.

<sup>c</sup> Two specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Four adult males from Panama.....	244.2	132.9	38.7	28.4	37.4
One adult male from Venezuela.....	235	128.5	39.5	26.5	37
One adult male from Bolivia (Province del Sara)= <i>A. f. farinosa</i> .....	268	149	39	28.5	38
FEMALES.					
One adult female from Panama.....	255	139	35	26	36
One adult female from Colombia.....	240	127.5	38.5	26	35.5

Intergradation between this form and *A. f. farinosa* on the one hand and *A. f. virenticeps* on the other is complete, the latter also grading gradually into *A. f. guatemalæ*.

Panamá (Verágua; Cascajál, Coclé; Punta de Sabana; Panamá; Lion Hill; Gatún; Cana; Rio Indio; Darién) and southward, through Colombia (La Vieja, Choco; Remedios, Antioquia; Bogotá), Ecuador (Rio Napo; Sarayacu; Ambato; Valle del Rio Santiago; Foreste del Rio Peripa) and Venezuela (Orope, Zúlia; Munduapo and Nicare, Orinoco Valley; Guanoco; La Brea), to northern Brazil (Rio Tocantins; Pará) and Peru (Chamicuros; Monterico; Chimbo).

(?) *Psittacus amazonicus*, var. HAHN, Orn. Atlas, Papag., 1835, 54, pl. 38 (Brazil).  
*Psittacus pulverulentus* (not of Gmelin) LAWRENCE, Ann. Lyc. N. Y., viii, 1863, 11 (Lion Hill, Panama).

*Chrysotis farinosa* (not *Psittacus farinosus* Boddaert) SCLATER, Proc. Zool. Soc. Lond., 1858, 75 (Rio Napo, e. Ecuador).—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 77, part (spec. a).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 588, 595 (Rio Tocantins, w. Brazil); 1873, 300 (Chamicuros, e. Peru); 1879, 533 (Remedios, Antioquia, Colombia).—FINSCH, Die Papag., ii, 1868, 565, part.—(?) PELZELN, Orn. Bras., 1870, pp. liii, 266, 448, part.—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 550 (Monterico, centr. Peru); Orn. du Pérou, iii, 1886, 220, Tabl., p. 100.—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 573 (Chimbo, w. Peru).

[*Chrysotis*] *farinosa* LAWRENCE, Ibis, 1871, 249 (Panama; crit.).

[*Chrysotis*] *farinosa* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part.

*Chrysotis* sp. SCLATER, Cat. Am. Birds, 1862, 353 (Bogota, Colombia).

*Chrysotis guatemalæ* (not of Sclater) SALVIN, Ibis, 1871, 98, part (Panama).

*Chrysotis inornata* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 281 (Veragua, w. Panama;<sup>a</sup> coll. Brit. Mus.); Ibis, 1906, 643.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 585 (Lion Hill, Panama; Colombia to Peru and Amazon Valley).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, 9 (Punta de Sabana, Darien, Panama); no. 368, 25 (Valle del Rio Santiago, e. Ecuador; Foreste del Rio Peripa, w. Ecuador; crit.).

[*Chrysotis*] *inornata* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 13.

[*Amazona*] *inornata* SHARPE, Hand-list, ii, 1900, 20.

*Amazona inornata* BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 109 (Munduapo and Nicare, Orinoco Valley, Venezuela; crit.).—BEEBE, Zoologica, i, 1909, 83 (Guanoco and La Brea, n. e. Venezuela).

### AMAZONA FARINOSA VIRENTICEPS (Salvadori).

#### GREEN-HEADED PARROT.

Similar to *A. f. inornata* but carpo-metacarpal edge of wing pale yellowish green or greenish yellow with very little, if any, admixture of red, and the forehead and crown more bluish green.

*Adult male*.—Length (skins), 315–365 (344); wing, 234–250 (242.5); tail, 119–134 (127.4); culmen, 34–38 (36); tarsus, 26–30 (27.4); outer anterior toe, 33–36.5 (34.9).<sup>b</sup>

*Adult female*.—Length (skins), 355–360 (357.5); wing, 240–248

<sup>a</sup> Additional localities given are: Panama; Bogota and Remedios, Colombia; Sarayacu, e. Ecuador; Chamicuros, e. Peru; Rio Tocantins; Para, Brazil.

<sup>b</sup> Six specimens.

(244); tail, 132-138 (135); culmen, 32.5-35.5 (34); tarsus, 25.5-27 (26.2); outer anterior toe, 31.5-34 (32.7).<sup>a</sup>

Nicaragua (Greytown; Omotepe; San Rafaél del Norte), Costa Rica (Angostura; San Carlos; San Mateo; Cervantes; Guácimo; Rio Reventazón; Bonilla; Cuabre, Talamanca), and western Panamá (Volcán de Chiriquí and Bugaba, Chiriquí; Cascajal, Coclé).

*Chrysotis pulverulenta* (not *Psittacus pulverulentus* Gmelin) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Cervantes, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).—SALVIN, Ibis, 1870, 113 (Costa Rica).

*Chrysotis guatemalæ* (not of Sclater) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 145 (Cervantes, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 365 (Costa Rica).—SALVIN, Ibis, 1870, 113 (Costa Rica); 1871, 98, part (range; crit.); Proc. Zool. Soc. Lond., 1870, 214 (Bugaba and Volcan de Chiriquí, w. Panama).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 395 (Omotepe, Nicaragua).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 111 (Costa Rica).

[*Chrysotis*] *guatemalæ* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part.

*Androglossa guatemalæ* REICHENOW, Journ. für Orn., 1881, 367, part.

*Amazona guatemalæ* ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 124 (San Mateo, Costa Rica).

*Chrysotis farinosa* (not *Psittacus farinosa* Boddaert) LAWRENCE, Ibis, 1871, 249 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 46 (San Carlos, Costa Rica).

*Chrysotis virenticeps* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 280 (Bugaba, Chiriquí, w. Panama; coll. Brit. Mus.); Ibis, 1906, 643.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 585 (Cervantes, Angostura, San Carlos, and San Mateo, Costa Rica; Bugaba and Volcan de Chiriquí, Panama).

[*Chrysotis*] *virenticeps* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 13.

*Amazona virenticeps* BANGS, Proc. New Engl. Zool. Club, iii, Jan. 30, 1902, 25 (Bugaba, Panama).—RIDGWAY, Condor, vii, 1905, 156, in text (Bonilla, Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 486 (Rio Reventazon, Guacimo, and Cuabre de Talamanca, Costa Rica; crit.; habits).

[*Amazona*] *virenticeps* SHARPE, Hand-list, ii, 1900, 20.

### AMAZONA FARINOSA GUATEMALÆ (Sclater).

#### BLUE-CROWNED PARROT.

Similar to *A. f. virenticeps* but whole of pileum conspicuously blue (turquoise to light azure).

<sup>a</sup> Two specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Five adult males from Costa Rica.....	240	127	35.6	27.1	31.6
One adult male from western Panama (Bugaba, Chiriquí).....	250	129.5	33	30	35.5
FEMALES.					
One adult female from Costa Rica.....	248	138	35.5	27	34
One adult female from Nicaragua.....	240	132	32.5	25.5	31.5

*Adult male*.—Length (skins), 360–395 (377); wing, 250–262 (253.2); tail, 129.5–143 (133.1); culmen, 37.5–40.5 (38.9); tarsus, 26–30 (28.8) outer anterior toe, 35–40 (37.5).<sup>a</sup>

*Adult female*.—Length (skins), 350–380 (367); wing, 237–255 (245.2); tail, 122–143.5 (134.5); culmen, 33.5–37.5 (36.2); tarsus, 27–29 (27.8); outer anterior toe, 34–35.5 (34.9).<sup>a</sup>

Honduras (Omoa; San Pedro) and northward, through Guatemala (sources of Rio de la Pasión; Choctúm, Vera Paz), to southern Mexico, in States of Oaxaca (Rio Givicia; Chimalapa), Vera Cruz (Rio San Juan; Tolosa; Miradór; Orizaba; Jalapa; Potrero near Córdova; Achotál; Pasa Nueva) and Mexico (near City of Mexico).

*Chrysotis guatemalæ* SCLATER, Ibis, ii, no. v, Jan., 1860, 44 (Guatemala and Honduras; coll. O. Salvin; ex Hartlaub, manuscript); Proc. Zool. Soc. Lond., 1860, 253 (Vera Cruz); 1875, 61 (living spec. in Zool. Garden, London); Cat. Am. Birds, 1862, 353 (Honduras).—FINSCH, Die Papag., ii, 1868, 562, pl. 4.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 837 (Honduras).—SALVIN, Ibis, 1871, 98, part (range; crit.).—REICHENOW, Vogelbild., 1881, pl. 19, fig. 2.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 279 (Potrero near Cordova, Vera Cruz; sources of Rio de la Pasion and Choctum, Vera Paz, Guatemala; Honduras); Ibis, 1906, 643.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 584 (Orizaba and Potrero near Cordova, Vera Cruz; Chimalapa, Oaxaca; Omoa and San Pedro, Honduras; etc.).

[*Chrysotis*] *guatemalæ* LAWRENCE, Ibis, 1871, 250 (near City of Mexico).

[*Chrysotis*] *guatemalæ* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part.—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 13.

*Amazona guatemalæ* SCHLEGEL, Mus. Pays-Bas, no. 38 (Revue), 1874, 27.

A[*mazona*] *guatemalæ* RIDGWAY, Man. N. Am. Birds, 1887, 587, part; 2d ed., 1896, 594.

[*Amazona*] *guatemalæ* SHARPE, Hand-list, ii, 1900, 20.

*Androglossa guatemalæ* REICHENOW, Journ. für Orn., 1881, 367, part (monogr.); Consp. Psitt., 1882, 207, part.

### AMAZONA VIRIDIGENALIS (Cassin).

#### RED-CROWNED PARROT.

*Adults (sexes alike)*.—Forehead, lores, and crown uniform red (between poppy red and geranium red);<sup>b</sup> occiput and hindneck

<sup>a</sup> Five specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Four adult males from Vera Cruz.....	254.2	134	39.1	28.8	37.5
One adult male from Oaxaca.....	250	129.5	38	29	37.5
FEMALES.					
Four adult males from Vera Cruz.....	245.8	134.9	36.1	27.7	34.9
One adult female from Oaxaca.....	243	133	36.5	28	35

<sup>b</sup> The upper throat sometimes partly red, in rare instances confluent with red of lores.



bright parrot green, the feathers tipped with black, except on supra-auricular region (sides of occiput), where tipped with violet-blue (campanula blue to dull light hyacinth blue); the black terminal margins broadest on lower hindneck; proximal secondaries with outer webs pure deep vermilion red with distal portion (broadly) blackish blue; distal portion of primaries (extensively) slate-black, slightly tinged or washed with dark blue; rest of plumage clear yellowish green (parrot green), lighter and more yellowish (nearly apple green) on under parts, brightest on suborbital and auricular regions, the middle and greater wing-coverts more or less distinctly edged or margined with lighter green; basal half of tail (both webs) clear parrot green, terminal half light yellowish green (more yellowish than apple green, the inner webs still more yellowish), the middle pair of rectrices, however, almost wholly parrot green, the outermost rectrix usually with basal half of outer web edged, more or less broadly, with dusky bluish, passing into dull reddish distally; bill dull cream yellow, paler terminally; cere and bare orbital space pale buffy grayish or pale livid grayish; iris pale buff; feet pale livid bluish gray.<sup>a</sup>

*Immature.*—Similar to adults but red of head restricted to forehead, the crown wholly green or mixed with red feathers.

*Adult male.*—Length (skins), 295–327 (307); wing, 201.5–217.5 (209.7); tail, 105.5–117 (111.4); culmen, 28–30 (28.9); tarsus, 22–23 (22.5); outer anterior toe, 27–31.5 (29.5).<sup>b</sup>

*Adult female.*—Length (skins), 293–310 (298); wing, 192–211.5 (204); tail, 100–113.5 (107); culmen, 26.5–28.5 (27.7); tarsus, 21–23 (22.3); outer anterior toe, 25.5–30.5 (28).<sup>c</sup>

Northeastern Mexico, in States of Nuevo León (Monterrey; Montemorelos; Rio Comacho; Chitra), Tamaulipas (El Unión; Sierra Madre above Victoria; Forlón; Rio Martinez; Rio de la Cruz; Santa Leonór; Sota la Marina; Tampico; Tamesí and Tautina, near Tampico; Alta Mira), Vera Cruz (Rio Tamesí near Rayón; Colipa; Misantla), and San Luis Potosí (Vallés).

<sup>a</sup> Colors of a living specimen in the author's possession.

<sup>b</sup> Ten specimens.

<sup>c</sup> Eight specimens, all from Tamaulipas.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Six adult males from Tamaulipas.....	209.4	111.4	29.1	22.5	29.8
Two adult males from northern Vera Cruz.....	211	114	28.7	22.5	29.7
One adult male from Nuevo Leon.....	217.5	111	28	.....	.....
One adult male from San Luis Potosí.....	201.5	107	29	22.5	27

*Chrysotis viridigenalis* CASSIN, Proc. Ac. Nat. Sci. Phila., vi, 1853, 371 ("S. Am."; coll. Ac. Nat. Sci. Phila.); Journ. Ac. Nat. Sci., iii, 1855, 153, pl. 13.—BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 93).—SOUANCÉ, Icon. Perr., 1857, pl. 31, lower fig.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 82.—SALVIN, Ibis, 1889, 241 (n. e. Mexico, from Misantla, Vera Cruz, n. to lat. 25° 15' in Sierra Madre).

[*Chrysotis*] *viridigenalis* GRAY, Hand-list, ii, 1870, 164, no. 8327, part.

*A[mazona] viridigenalis* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 595.

*Amazona viridigenalis* RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Alta Mira, s. Tamaulipas).

*Chrysotis viridigena* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 297 (Monte Morelos and Rio Comacho, Nuevo Leon; Sierra Madre above Victoria, Tampico, and Tamesi and Tautina near Tampico, Tamaulipas; Colipa, Vera Cruz); Ibis, 1906, 647.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 590.—PHILLIPS, Auk, xxviii, 1911, 75 (Rio Martinez, Rio Cruz, and Santa Leonor, s. Tamaulipas).

[*Chrysotis*] *viridigena* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 13.

[*Amazona*] *viridigena* SHARPE, Hand-list, ii, 1900, 21.

*Chrysotis coccineifrons* SOUANCÉ, Rev. et Mag. de Zool., 1856, 154 ("Colombia?")—BONAPARTE, Naumannia, 1856 (Consp. Psitt., no. 98, part).—FINSCH, Die Papag., ii, 1868, 540, part.—REICHENOW, Vogelbild., 1881, pl. 19, fig. 3.

#### AMAZONA FINSCHI (Sclater).

##### FINSCH'S PARROT.

*Adults (sexes alike).*—Forehead and lores dull lake red; crown and occiput deep lavender, the feathers green beneath surface and (unless abraded) narrowly tipped with black, the nape similarly colored, but black terminal bar more distinct, subterminal lavender area narrower, and basal green area more extended; hindneck bright parrot green, the feathers broadly tipped with black, forming conspicuous crescentic bars; distal secondaries with basal two-thirds (approximately) of outer webs red (between poppy red and carmine), the terminal portion dark blue, edged proximally with green; distal third (approximately) of primaries black on inner web, dark blue on outer web; rest of upper parts clear parrot green, the scapulars, interscapulars, lesser and middle wing-coverts, rump, and upper tail-coverts margined terminally with black, the greater wing-coverts edged with light yellowish green; terminal half (approximately) of tail light yellowish green (except middle pair of rectrics, which are wholly parrot green), the inner webs becoming greenish yellow toward edge; outer web of outermost rectrix edged with black or dusky; suborbital, auricular and malar regions and lower portion of loreal region clear light yellowish green, sometimes with narrow bars of black on posterior portion of auricular and malar regions; under parts clear light yellowish green, the feathers rather broadly margined terminally with black (except under tail-coverts), the bars thus formed less distinct on abdomen; bill dull buffy in dried skins, "pale yellow, brightest on sides of upper

mandible,"<sup>a</sup> in life; iris with inner ring "brown ocher, central portion chrome [yellow], outer edge orange";<sup>a</sup> bare orbital space dusky lead color;<sup>a</sup> toes lead color<sup>a</sup> or light gray.<sup>b</sup>

*Adult male*.—Length (skins), 280–340 (311); wing, 196–223.5 (209.5); tail, 113.5–127 (121); culmen, 28–32 (29.9); tarsus, 20–23.5 (22.1); outer anterior toe, 26.5–31.5 (28.7).<sup>c</sup>

*Adult female*.—Length (skins), 300–311 (305); wing, 189–200 (195); tail, 110.5–116 (114.2); culmen, 27.5–29 (28.2); tarsus, 20–21 (20.5); outer anterior toe, 25–27 (26).<sup>d</sup>

Western Mexico, in States of Chihuahua (La Trompa; Mina Abundancia), Sonora (Álamos), Sinaloa (Mazatlán; Presidio de Mazatlán; Escuinapa; Cosala; Culebra; Punta de Mita; Choix), Michoacán (Volcán de Jorulla), Jalisco (Las Palmas; Barranca Ibarra; Barranca Veltrán), Durango (Chacalá), Colima (Rio de la Armería; Colima), and Oaxaca (Putla; Ventosa; Zanátepec; Tehuántepec), and Territory of Tepic (San Blas).

*Chrysotis viridigenalis* (not of Cassin) SCLATER, Proc. Zool. Soc. Lond., 1857, 230, in text (Mexico); 1874, 206 (living specimens in Zool. Garden).—SOUANCE, Icon. Perr., 1857, part, pl. 31, upper fig. ("California").

*Chrysotis viridigenalis* var. GRAY, List Birds Brit. Mus., Psittacidae, 1859, 82 (spec. b).

(?) [*Chrysotis*] *glauiceps* SCLATER, Proc. Zool. Soc. Lond., 1864, 368, in text, under *C. viridigenalis* (ex Hartlaub, manuscript, *vide* Gray, List Birds Brit. Mus., Psittacidae, 1859, 82).

*Chrysotis finschi* SCLATER, Proc. Zool. Soc. Lond., 1864 (pub. Oct. 1), 298 (Mexico; coll. Brit. Mus.); 1874, 206, pl. 34.—FINSCH, Die Papag., ii, 1868, 543.—SALVIN, Ibis, 1871, 87, 97 (range; crit.).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 37 (Tehuantepec City, Oaxaca).—COUES and STREETS, Bull. U. S. Nat. Mus., no. 7, 1877, 12 (Mita Point, Sinaloa).—REICHENOW, Vogelbild., 1881, in text to pl. 19, fig. 6.—SALVIN and GODMAN, Ibis, 1889, 242, in text (w. Mexico); Biol. Centr.-Am., Aves, ii, 1897, 589 (Choix, Culebra, Mazatlan, and Presidio de Mazatlan, Sinaloa; San Blas, Tepic; Rio de Armería, Colima; Beltran, Jalisco; Putla, Ventosa, Zanatepec, and Tehuantepec, Oaxaca).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 298; Ibis, 1906, 647.

<sup>a</sup> P. L. Jouy. <sup>b</sup> Prof. F. Sumichrast. <sup>c</sup> Nineteen specimens. <sup>d</sup> Four specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Ten adult males from southern Sonora (Alamos).....	213	122	29.9	22.3	29.2
Two adult males from Chihuahua.....	209.7	123	29	21.7	29
One adult male from Durango.....	196	113.5	29	21	27.5
Two adult males from Jalisco.....	205.2	121.2	29.7	21	26.7
Two adult males from Sinaloa.....	208.2	120	30.7	(23)	(27)
One adult male from Colima.....	205	121	29.5	23	31
One adult male from Oaxaca.....	202.5	118	31	22	28.5
FEMALES.					
Two adult females from southern Sonora (Alamos).....	199	115.7	27.7	21	25.2
One adult female from Jalisco.....	193	115	28.5	20	27
One adult female from Michoacan.....	189	110.5	29	20	26.5

[*Chrysotis*] *finschi* GRAY, Hand-list, ii, 1870, 165, no. 8337.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 31 (Sierra de Alica and La Laguna).

*C[hrysotis] finschi* LAWRENCE, Ibis, 1871, 250 (Mazatlan; Colima; crit.).

*Chrysotis finschii* LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 296 (Mazatlan; Rio de la Armeria; habits).

*Androglossa finschi* REICHENOW, Journ. für Orn., 1881, 373 (monogr.); Consp. Psitt., 1882, 213.

*A[mazona] finschi* RIDGWAY, Man. N. Am. Birds, 1887, 587; 2d ed., 1896, 595.

*Amazona finschi* JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 786 (Barranca Veltran, Jalisco).—MILLER (W. DeW.), Bull. Am. Mus. N. H., xxi, 1905, 348 (Cosala, Escuinapa, etc., s. Sinaloa).—BAILEY (H. H.), Auk, xxiii, 1906, 387 (San Blas, Tepic; habits).

[*Amazona*] *finschi* SHARPE, Hand-list, ii, 1900, 21.

*Chrysotis diademata* (not *Psittacus diadema* Spix) GIEBEL, Thesaurus Orn., i, 1872, 681, part.

### AMAZONA ORATRIX ORATRIX Ridgway.

#### DOUBLE YELLOW-HEAD PARROT.

*Adults (sexes alike).*—Forehead and crown pale yellow; rest of head, together with greater part of neck (all round) deeper yellow, deepest (rich chrome yellow) on occiput and hindneck, the latter, as well as lower foreneck, sometimes more or less intermixed with red; general color of remaining upper parts bright yellowish parrot green, the larger wing-coverts and proximal secondaries more or less distinctly edged with lighter and more yellowish green or greenish yellow, the scapulars and interscapulars more or less distinctly margined terminally with black; upper tail-coverts bright light yellowish green; proximal two-thirds (more or less) of tail deep parrot green, the distal third bright light yellowish green; four outermost rectrices (on each side) with proximal third (approximately) of inner web pure poppy red, passing into yellow basally and on inner edge, the corresponding part of outer web (except outermost rectrix) with a narrow space of yellow or mixed red and yellow, near shaft; outer web of lateral rectrix with proximal two-thirds deep green, passing into dark blue on edge; four outer secondaries with outer webs pure poppy red, except extreme basal portion (concealed), which is yellow and pale green, and terminal portion, which is first yellow, then dark violet-blue, or blue-black tinged with blue, the fifth (from outside) with middle portion red, then green (extensively) and dark violet-blue terminally; basal half (approximately) of primaries clear parrot green, the distal half dark violet-blue or black tinged with dark violet-blue, the inner webs dull slate-black; under parts of body clear light yellowish green, the feathers of chest, breast, sides, and upper abdomen with narrow terminal margins of black (very indistinct posteriorly); under tail-coverts vivid light yellowish green; thighs clear chrome yellow, sometimes flecked with red on lower anterior portion, the outer side tinged, more or less, with green; smaller under wing-coverts light yellowish green (sometimes inter-

mixed with red and yellow), those along the carpo-metacarpal edge yellow, flecked or intermixed with red; humeral edge of wing, including bend, pure poppy red (broadly); larger under wing-coverts light dull green or bluish green passing into pale yellowish green or greenish yellow terminally and on edges; under surface of remiges light dull bluish green (malachite), the distal portion and a broad stripe along inner edge of shaft dull blackish slate; bill wholly pale dull buffy or dull buffy whitish; iris orange;<sup>a</sup> legs and feet pale brownish in dried skins (dirty whitish in life).

*Immature (both sexes).*—Similar to adults but with yellow of head and neck much more restricted, in younger individuals confined to forehead, crown, loreal, and suborbital regions, and chin; carpo-metacarpal edge of wing pale green more or less intermixed with yellow, but without red; humeral edge of wing with red more or less reduced, the bend, in younger individuals, yellow margined or flecked with red.

*Young.*—Similar to the immature plumage, as described above, but the yellow confined to the forehead, crown, superciliary region, and upper portion of lores, the suborbital region, lower portion of lores, malar region, and whole throat, green.<sup>b</sup>

*Adult male.*—Length (skins), 315–345 (335); wing, 218–258 (233.6); tail, 108–130.5 (120.6); culmen, 31.5–37 (34.4); tarsus, 23.5–27 (25.3); outer anterior toe, 31.5–34 (33.5).<sup>c</sup>

*Adult female.*—Length (skins), 295–340 (324); wing, 212–240 (225.4); tail, 103.5–126.5 (116.5); culmen, 31–34 (32.3); tarsus, 23–25.5 (24.7); outer anterior toe, 30.5–35 (32.3).<sup>d</sup>

<sup>a</sup> According to Prof. F. Sumichrast.

<sup>b</sup> Sometimes the upper margin of the suborbital feathering (at least anteriorly) and the chin are yellow.

In the young plumage there is a close general resemblance between this species and the adult of *A. ochrocephala panamensis*; but the latter has the whole superciliary region, greater part (often whole) of the loreal region, and the chin green, and there is much less of red on the bend of the wing.

<sup>c</sup> Thirteen specimens.

<sup>d</sup> Nine specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Nine adult males from Tamaulipas (8) and Vera Cruz (1).....	240.6	122.2	34.6	25.5	33.4
One adult male from Colima.....	213	122	34.5	25.5	35
Two adult males from Oaxaca.....	222	113.5	34.7	25.2	34
One adult male from British Honduras.....	221	119.5	31.5	23.5	32
Six adult males from Tres Marias Islands ( <i>A. o. tresmariae</i> ).....	238.3	130.7	34.4	26.1	33.4
FEMALES.					
Six adult females from Tamaulipas.....	227.7	118.3	31.8	24.4	32.5
Two adult females from Vera Cruz.....	221.5	110	32.7	25.2	31.7
One adult female from Oaxaca.....	220	119	34	25	32
One adult female from Tres Marias Islands ( <i>A. o. tresmariae</i> )....	233	131	33	24	31

Mexico, in States of Tamaulipas (Victoria; Sierra Madre above Victoria; Rio Pilón; Rio de la Cruz; Santa Fe de Presas; Sota la Marina; Hidalgo; Aldama; Jiménez; Tampico), Vera Cruz (Pasa Nueva; San Juan; Santa Ana; Alvarado; Misantla; Jalapa; Rio Tamesí near Rayón; Playa Vicente; Rio Rancho Nuevo), Puebla (Rinconada), Mexico (near City of Mexico), Guanajuato (Silao), Colima (Rio Tupila; Rio de Coahuylana), Guerrero (Papayo), Oaxaca (Petapa; Bárrio; Llano Grande; Rio Grande; Tehuántepec), and Yucatán, and southward, through British Honduras (Belize; near Yeacos Lagoon), to Honduras (Yojoa; Ruatán Island).

*Psittacus amazonicus* (not of Linnæus) KUHLE, *Consp. Psitt.*, 1820, 104, part.

*Psittacus ochrocephalus* (not of Gmelin) LICHTENSTEIN, *Preis-Verz. Mex. Vög.*, 1830, 1; *Journ. für Orn.*, 1863, 54 (reprint).

*Ps[ittacus] xanthops* (not of Spix) WAGLER, *Mon. Psitt.*, 1832, 583, part (excl. varieties *a* and *β*).

*P[sittacus] xanthops* HARTLAUB, *Syst. Verz.*, 1844, 87 ("Brasilien").

*Psittacus xanthops* BURMEISTER, *Syst. Ueb. Th. Bras.*, ii, 1856, 188.

*Chrysotis xanthops* (not of Swainson) SOUANCE, *Rev. et Mag. de Zool.*, 1856, 153 (crit.).—BONAPARTE, *Naumannia*, 1856 (*Consp. Psitt.*, no. 88).—TAYLOR, *Ibis*, 1860, 317 (Yojoa, Honduras).

*C[hrysotis] ochropterus* (not *Psittacus ochropterus* Gmelin) GRAY, *Gen. Birds*, ii, 1846, 422, part.

*Chrysotis ochroptera* SCLATER, *Proc. Zool. Soc. Lond.*, 1837, 230 (Rio Grande, Oaxaca); 1859, 389 (Playa Vicente, Vera Cruz; Rio Grande, "S. Mex.").

[*Chrysotis] ochroptera* SUMICHRAST, *Mem. Bost. Soc. N. H.*, i, 1869, 560 (tierra caliente of Vera Cruz).

*Chrysotis levaillantii* (not *Amazona levaillantii* Lesson, 1831) GRAY, *List. Birds Brit. Mus.*, *Psittacidæ*, 1859, 79.—SCLATER, *Cat. Am. Birds*, 1862, 353 (S. Mexico).—LAWRENCE, *Mem. Bost. Soc. N. H.*, ii, 1874, 296, part (Rio Tupila and Rio de Coahuylana, Colima; habits; descr. nest and eggs); *Bull. U. S. Nat. Mus.*, no. 4, 1876, 36 (Barrio and Petapa, Oaxaca).—DUGÈS, *Auk*, xvi, 1899, 287 (Silao, Guanajuato, accidental).

*Ch[rysotis] levaillantii* PELZELN, *Orn. Bras.*, 1870, 266, footnote.

*Chrysotis levaillanti* SALVIN, *Ibis*, 1866, 195 (Belize, Brit. Honduras; Yucatan); *Ibis*, 1871, 100 (range).—FINSCH, *Die Papag.*, ii, 1868, 580.—GARROD, *Proc. Zool. Soc. Lond.*, 1873, 466 (carotid arteries), 634 (leg muscles).—REICHENOW, *Vogelbild.*, 1878, pl. 1, fig. 4.—FERRARI-PEREZ, *Proc. U. S. Nat. Mus.*, ix, 1886, 163 (Santa Ana, Vera Cruz).—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, ii, 1897, 587, part (Rio Tupila, etc., Colima; Villa Grande, Nuevo Leon; Sierra Madre above Ciudad Victoria, and Aldama, Tamaulipas; Playa Vicente, Rio Rancho Nuevo, and Alvarado, Vera Cruz; Petapa, Rio Grande, etc., Oaxaca; Belize; Ruatan I., etc., Honduras).—SALVADORI, *Cat. Birds Brit. Mus.*, xx, 1891, 293, part (Tampico, etc., Tamaulipas; Misantla, etc., Vera Cruz; etc.); *Ibis*, 1906, 646 (crit. nomencl.).

[*Chrysotis] levaillanti* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 114.—FORBES and ROBINSON, *Bull. Liverpool Mus.*, i, no. 1, 1897, 13.

*C[hrysotis] levaillanti* LAWRENCE, *Ibis*, 1871, 250 part (Mexico City; Tehuantepec, Oaxaca; crit.).—SALVIN and GODMAN, *Ibis*, 1889, 241, in text.

*Androglossa levaillanti* REICHENOW, *Journ. für Orn.*, 1881, 379 (monogr.); *Consp. Psitt.*, 1882, 219, part.

[*Androglossus] levaillanti* HEINE and REICHENOW, *Nom. Mus. Hein. Orn.*, 1890, 231, (Jalapa, Vera Cruz).

- Amazona aestiva* (not *Psittacus æstivus* Linnæus) SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 54, part (Mexico); no. 38 (Revue), 1874, 27, part (Mexico).  
*A[mazona] oratrix* RIDGWAY, Man. N. Am. Birds, Sept. 27, 1887, 587 (new name for *Chrysotis levaillantii* Gray, preoccupied by *Amazona levaillantii* Lesson); 2d ed., 1896, 594, part.  
*Amazona oratrix* LANTZ, Trans. Kansas Ac. Sci. for 1897-99 (1900), 220 (Rinconada, Puebla).—PHILLIPS, Auk, xxviii, 1911, 75 (Rio de la Cruz, s. Tamaulipas).  
*[Amazona] oratrix* SHARPE, Hand-list, ii, 1900, 21, part.

### AMAZONA ORATRIX TRESMARIÆ Nelson.

#### TRES MARIAS PARROT.

Similar to *A. o. oratrix* but with bill more robust, the mandible decidedly broader, and green color less yellowish, especially on under parts, which are tinged with light cendre or pale emerald green, and with black terminal margins to feathers of back, chest, etc., very indistinct or obsolete.

*Adult male*.—Length (skins), 360-398 (374); wing, 232-243 (238.3); tail, 124.5-136 (130.7); tarsus, 24-27 (26.1); outer anterior toe, 32-35 (33.4).<sup>a</sup>

*Adult female*.—Length (skin), 365; wing, 233; tail, 131; culmen, 33; tarsus, 24; outer anterior toe, 31.<sup>b</sup>

Tres Marias Islands (Maria Madre; Cleofa), western Mexico.

- Chrysotis levaillanti* (not of Gray) FINSCH, Die Papag., ii, 1868, 580, part (Tres Marias Islands).  
*Chrysotis levaillantii* GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 271 (Tres Marias Islands; habits; descr. nest and eggs).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 296, part (Tres Marias; habits; descr. nest and eggs).  
*Chrysotis levaillanti* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 293, part (Tres Marias Islands).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 587, part (Tres Marias).  
*C[hrysotis] levaillanti* LAWRENCE, Ibis, 1871, 250, part (Tres Marias).  
*A[mazona] oratrix* RIDGWAY, Man. N. Am. Birds, 1887, 587, part (Tres Marias); 2d ed., 1896, 594, part (Tres Marias).  
*Amazona oratrix* NELSON, N. Am. Fauna, no. 14, 1899, 39 (Tres Marias; habits; crit.).—BAILEY (H. H.), Auk, xxiii, 1906, 387 (Cleofa I., Tres Marias).  
*[Amazona] oratrix* SHARPE, Hand-list, ii, 1900, 21, part (Tres Marias).  
*Amazona oratrix tresmariæ* NELSON, Auk, xvii, July, 1900, 256 (Maria Madre I., Tres Marias group, w. Mexico; coll. U. S. Nat. Mus.).  
*Amazona tres-mariæ* SALVADORI, Ibis, Oct., 1906, 646 (crit.).

### AMAZONA OCHROCEPHALA PANAMENSIS (Cabanis).

#### PANAMÁ PARROT.

Similar to *A. o. ochrocephala* <sup>c</sup> but yellow of crown involving entire forehead, and size smaller.

*Adults (sexes alike)*.—Forehead and median portion of crown chrome yellow, this color extending to base of cere, sometimes con-

<sup>a</sup> Six specimens.

<sup>b</sup> One specimen.

<sup>c</sup> See key, on p. 221.

tinued along median line to occiput, the feathers (at least on forehead) sometimes with subbasal portion red; extreme lateral portion of forehead, sides of crown (sometimes posterior part of crown), light bluish green (light paris green), passing into light yellowish parrot green, on occiput and hindneck, the feathers of the latter, especially on lower portion, very indistinctly margined terminally with blackish; general color of upper parts yellowish parrot green, the larger wing-coverts and proximal secondaries more or less distinctly edged with lighter yellowish green or greenish yellow, the upper tail-coverts lighter, brighter and more yellowish green; four outer secondaries with outer webs deep poppy red for greater part, the concealed basal portion green, the distal portion dark violet-blue, with more or less of green and yellow between the red and blue areas, especially on outer edge; proximal half (more or less) of primaries clear parrot green, the distal half dark violet-blue or bluish black, the inner webs dull black or slate-black; basal two-thirds (approximato) of tail deep parrot green, distal third light yellowish green, the four outside, rectrices (on each side) with subbasal third (more or less) poppy red, this involving both webs, except on the outermost, which has the proximal half or more of outer web mostly or wholly green (sometimes tinged with dull blue along edge); sides of head and neck light green or yellowish green, the bare orbital space sometimes partly bordered with yellow; under parts clear light yellowish green, the lower portion and inner side of thighs partly or (in high plumage) mostly yellow, sometimes intermixed with red; smaller under wing-coverts light greenish yellow, those along carpo-metacarpal edge paler and more yellowish green, sometimes slightly tinged or intermixed with red; humeral border of wing (broadly), including bend, bright poppy red; larger under wing-coverts dull light green passing into pale yellowish green terminally and along edges; under surface of remiges dull light green (nearly malachite), the distal portion of primaries and a broad stripe along inner side of shaft dull blackish slate; bill mostly dull light buffy or ivory whitish, but with a greater or less amount of horn color on distal portion of maxilla; iris yellow or orange; legs and feet light brownish or horn color (dirty flesh color in life).

(Younger individuals have the red humeral border of wing more or less broken by admixture of green feathers, thighs almost wholly green, and red of tail more restricted, confined to inner webs, and there reduced in extent.)

*Adult male*.—Length (skins), 300–320 (309); wing, 199–213 (204.2); tail, 101–112 (105.4); culmen, 30–33 (31.2); tarsus, 23–25 (24.1); outer anterior toe, 29.5–31 (30.9).<sup>a</sup>

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<sup>a</sup> Four specimens.



*Adult female*.—Length (skins), 295–322 (305); wing, 194.5–209.5 (202.3); tail, 99–111 (105.7); culmen, 29–33 (31.3); tarsus, 22.5–25.5 (23.7); outer anterior toe, 28.5–35 (31.7).<sup>a</sup>

Panamá (Dívala, Chiriquí; Chitra, Verágua; Natá, Coclé; Agua Dulce; Panamá) and Colombia (Puerto Bérrio and Honda, Rio Magdalena; Fundación, Santa Marta; “Bogotá”).

*Chrysotis ochrocephala* (not *Psittacus ochrocephalus* Gmelin) SALVIN, Ibis, 1871, 87, 99 (Chiriqui, Panama).—LAWRENCE, Ibis, 1871, 251 (Panama).

[*Chrysotis ochrocephala* SCLATER and SALVIN, Nom. Av. Neotr, 1873, 114, part.

*Chrysotis panamensis* CABANIS, Journ. für Orn., July, 1874, 349 (Panama; coll. Berlin Mus.).—SCLATER, Ibis, 1881, 413 (crit.; Veragua, Panama).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 291 (Chitra, Veragua, and Panama City, Panama; Bogota, Colombia); Ibis, 1906, 645.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 586.—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, 1899, no. 339, 9 (Panama).

[*Chrysotis panamensis* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 13.

[*Androglossa ochrocephala*.] Subspecies: *panamensis* REICHENOW, Journ. für Orn., 1881, 378 (monogr.); Consp. Psitt., 1882, 218; Vogelbild., 1883, in text to pl. 32, fig. 9.)

[*Amazona panamensis* SHARPE, Hand-list, ii, 1900, 21.

#### AMAZONA BARBADENSIS BARBADENSIS (Gmelin).

##### YELLOW-WINGED PARROT.

*Adults (sexes alike)*.—Forehead dull white; crown (at least anterior half), orbital, suborbital, rictal, and malar regions, anterior half (at least) of auricular region, and upper throat yellow (chrome yellow lemon chrome, or empire yellow); rest of head and neck, and general color of upper parts, bright parrot green, the feathers broadly margined terminally with black, except on rump, upper tail-coverts, secondaries, and wing-coverts, the lesser wing-coverts and rump, however, with narrow black terminal margins; upper tail-coverts bright yellowish green (javel green or cosse green); lesser coverts at bend of wing yellow, forming a more or less extensive patch; four distal secondaries with basal half (approximately) of outer web vermilion red (often more or less intermixed with yellow), the fifth usually with

<sup>a</sup> Six specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Panama.....	199	104.5	30	25	31
Three adult males from Colombia.....	206	105.7	31.7	23.8	30.8
FEMALES.					
One adult female from Panama.....	194.5	99	31	23	32
Five adult females from Colombia.....	203.9	107	31.4	23.9	31.7

part of outer web red or mixed red and yellow, the distal half of all green passing through blue into black on terminal portion; proximal portion of primaries green, the distal half, or more, blue and black; four middle pairs of rectrices deep parrot green broadly tipped with light yellowish green; other rectrices with a basal area of clear vermilion red passing into light salmon-orange on edge of inner web, the middle area (broadly) deep parrot green, the terminal area (still more broadly) light yellowish green, the outer web of outermost rectrix deep blue for basal half or two-thirds, pale greenish blue or bluish green distally; under parts clear light yellowish green, glossed with light bluish green (neüvieder to turquoise green) in certain lights, each feather (except on under tail-coverts and, sometimes, on lower abdomen and posterior part of flanks) margined terminally with black; thighs chrome yellow; smaller under wing-coverts clear light yellowish green, narrowly tipped with black; under primary coverts and under surface of remiges dull light bluish green, the narrowed distal portion of longer primaries and a broad stripe along shaft dusky; bill dull buff; legs and feet dusky brownish (in dried skins).

*Adult female*.—Length (skin), 325; wing, 210.5; tail, 123; tarsus, 22.5; outer anterior toe, 29.5.<sup>a</sup>

Venezuela, including Margarita Island; Aruba Island, Dutch West Indies; Trinidad.

[*Psittacus*] *barbadensis* GMELIN, Syst. Nat., i, pt. 1, 1788, 339 ("Barbados"; based on *Psittacus barbadensis* Brisson, Orn., iv, 236; *Perroquet des Barbades* Albin, pl. 11).—LATHAM, Index Orn., i, 1790, 120.

[*Psittacus*] *ochropterus* GMELIN, Syst. Nat., i, pt. 1, 1788, 341 ("America australi"; based on *Psittacus amazonicus gutture luteo* Brisson, Orn., iv, 287; *Crick à tête et gorge jaune* Buffon, Ois., vi, 222; *Yellow-winged Parrot* Latham, Synopsis Birds, i, 289; etc.).—LATHAM, Index Orn., i, 1790, 123.

*Psittacus ochropterus* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 243.

*Psittacus ochropterus* TEMMINCK, Cat. Syst., 1807, 31 and note (app.), p. 8.—BECHSTEIN, Kurze Ueb., 1811, 97.

*Psittacus ochruptenus* BREHM, Mon. Papag., 1855, pl. 70.

*Psittacus ochropterus* VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 327 (cites "pl. 48 Ois. Frisch"); Tabl. Enc. Méth., iii, 1823, 1374.

[*Chrysotis*] *ochropterus* SWAINSON, Classif. Birds, ii, 1837, 301.

*C[hr]ysotis ochropterus* GRAY, Gen. Birds, ii, 1846, 422.

*Chrysotis ochroptera* BONAPARTE, Rev. et Mag. de Zool., 1854, 151; Naumannia, 1856 (Consp. Psitt., no. 87).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 153.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 79.—FINSCH, Die Papag., ii, 1868, 577.—PELZELN, Orn. Bras., 1870, 266, footnote.—REICHENOW, Vogelbild., 1878, pl. 1, fig. 5.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 288; Ibis, 1906, 645.—HARTERT, Ibis, 1893, 301, 328, 329, pl. 9, fig. 1 (Aruba I., Dutch West Indies; crit.; habits).

<sup>a</sup> One specimen, from Aruba. The type of *Chrysotis lactifrons* Lawrence, probably also from Aruba, the sex being undetermined, measures as follows: Tail, 109.5; culmen, 26; tarsus, 20.5; outer anterior toe, 26. This has the primaries imperfect, while the other specimen has the terminal portion of the maxilla broken off.

- [*Chrysotis ochroptera* GRAY, Hand-list, ii, 1870, 164, no. 8316.—SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 114.—FORBES and ROBINSON, *Bull. Liverpool Mus.*, i, 1897, 13.
- Chrysotis ochroptera ochroptera* HARTERT, *Novit. Zool.*, ix, 1902, 302 (Aruba I.; crit.).
- Amazona aestiva* (var. *ochroptera*) SCHLEGEL, *Mus. Pays-Bas*, iii, no. 26 (Psittaci), 1864, 55.
- [*Amazona ochroptera* SHARPE, Hand-list, ii, 1900, 21.
- Amazona ochroptera* LOWE, *Ibis*, 1907, 557 (Margarita I., Venezuela; crit.).—CORY, *Pub. 137, Field Mus. N. H.*, 1909, 199 (Aruba I.).
- Androglossa ochroptera* REICHENOW, *Journ. für Orn.*, 1881, 378 (monogr.); *Consp. Psitt.*, 1882, 218.
- [*Androglossus ochropterus* HEINE and REICHENOW, *Nom. Mus. Hein. Orn.*, 1890, 231 ("Sud-Mexico").
- Psittacus amazonicus* (not of Linnæus) KUHLMANN, *Consp. Psitt.*, 1820, 74, part.—HAHN, *Orn. Atlas, Papag.*, 1836, pl. 45 (young).
- Amazona icterocephala* LESSON, *Traité d'Orn.*, 1831, 190, part.
- [*Psittacus xanthops*] var.  $\alpha$  WAGLER, *Mon. Psitt.*, 1832, 584 (based on *Psittacus amazonicus gutture luteo* BRISSON, *Orn.*, iv, 287).
- [*Psittacus xanthops*] var.  $\beta$  WAGLER, *Mon. Psitt.*, 1832, 584 (based on Levaillant, pl. 98).
- Chrysotis zanthocephalus* SWAINSON, *Classif. Birds*, ii, 1837, 301 (based on *Le Perroquet à epaulettes jaunes* Levaillant, *Perr.*, pl. 98 bis).
- Chrysotis lactifrons* LAWRENCE, *Ann. N. Y. Ac. Sci.*, i, no. 4, March 26, 1878, 125 (locality unknown; coll. G. N. Lawrence).—SCLATER, *Ibis*, 1881, 412 (crit.).
- Chrysotis canifrons* LAWRENCE, *Ann. N. Y. Ac. Sci.*, ii, no. 12, May 28, 1883, 381 (Aruba Island, Dutch West Indies; coll. G. N. Lawrence); *Ibis*, 1883, 371 (crit.); 1893, 566, 567 (crit.).—REICHENOW and SCHALOW, *Journ. für Orn.*, 1885, 460 (reprint of orig. descr.).—SALVADORI, *Cat. Birds Brit. Mus.*, xx, 1891, 272, footnote.—HARTERT, *Ibis*, 1894, 102-105 (crit.; refers it to *C. ochroptera*).
- [*Chrysotis ochroptera*] var. *canifrons* DUBOIS, *Synop. Avium*, fasc. i, 1899, 5 (Aruba Is.).

#### AMAZONA BARBADENSIS ROTHSCILDI (Hartert).

##### ROTHSCILD'S PARROT.

Similar to *A. b. barbadensis* but with much less of yellow on the head, the green of the neck extending over the malar region, usually quite to the base of the maxilla; crown suffused with red (mostly on basal portion of feathers), and yellow on bend of wing deeper (orange-yellow), often tinged or flecked with red; size larger.

*Adult male*.—Length (skins), 305-333 (322); wing, 214.5-225 (221.2); tail, 129-142.5 (137.3); culmen, 31-31.5 (31.2); tarsus, 23-23.5 (23.3); outer anterior toe, 29.5-30 (29.8).<sup>a</sup>

<sup>a</sup> Three specimens, from Blanquilla.

*Adult female*.—Length (skin), 313; wing, 215.5; tail, 128; culmen, 28.5; tarsus, 20; outer anterior toe, 25.5.<sup>a</sup>

Island of Bonaire, Dutch West Indies; islands of Blanquilla and Margarita, Venezuela.

*Chrysotis rothschildi* HARTERT, Bull. Brit. Orn. Club, no. iii, Dec. 1, 1892, p. xiii (Bonaire Island, Dutch West Indies; coll. Tring Mus.); Ibis, 1893, 123 (reprint), 328, pl. 9, fig. 2 (Bonaire; crit.; habits).—SALVADORI, Ibis, 1906, 645 (descr.).—LOWE, Ibis, 1907, 117 (Blanquilla I.; descr. adults and young); 1909, 330 (Blanquilla I.; crit.).

[*Amazona*] *rothschildi* SHARPE, Hand-list, ii, 1900, 21.

*Chrysotis ochroptera rothschildi* HARTERT, Novit. Zool., ix, 1902, 303 (Bonaire; crit.; habits).

*Amazona ochroptera rothschildi* CORY, Pub. 137, Field Mus. N. H., Oct. 25, 1909, 211 (Bonaire I.; crit.), 223 (Blanquilla I.; crit.), 242 (Margarita I.).

### AMAZONA ALBIFRONS ALBIFRONS (Sparman).

#### WHITE-FRONTED PARROT.

*Adult male*.—Loral and orbital regions (the latter narrowly above, broadly below, eye), and anterior margin of forehead deep poppy red (or between poppy red and carmine); rest of forehead yellowish white or buffy white, sometimes tinged or suffused with pale red; crown greenish blue (dull turquoise or light cerulean), the feathers margined terminally with black, producing narrow bars; blue of crown gradually passing on occiput and hindneck into clear, bright parrot green, the feathers similarly margined terminally with black (more broadly so on lower hindneck); back, scapulars, and rump more yellowish parrot green, passing into light yellowish green on upper tail-coverts, the feathers (except tail-coverts) margined terminally with black (these margins less distinct, sometimes obsolete, on rump and posterior scapulars); wing-coverts and proximal secondaries clear bright yellowish green, the larger coverts edged with paler and

<sup>a</sup> One specimen, from Blanquilla.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Three adult males from Blanquilla Island.....	221.2	137.3	31.2	23.3	29.8
One adult male from Margarita Island.....	195	124.5	30	22	29.5
FEMALE.					
One adult female from Blanquilla Island?.....	215.5	128	28.5	20	25.5
One adult female from Margarita Island?.....	206	124.5	28.5	21	25.5

The specimen certainly from Margarita Island is not typical *A. b. rothschildi*, but is intermediate between that form and *A. b. barbadosis*, nearer to the latter, in fact. The other female, doubtfully from Blanquilla, is a typical *A. b. rothschildi*.

more yellowish green; secondaries (except innermost ones), proximal primaries, and distal half of longer primaries deep blue (nearest hyacinth blue), the former edged (at least toward base) with light greenish blue; outermost primary wholly dull slate-blackish or dusky, the succeeding four or five primaries with basal half (approximately) clear parrot green; alula, primary coverts, and small feathers on outer side of carpo-metacarpal region pure poppy red or spectrum red; middle pair of rectrices clear parrot green, passing into more yellowish green terminally; next pair similar on outer web, but inner webs greenish yellow passing into yellow basally, and with a streak of red (more or less broad) next to shaft on sub-basal portion; third pair similar but with the red much wider and involving inner half of outer web also; fourth and fifth pairs with basal half (approximately) of both webs wholly red, the sixth (outermost) pair similar but with outer web pale bluish green or greenish blue terminally and often edged with green basally or sub-basally; rest of head, together with neck, clear parrot green, immaculate anteriorly but posteriorly with feathers more or less distinctly tipped with black, these black terminal bars very distinct only on foreneck and chest, however; under parts clear light green (yellowish paris green), the under wing-coverts similar or slightly more yellowish green; under primary coverts and under surface of remiges malachite green, the longer primaries with distal portion and a broad stripe next to shaft dusky; bill yellow; iris pale yellow or yellowish white; <sup>a</sup> bare orbital space pale brownish (in dried skins); legs and feet light brownish in dried skins, dull white <sup>a</sup> or putty color <sup>b</sup> in life; length (skins), 246-270 (260); wing, 175-192 (183.5); tail, 82.5-100 (94.9); culmen, 23.5-29 (26.1); tarsus, 18-20.5 (19.4); outer anterior toe, 23.5-26.5 (25.2).<sup>c</sup>

*Adult female.*<sup>d</sup>—Similar to the adult male but with much less of red on wing, frequently none; the alulae always (?) wholly green, and usually the primary coverts mostly green; otherwise exactly like the adult male, the head being colored precisely the same; length (skins), 235-

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<sup>a</sup> Prof. A. Sumichrast.

<sup>b</sup> M. A. Carriker, jr.

<sup>c</sup> Nineteen specimens.

<sup>d</sup> The circumstance that of eleven adult specimens which according to their respective collectors are females only two agree with adult males in the amount of red on the wings, four of them having none whatever, leads me to believe that the two exceptions are cases of erroneous sex determination, and that there is a marked difference between the sexes in this species.

283 (259); wing, 171-190 (178.2); tail, 83-98 (89.6); culmen, 23.5-26 (24.8); tarsus, 17.5-20 (18.9); outer anterior toe, 22-26 (23.8).<sup>a</sup>

*Immature male*.—Similar in coloration to adult female, but with white of forehead more restricted.

*Immature female*.—Similar to the immature male, but with little if any red on sides of head, except on lores.

*Young male*.—Similar to the immature male, but red of head confined to lores and anterior margin of forehead, and white of forehead still more restricted, often tinged with, or replaced by, pale yellow.

*Young female*.—Similar to the immature female, but without any red on head, the entire suborbital region green, the superciliary region dull greenish blue or bluish green, except anteriorly, where, together with forehead and lores, dull white.

Western Mexico, in States of Sinaloa (Mazatlán; Presidio de Mazatlán; Mocovito; Escuinapa; Alota; Rio Juana Gomez), Guerrero (Acapulco), Oaxaca (La Parada; Santa Efigénia; Puerto Angel; Huilótepec; Juchitán; Chihuitán; Tehuántepec; Cacoprieto) and Mexico (near City of Mexico), and Territory of Tepic (San Blas).

*Psittacus albifrons* SPARRMAN, Mus. Carls., fasc. 3, 1787, no. lii, pl. 52 (based on *White-crowned Parrot* Latham, Synopsis Birds, i, 281, no. 88, var. B).—BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 713.—SHAW, Gen. Zool., viii, pt. 2,

<sup>a</sup> Twelve specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Ten adult males from Sonora ( <i>A. a. saltuensis</i> ).....	186.3	93.7	24.9	18.7	25.5
Ten adult males from Sinaloa.....	184.6	98.2	25.2	19.4	25.1
Nine adult males from Guerrero (2) and Oaxaca (7).....	182.9	91.2	26.9	19.2	25.2
One adult male from Campeche ( <i>A. a. nana</i> ).....	180	85	27	20	26.5
One adult male from Yucatan ( <i>A. a. nana</i> ).....	170.5	86	24.5	19	25
Three adult males from Chiapas ( <i>A. a. nana</i> ).....	168.3	82.5	27.5	18.8	24.5
Five adult males from Guatemala ( <i>A. a. nana</i> ).....	165	81.2	24.6	18.2	23.8
One adult male from British Honduras ( <i>A. a. nana</i> ).....	167.5	73	24	18.5	22
One adult male from Honduras ( <i>A. a. nana</i> ).....	157.5	73	25	19	23
Four adult males from Nicaragua ( <i>A. a. nana</i> ).....	164.5	77.4	24.5	17.8	23.3
Three adult males from Costa Rica ( <i>A. a. nana</i> ).....	166.5	77.5	26	17.7	23.7
FEMALES.					
Nine adult females from Sonora ( <i>A. a. saltuensis</i> ).....	178.6	87.6	23.2	18.4	22.8
Five adult females from Sinaloa.....	177.3	91.7	24.7	19.3	22.7
Seven adult females from Oaxaca.....	178.9	88.1	25	18.9	24.3
One adult female from Guatemala ( <i>A. a. nana</i> ).....	158.5	77	25	17	22
One adult female from British Honduras ( <i>A. a. nana</i> ).....	162	76	26	20	22.5
One adult female from Honduras ( <i>A. a. nana</i> ).....	170	79.5	26	18	23.5
Four adult females from Nicaragua ( <i>A. a. nana</i> ).....	161.9	74.9	23.5	18	23.1
One adult female from Costa Rica ( <i>A. a. nana</i> ).....	162	78.5	23.5	19	23

1811, 518.—KUHLE, Consp. Psitt., 1820, 80.—DESMAREST, Dict. Sci. Nat., xxxix, 1826, 105.—WAGLER, Isis, 1831, 525 (Mexico).—GULLIVER, Proc. Zool. Soc. Lond., 1875, 489.

[*Psittacus albifrons*] LATHAM, Index Orn., i, 1790, 119.

*Psittacus albifrons* BECHSTEIN, Kurze Uebers., 1811, 95.—WAGLER, Mon. Psitt., 1832, 601, 719.

*Chrysotis albifrons* BONAPARTE, Rev. et Mag. de Zool., 1854, 151; Naumannia, 1856 (Consp. Psitt., no. 91).—SOUANCÉ, Rev. et Mag. de Zool., 1856, 153; Icon. Perr., 1857, pl. 30.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 83 (Mexico).—FINSCH, Die Papag., ii, 1868, 526, part; Abh. Nat. Ver. Bremen, 1870, 352 (Mazatlan).—SALVIN, Ibis, 1871, 87, 96, part (range).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 296 (Mazatlan; habits); Bull. U. S. Nat. Mus., no. 4, 1876, 37 (Chihuitan and Juchitan, Oaxaca).—REICHENOW, Vogelbild., 1878, pl. 1, fig. 8.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 311, part (Mazatlan and Presidio de Mazatlan, Sinaloa; Acapulco, Guerrero; Tehuantepec, Oaxaca); Ibis, 1906, 648.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 593, part (Santa Efigenia, Cacoprieto, etc., Oaxaca; Mazatlan, etc., Sinaloa; Acapulco, Guerrero).

[*Chrysotis albifrons*] GRAY, Hand-list, ii, 1870, 165, no. 8333, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14, part.

[*Chrysotis albifrons*] LAWRENCE, Ibis, 1871, 251, part (Mazatlan).

*Amazona albifrons* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 59, part (Mexico), BAILEY (H. H.), Auk, xxiii, 1906, 387 (San Blas, Tepic).

*A[mazona] albifrons* RIDGWAY, Man. N. Am. Birds, 1887, 588, part; 2d ed., 1896, 595, part.

[*Amazona albifrons*] SHARPE, Hand-list, ii, 1900, 22, part.

*Amazona albifrons albifrons* MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, Nov. 24, 1905, 348 (Alota, Escuinapa, etc., s. Sinaloa; crit.).

*Androglossa albifrons* REICHENOW, Journ. für Orn., 1881, 375, part (monogr.); Consp. Psitt., 1882, 215, part.

[*Psittacus leucocephalus*] γ. GMELIN, Syst. Nat., i, pt. 1, 1788, 338 (based on *White-crowned Parrot* Latham, Synopsis, i, pt. 1, 281, no. 88B.).

*Psittacus leucocephalus* (not of Linnæus) SHAW, Gen. Zool., viii, pt. 2, 1811, 517, part.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 322, part (description and most of remarks); Tabl. Enc. Méth., iii, 1823, 1371, part.

*Psittacus erythropis* (not *P. erythropis* Vieillot, 1817) LESSON, Traité d'Orn., 1831, 200 ("Brésil"; ex Cuvier, manuscript).

*Chrysotis apophoenica* REICHENOW, Journ. für Orn., 1880, 111 (locality not stated).

—REICHENOW and SCHALOW, Journ. für Orn., 1881, 80 (reprint of orig. descr.).

*Chrysotis apophænica* SCLATER, Ibis, 1880, 378 (crit.); 1881, 413 (crit.).

#### AMAZONA ALBIFRONS NANA Miller.

##### LESSER WHITE-FRONTED PARROT.

Similar in coloration<sup>a</sup> to *A. a. albifrons* but decidedly smaller.

*Adult male*.—Length (skins), 220–280 (246); wing, 157.5–180 (166.5); tail, 73–87.5 (79.6); culmen, 23.5–28 (25.4); tarsus, 17–20 (18.4); outer anterior toe, 22–26.5 (23.9).<sup>b</sup>

<sup>a</sup> I can not appreciate any constant differences of coloration, though many specimens, especially among those from western Nicaragua and Costa Rica (the species apparently does not occur on the Atlantic side of those countries) have the throat more or less (sometimes, conspicuously) intermixed with red.

<sup>b</sup> Nineteen specimens.

*Adult female*.—Length (skins), 225–241 (236); wing, 152.5–171 (162.5); tail, 70–79.5 (76.3); culmen, 22–26 (24.4); tarsus, 17–20 (18.2); outer anterior toe, 22–24.5 (22.9).<sup>a</sup>

Southern Mexico, in States of Chiapas (Tonalá, Palenque), Campeche (Apazote) and Yucatán (Mérida; Calotmúl; Tunkas; Izamál; Citilpech; Buctzotz; Chichen-Itza) and southward, through Guatemala (Gualán; Rio Manágua; Rio Montágua; Rio Chiguete; Retalhuleu; Naranjo; Aguas Calientes; Volcán de Fuego at 8,000 feet; Zacapa; San José), British Honduras (near Manatee Lagoon), Honduras (Chasniguas; Chamelicón; San Pedro; Yojoa) and western Nicaragua (Matagalpa; Ocotál; Sucuyá; San Rafael del Norte; San Juan del Sur; La Libertád), to western Costa Rica (Volcán de Miravalles; Tenório; Desmonte; Bebedero; Nicoya; Libéria; San Mateo).

*Chrysotis albifrons* (not of Sparman) SCLATER, Proc. Zool. Soc. Lond., 1858, 359 (near San Pedro, Honduras).—SCLATER and SALVIN, Ibis, 1859, 133 (Central America).—TAYLOR, Ibis, 1860, 121 (between Yojoa and San Pedro, Honduras).—FINSCH, Die Papag., ii, 1868, 526, part.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 131 (Desmonte and Nicoya, Costa Rica); ix, 1869, 207 (Merida, Yucatan).—FRANTZIUS, Journ. für Orn., 1869, 366 (Costa Rica).—SALVIN, Ibis, 1871, 87, 96, part (range).—BOUGARD, Proc. Zool. Soc. Lond., 1883, 455 (Yucatan; habits).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 376, 388 (San Juan del Sur and Sucuya, Nicaragua; habits, etc.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 593 (Merida, Buctzotz, Izamal, Tunkas, and Citilpech, Yucatan; Tonalá, Chiapas; Retalhuleu, Rio Chiguete, Agua Caliente, and Volcan de Fuego at 8,000 ft., Guatemala; Yojoa and San Pedro, Honduras; La Libertad, Matagalpa, etc., Nicaragua; San Mateo, Liberia, etc., Costa Rica).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 205 (Tunkas and Citilpech, Yucatan).—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 311, part (localities in Yucatan, Chiapas, Guatemala, Honduras, Nicaragua, and Costa Rica).—UNDERWOOD, Ibis, 1896, 445 (Volcan de Miravalles, Costa Rica; food).—LANTZ, Trans. Kansas Ac. Sci. for 1897–99 (1900), 220 (Naranjo, Guatemala).

<sup>a</sup> Eight specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
One adult male from Campeche.....	180	85	27	20	26.5
One adult male from Yucatan.....	170.5	86	24.5	19	25
Three adult males from Chiapas.....	168.3	82.5	27.5	18.8	24.5
Five adult males from Guatemala.....	165.6	81.2	24.6	18.2	23.8
One adult male from British Honduras.....	167.5	73	24	18.5	22
One adult male from Honduras.....	157.5	73	25	19	23
Four adult males from Nicaragua.....	164.5	77.4	24.5	17.8	23.3
Three adult males from Costa Rica.....	166.5	77.5	26	17.7	23.7
FEMALES.					
One adult female from Guatemala.....	158.5	77	25	17	22
One adult female from British Honduras.....	162	76	26	20	22.5
One adult female from Honduras.....	170	79.5	26	18	23.5
Four adult females from Nicaragua.....	161.9	74.9	23.5	18	23.1
One adult female from Costa Rica.....	162	78.5	23.5	19	23



- C[hrysotis] albifrons* LAWRENCE, Ibis, 1871, 251, part (Costa Rica; Yucatan).—SCLATER, Ibis, 1880, 378, in text (Rio Montagua and Rio Chiguate, Guatemala; crit.).
- [Chrysotis] albifrons* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113, part.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14, part ("Zucapa," i. e., Zacapa, Guatemala).
- Chrysotis albifrons albifrons* CARRIKER, Ann. Carnegie Mus., vi, 1910, 488 (Tenorio, Bebedero, etc., Costa Rica).
- Amazona albifrons* SCHLEGEL, Mus. Pays-Bas., iii, no. 26 (Psittaci), 1864, 59, part; no. 38 (Revue), 1874, 28 (Rio Chiguate, w. Guatemala).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1887, 124 (Liberia, Costa Rica).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 236 (Chichen-Itza, Yucatan).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 86 (Gualan and San Jose, Guatemala; crit.).
- A[mazona] albifrons* RIDGWAY, Man. N. Am. Birds, 1887, 588, part; 2d ed., 1896, 595, part.
- [Amazona] albifrons* SHARPE, Hand-list, ii, 1900, 22, part.
- Androglossa albifrons* REICHENOW, Journ. für Orn., 1881, 375, part; Consp. Psitt., 1882, 215, part.
- [Androglossus] albifrons* HEINE and REICHENOW, Nom. Mus. Hein., Orn., 1890, 232 (Yucatan).
- Amazona albifrons nana* MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, Nov. 24, 1905, 349 (Calotmul, Yucatan; coll. Am. Mus. Nat. Hist.).—COLE, Bull. Mus. Comp. Zool., 1, 1906, 125 (Chichen-Itza, Yucatan; crit.).
- Amazona nana* SALVADORI, Ibis, Oct., 1906, 649.

#### AMAZONA ALBIFRONS SALTUENSIS Nelson.

##### SONORAN PARROT.

Similar to *A. a. albifrons* but the green of a decidedly more bluish hue, especially on under parts, which are strongly tinged with glaucous-green, blue of crown deeper as well as more extended, frequently invading occiput and hindneck, and red of loreal and orbital regions paler.

*Adult male*.—Length (skins), 247–265 (257); wing, 182–192 (186.3); tail, 89–98 (93.7); culmen, 22.5–27 (24.9); tarsus, 18–20 (18.7); outer anterior toe, 24–27.5 (25.5).<sup>a</sup>

*Adult female*.—Length (skins), 242–261 (250); wing, 173.5–181.5 (178.6); tail, 85.5–97.5 (87.6); culmen, 22–24.5 (23.2); tarsus, 18–19 (18.4); outer anterior toe, 20.5–24.5 (22.8).<sup>b</sup>

Northwestern Mexico, in State of Sonora (Camoá; Álamos; Sierra de Álamos; Quiriego; Batamotál).

*Chrysotis albifrons* (not *Psittacus albifrons* Sparrman) SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 311, part (Quiriego and Sierra de Álamos, Sonora).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1897, 593, part (Quiriego and Sierra de Álamos, Sonora).

*[Amazona] albifrons* SHARPE, Hand-list, ii, 1900, 22, part.

*Amazona albifrons saltuensis* NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 26 (Camca, Sonora; coll. U. S. Nat. Mus.).

*A[mazona] albifrons saltuensis* COLE, Bull. Mus. Comp. Zool., 1, 1906, 126, in text (crit.).

*Amazona saltuensis* SALVADORI, Ibis, Oct., 1906, 648 (crit.).

<sup>a</sup> Ten specimens.

<sup>b</sup> Nine specimens.

## AMAZONA XANTHOLORA (Gray).

## YELLOW-LORED PARROT.

Somewhat like *A. albifrons*, but upper loreal region yellow, auricular region black, and feathers of neck, back, and under parts much more broadly tipped or margined with black.

*Adult male*.—Upper half (or more) of loreal region and sides of forehead chrome yellow; rest of forehead together with more or less (sometimes nearly the whole) of crown immaculate white; lower portion of loreal region (downward to below rictus), suborbital, postocular, and superciliary regions, intense poppy red or carmine; auricular region black; posterior portion of crown greenish blue, passing into clear parrot green on occiput and hindneck, the rest of upper parts more yellowish green; rest of head and neck, together with under parts (including under wing-coverts), clear parrot green, becoming lighter and more yellowish green posteriorly; feathers of head (green portion only), neck, back, scapulars, rump, lesser and middle wing-coverts, and under parts (except under tail-coverts) margined terminally with black, the crescentic bars thus formed broadest on lower neck, chest, back, and scapulars; tail-coverts (upper and lower) immaculate bright light yellowish green; middle pair of rectrices parrot green passing into bright light yellowish green terminally; second pair yellowish green, passing into yellow basally, the inner web with a streak of red on subbasal portion near shaft; third pair similar but with red on inner web more extended and subbasal portion of outer web suffused or sprinkled with red; fourth and fifth pairs with the red still more extended, on the latter occupying full width of outer and most of width of inner web; sixth (outermost) pair with outer web mostly green, but inner web with basal half or more mostly red; alulæ usually wholly green, but sometimes with one or two innermost feathers red; edge of wing, from bend to axillars, and primary coverts pure spectrum red; secondaries (except proximal ones or tertials) and proximal primaries rich hyacinth blue, narrowly and rather indistinctly edged with lighter blue; outermost primary wholly slate-blackish, the four or five succeeding ones green passing into verditer or dull cerulean blue distally, their inner webs slate-black; under primary coverts and under surface of remiges malachite green, the primaries with distal portion and a broad stripe next to shaft blackish slate or dusky; bill yellow; iris orange;<sup>a</sup> bare orbital space dull white;<sup>a</sup> feet pale brownish (in dried skins), yellow in life;<sup>a</sup> length (skins), 235–264 (247); wing, 168–180.5 (173.6); tail, 73.5–90 (82.6); culmen, 24.5–28 (25.8); tarsus, 17–19 (18.2); outer anterior toe, 22–26.5 (23.3).<sup>b</sup>

<sup>a</sup> Morton H. Peck, on labels.

<sup>b</sup> Fifteen specimens.

*Adult (?) female.*<sup>a</sup>—Differing from the adult male as follows: Forehead and crown greenish blue (verditer blue) only the anterior portion of the former intermixed with a few white feathers; yellow of loreal region paler or duller, sometimes broken by intermixture of green feathers; a few scattered red feathers around bare orbital space (except in front of eye) and across to rictus; auricular region suffused with black instead of solidly black; primary coverts sometimes wholly green; red on edge of wing not extending either to bend nor to axillars; length (skins), 230–260 (250); wing, 161.5–170.5 (164.5); tail, 69–81 (73.8); culmen, 24.5–25.5 (25.2); tarsus, 17.5–19 (18.3); outer anterior toe, 21.5–24.5 (22.8).<sup>b</sup>

*Young male.*—Similar to the supposed adult female (as described above) but with primary coverts at least partly red. (Younger specimens show light yellowish green or greenish yellow tips to wing-coverts, and some lack any trace of red on orbital region.)

*Young female.*—Similar to the young male but whole head green, except forehead and crown (which are greenish blue).

Yucatan (Cozumél Island; Izamál; Mérida; La Vega), British Honduras (Orange Walk; Manatee Lagoon; Manatee River) and Northern Honduras (Dyson; Chaloma).<sup>c</sup>

*Psittacus albifrons* (not of Sparrman) KUNL, *Consp. Psitt.*, 1820, 80.—STEPHENS, *Shaw's Gen. Zool.*, xiv, 1826, 106, part.

*Chrysotis xantholora* GRAY, *List Birds Brit. Mus.*, *Psittacidae*, 1859, 83 (Honduras; coll. *Brit. Mus.*).—SALVIN, *Ibis*, 1861, 354 (Honduras); 1871, 87, 97 (Honduras); 1874, 327 (Yucatan); 1885, 186, 192 (Cozumel I., Yucatan); 1889, 373 (Cozumel I.); 1890, 88 (Cozumel I.).—FINSCH, *Die Papag.*, ii, 1868, 528.—SCLATER, *Proc. Zool. Soc. Lond.*, 1875, 157, pl. 26.—REICHENOW, *Vogelbild.*, 1878, pl. 1, fig. 9.—BOUCARD, *Proc. Zool. Soc. Lond.*, 1883, 434, 455 (Yucatan).—RIDGWAY, *Proc. U. S. Nat. Mus.*, viii, 1885, 577 (Cozumel I.; descr. young).—SALVADORI, *Cat. Birds Brit. Mus.*, xx, 1891, 313 (Merida, Yucatan; Cozumel I.; Orange Walk, Brit. Honduras; Honduras).—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, ii, 1897, 594 (Izamal, etc., Yucatan; Cozumel I.; Orange Walk, Brit. Honduras).

<sup>a</sup> Unfortunately all but two of the specimens examined in which the sex has been determined are males, and one of the specimens marked as female is unquestionably an immature bird. Other specimens, however, in a very similar plumage, but with sex undetermined, show no evidences of immaturity and may be adult females, thus indicating a decided sexual difference of coloration in this species, as stated in the *Biologia Centrali-Americana* (ii, 594).

<sup>b</sup> Three specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Eight adult males from Cozumel Island, Yucatan.....	172.2	81.1	25.6	18.2	23.3
Two adult males from mainland of Yucatan .....	170.5	81.2	25.2	18.5	23.2
Five adult males from British Honduras .....	177	85.4	26.3	18.2	23.2
FEMALES.					
Two adult females from mainland of Yucatan.....	166	76.2	25	18.7	22
One adult female from British Honduras.....	161.5	69	25.5	17.5	24.5

<sup>c</sup> Honduras specimens not seen by me.

- [*Chrysotis*] *xantholora* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.  
*Psittacus xantholorus* SCHLEGEL, Dierent., 1864, 66.  
*Amazona xantholora* SCHLEGEL, Mus. Pays-Bas., iii, no. 26 (Psittaci), 1864, 59; no. 38 (Revue), 1874, 28.  
*A[mazona] xantholora* RIDGWAY, Man. N. Am. Birds, 1887, 588; 2d ed., 1896, 595.  
[*Amazona*] *xantholora* SHARPE, Hand-List, ii, 1890, 22.  
*Androglossa xantholora* REICHENOW, Journ. für Orn., 1881, 375 (monogr.); Consp. Psitt., 1882, 215.  
(?) *Chrysotis albifrons* (var.) LANTZ, Trans. Kansas Ac. Sci. for 1897-'99 (1900), 220 (Chaloma, Honduras).

### AMAZONA AGILIS (Linnæus).

#### LESSER JAMAICAN PARROT.

*Adults (sexes alike).*—Head and neck bright green (between screeches green and peacock green), becoming paler toward throat, which is much paler and more yellowish and frequently flecked with red, the feathers of pileum narrowly margined terminally with black, forming more or less distinct narrow bars, which are much broader on lower hindneck and sometimes obsolete on forehead or even on crown; anterior portion of forehead or supraloral region sometimes with dark red feathers; rest of upper parts bright parrot green, except primary coverts, primaries, and distal secondaries; primary coverts (at least in part) geranium red or light scarlet-red; primaries (except the outermost) dark blue on outer webs and terminal portion of inner webs, edged with green basally and (more or less) with dull whitish or pale brownish distally, the inner webs, including terminal portion of those of longer quills, dull black; outer webs of distal secondaries lighter blue, more broadly edged with green; inner webs of four outer rectrices with basal half (more or less) red (dull spectrum red), the distal half parrot green passing into pale yellowish green on edge, the outer webs of the two outermost suffused with blue distally; under parts clear light paris green or deep calliste green, the chest (sometimes breast and sides also) occasionally more or less distinctly barred with blackish; smaller under wing-coverts clear light green, becoming yellowish on carpo-metacarpal edge; under primary coverts and under surface of remiges dull bluish green (nearly malachite or french green), the former narrowly edged with paler, the latter blackish toward shaft and on distal portion of longer primaries; bill dusky horn color, with a more or less distinct lighter spot on sides of maxilla, beneath nostrils; legs and feet dusky horn color (in dried skins).

*Immature.*—Similar to adults, but some (in younger birds all) of the primary coverts green.

*Adult male.*—Length (skins), 251–285 (265); wing, 166.5–176 (171.1); tail, 80.5–90 (87); culmen, 23–25.5 (24.4); tarsus, 19–21.5 (20.5); outer anterior toe, 24–27 (25.6).<sup>a</sup>

<sup>a</sup>Ten specimens.

*Adult female*.—Length (skins), 253–270 (262); wing, 164.5–179 (169.1); tail, 82.5–87 (85.1); culmen, 22.5–25 (23.7); tarsus, 19–21.5 (20.3); outer anterior toe, 24–26.5 (25.4).<sup>a</sup>

Island of Jamaica, Greater Antilles (Priestmans River; St. Ann's; Spanishtown; Moneague; Freemans Hall; Trelawny).

[*Psittacus*] *agilis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 99 (Jamaica; based on *The Little Green Parrot*, *Psittacus minor viridis* Edwards, Birds, iv, 246, pl. 168); ed. 12, i, 1766, 143.—GMELIN, Syst. Nat., i, pt. 1, 1788, 330.—LATHAM, Index Orn., i, 1790, 106.

*Psittacus agilis* BECHSTEIN, Lathams Uebers. Vogel, i, 1793, 249, 711.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 324 (cites Pl. Enl., pl. 839); Tabl. Enc. Méth., iii, 1823, 1372.—GOSSE, Birds Jamaica, 1847, 266.

*Psittacus agilis* BECHSTEIN, Kurze Uebers., 1811, 82, pl. 17.—WAGLER, Mon. Psitt., 1832, 597, 718.

*Psittacus agilis* GRAY, Gen. Birds, ii, 1846, 421.

*Chrysotis agilis* GRAY, List Birds Brit. Mus., Psittacidæ, 1859, 82.—SCLATER, Proc. Zool. Soc. Lond., 1861, 79; 1873, 811; 1882, 801; Cat. Am. Birds, 1862, 354.—ALBRECHT, Journ. für Orn., 1862, 203.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 284.—FINSCH, Die Papag., ii, 1868, 531.—GARROD, Proc. Zool. Soc. Lond., 1874, 587.—CORY, Auk, iii, 1886, 460 (synonymy; descr.); Birds West Ind., 1889, 183.—MARSHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 319 (Freman's Hall, Trelawny, and Spanishtown, Jamaica).

[*Chrysotis*] *agilis* GRAY, Hand-list, ii, 1870, 164, no. 8329.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.

*C[hrisotis] agilis* NEWTON (A. and E.), Handb. Jamaica, 1881, 110.

*Androglossa agilis* REICHENOW, Journ für Orn., 1881, 367 (monogr.); Consp. Psitt., 1882, 207; Vogelbild., 1883, Nachtr., 117.

*Amazona agilis* CORY, Cat. West Ind. Birds, 1892, 11, 101, 130.—SCOTT, Auk, ix, 1892, 128 (habits; crit.).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—CLARK (A. H.), Auk, xxii, 1905, 344.

[*Amazona*] *agilis* SHARPE, Hand-list, ii, 1900, 22.

*Psittacus signatus* SHAW, Gen. Zool., viii, no. 2, 1811, 510 ("Brazil"; based on *Le Petit Perroquet Vert* Levaillant, pl. 105).—KUHLE, Consp. Psitt., 1820, 71.—STEPHENS, Shaw's Gen. Zool., xiv, 1826, 102.—VOIGT, Cuv. Uebers., 1831, 739.

[*Chrysotis*] *signatus* SWAINSON, Classif. Birds, ii, 1837, 301.

*Psittacus minor* (not of Gmelin, 1788) VIEILLOT, Tabl. Enc. Méth., iii, 1823, 1367 ("Amérique méridionale"; based on *Le Petit Perroquet Vert* Levaillant, pl. 105).

*Psittacus virescens* (not of Linnæus) BECHSTEIN, Kurze Ueb., 1811, 99.

*Psittacus aestivus* (not of Linnæus) KUHLE, Consp. Psitt., 1820, 75, part.

#### AMAZONA VITTATA VITTATA (Boddaert).

##### PORTO RICAN PARROT.

*Adults (sexes alike)*.—General color clear, bright parrot green, slightly lighter and more yellowish below (the tail-coverts more vivid yellowish green), the feathers of head, neck, back, scapulars, chest,

<sup>a</sup> Nine specimens.

and breast margined terminally with black, the crescentic bars thus formed broadest on lower hindneck and sides of neck;<sup>a</sup> forehead (rather narrowly) and upper portion of loreal region poppy red; remiges (except proximal secondaries) and primary coverts light greenish blue (greenish cerulean or turquoise), the secondaries passing into green on edges; inner webs of primaries black, of secondaries slate-blackish toward edge, passing into greenish blue next to shaft, at least distally; alula green basally passing into greenish blue terminally; tail green (without any red), the rectrices more yellowish green terminally, the outer web of outermost rectrix tinged with greenish blue distally; under surface of remiges beryl green, the longer primaries with distal portion and a broad stripe next to shaft blackish slate; bill pale grayish buffy suffused with horn color; legs and feet pale brownish (in dried skins).

*Adult male*.—Length (skins), 260–300 (287); wing, 184–196 (189.9); tail, 96.5–108.5 (102.9); culmen, 27–28.5 (27.9); tarsus, 21–22 (21.8); outer anterior toe, 27.5–29 (28.4).<sup>b</sup>

*Adult female*.—Length (skins), 270–283 (276); wing, 173–184.5 (180.7); tail, 93–103.5 (99.2); culmen, 27–28 (27.3); tarsus, 19–21 (20); outer anterior toe, 25–29 (27.1).<sup>b</sup>

Island of Porto Rico, Greater Antilles (El Yunque; Mameyes).

*Psittacus vittatus* BODDAERT, Tabl. Pl. Enl., 1783, 49 (based on *Perroquet de St. Domingue* Daubenton, Pl. Enl., pl. 792).—KUHLE, Consp. Psitt., 1820, 21.—SUNDEVALL, Cefv. K. Vet.-Ak. För., 1869, 599 (Porto Rico).

*P[sittacus] vittatus* GRAY, Gen. Birds, ii, 1846, 421.

*Chrysotis vittata* BOLLE, Journ. für Orn., 1856, 170 ("Antillen").—SCLATER, Proc. Zool. Soc. Lond., 1857, 224.—NEWTON (A. and E.), Ibis, 1859, 377, in text (Porto Rico).—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 83.—TAYLOR, Ibis, 1864, 171 (Porto Rico).—CABANIS, Journ. für Orn., 1866, 190, footnote.—FINSCH, Die Papag., ii, 1868, 515.—CORY, Auk, iii, 1886, 458 (synonymy; descr.); Birds West Ind., 1889, 181.—MARSCHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 309.

[*Chrysotis*] *vittata* GRAY, Hand-list, ii, 1870, 165, no. 8336.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14 ("Guiana").

<sup>a</sup> Sometimes feathers on the abdomen are tipped with brownish red.

<sup>b</sup> Five specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Five adult males from Porto Rico.....	189.9	102.9	27.9	21.8	28.4
Two adult males from Culebra Island ( <i>A. v. gracilipes</i> ).....	172.5	95.5	26.7	20	25.2
FEMALES.					
Five adult females from Porto Rico.....	180.7	99.2	27.3	20	27.1
One adult female from Culebra Island ( <i>A. v. gracilipes</i> ).....	175	101.5	23.5	19.5	23

- Chrysotis vittatus* GUNDLACH, Journ. für Orn., 1874, 312; 1878, 160, 183; Anal. Soc. Esp. Hist. Nat., vii, 1878, 228.
- Amazona vittata* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 58 (type of *Psittacus leucocephalus*, supposed female, Kuhl, in coll. Leyden Mus.); no. 38 (Revue), 1874, 28.—CORY, Cat. West Ind. Birds, 1892, 11, 101, 132.—BOWDISH, Auk, xix, 1902, 363.—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—CLARK (A. H.), Auk, xxii, 1905, 344.
- [*Amazona*] *vittata* SHARPE, Hand-list, ii, 1900, 22.
- Androglossa vittata* REICHENOW, Journ. für Orn., 1881, 371 (monogr.); Consp. Psitt., 1882, 211; Vogelbild., 1883, pl. 33, fig. 1.
- [*Androglossus*] *vittatus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 232.
- Chrysotes* . . . . . BRYANT, Journ. für Orn., 1866, 190 (Porto Rico).
- [*Psittacus*] *dominicensis* GMELIN, Syst. Nat., i, pt. 1, 1788, 343 (based on *Perroquet de St. Domingue* Daubenton, Pl. Enl., 792).—LATHAM, Index Orn., i, 1790, 126.
- Psittacus dominicensis* BECHSTEIN, Lathams Uebers. Vög., i, 1793, 251, 711.—VIEILLON, Nouv. Dict. d'Hist. Nat., xxv, 1817, 328 ("St. Domingo"); Tabl. Enc. Méth., iii, 1823, 1375.—KÜSTER, Orn. Atlas, Papag., 1836, 70, pl. 51.
- Psittacus dominicensis* BECHSTEIN, Kurze Uebers., 1811, 95.—WAGLER, Mon. Psitt., 1832, 597, 718.
- Psittacus dominicensis* HARTLAUB, Syst. Verz., 1844, 87 (Santo Domingo).
- [*Chrysotis*] *dominicensis* BONAPARTE, Rev. et Mag. de Zool., 1854, 151 (Consp. Psitt., p. 8); Naumannia, 1856 (Consp. Psitt., no. 92).
- Psittacus leucocephalus* (not of Linnæus) SHAW, Gen. Zool., viii, 1811, 517, part.—KUHLE, Consp. Psitt., 1820, 80, part (supposed female).
- Psittacus festivus?* (not of Linnæus) MORITZ, Wiegmann's Archiv für Naturg., 1836, i, p. 389.

### AMAZONA VITTATA GRACILIPES Ridgway.

#### CULEBRA ISLAND PARROT.

Similar to *A. v. vittata* but smaller, with relatively smaller and more slender feet.

*Adult male*.—Length (skins), 290–293 (291.5); wing, 170–175 (172.5); tail, 95–96 (95.5); culmen, 26.5–27 (26.7); tarsus, 19–21 (20); outer anterior toe, 25–25.5 (25.2).<sup>a</sup>

*Adult female*.—Length (skin), 290; wing, 175; tail, 101.5; culmen, 23.5; tarsus, 19.5; outer anterior toe, 23.<sup>b</sup>

Culebra Island, near Porto Rico.

*Amazona vittata gracilipes* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106 (Culebra Island, near Porto Rico, Greater Antilles; coll. U. S. Nat. Mus.).

### AMAZONA VENTRALIS (Müller).

#### SANTO DOMINGO PARROT.

*Adult male*.—Forehead dull white; crown dull greenish blue (between deep bluish gray-green and delft blue), the feathers narrowly tipped with black, the occiput and nape greener with less distinct terminal margins of black; auricular region dull black, forming a conspicuous patch on side of head, the area anterior to this dull

<sup>a</sup> Two specimens.

<sup>b</sup> One specimen.

bluish green (bluish gray-green) with indistinct terminal margins of black to the feathers; hindneck, back, and scapulars bright parrot green, the feathers margined terminally with black, these heavier on neck, narrower elsewhere; wing-coverts slightly more olivaceous green (approaching oil green); rump lighter green (between parrot green and calliste green), passing into more yellowish green (cosse green to javel green) on upper tail-coverts; primary coverts, primaries, and distal secondaries deep violet-blue, passing into light greenish blue or bluish green on edges of feathers—the secondaries more greenish on basal or subbasal portion, the primaries more blackish distally; middle rectrices parrot green, tinged with blue at extreme base; next pair with outer web mostly parrot green, the inner web greenish yellow, tinged with green toward shaft, the basal or subbasal third usually with a red median streak (more or less broad), occupying a portion of each web along both sides of shaft; other rectrices similar to the second but with the red (dull spectrum red or chinese vermilion) space much larger, occupying full width of inner web (which sometimes is more or less yellowish on edge) and greater part of that of outer web, the outer web of lateral rectrix mostly (sometimes wholly) light blue or greenish blue; general color of under parts light parrot green (changing to emerald or cendré green in certain lights), the feathers narrowly tipped with blackish; center of throat usually tinged or suffused with pale red, and lower abdomen with a more or less extensive area of brownish red (eugenia red to nearly dragon's-blood red), this sometimes occupying nearly whole of abdomen; under tail-coverts light greenish yellow or yellowish green (green-yellow or yellowish viridine yellow to yellowish apple green); smaller under wing-coverts light parrot green, those along edge of wing (beneath basal half of alulæ) pale greenish yellow; larger under wing-coverts light bluish green, margined distally with pale yellowish green; under surface of remiges light greenish blue (nearly glaucous-blue), with a broad blackish slaty stripe next to shaft, this occupying full width of the primaries beyond their emarginations; bill, cere, and bare orbital space dull brownish yellow (dull cream-buff) in dried skins; legs and feet dull light brownish (in dried skins); length (skins), 270–293 (281); wing, 182–196 (190.7); tail, 96–108.5 (103); culmen, 25–28.5 (26.5); tarsus, 18.5–22 (20.4); outer anterior toe, 24–31.5 (28.2).<sup>a</sup>

*Adult female*.—Similar to the adult male and probably not always distinguishable, but usually (?) with crown more greenish (sometimes quite green), and auricular region less extensively blackish (sometimes merely streaked with black, on upper portion); length (skins), 270–287 (279); wing, 183–198 (190.2); tail, 94–108 (91.1);

<sup>a</sup> Ten specimens.



culmen, 25.5–28 (26.2); tarsus, 18–21.5 (20.5); outer anterior toe, 25–30.5 (28.1).<sup>a</sup>

Island of Haiti, Greater Antilles (Caña Honda, Savana la Mar, La Cañita, Samaná, Magua, and Almercén, Santo Domingo; Le Coup and Jérémie, Haiti).

*Psittacus ventralis* MÜLLER, Syst. Nat. Suppl., 1776, 79 ("Martinique"; based on *Perroquet à ventre pourpre, de la Martinique* Daubenton, Pl. Enl., pl. 548).

[*Chrysotis*] *ventralis* GRAY, Hand-list, ii, 1870, 164, no. 8331.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.

*Chrysotis ventralis* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 314 (Magua and Samana, Santo Domingo); Ibis, 1906, 649 (additional synonymy).

*Androglossa ventralis* REICHENOW, Journ. für Orn., 1881, 375 (monogr.); Consp. Psitt., 1882, 215.

[*Amazona*] *ventralis* SHARPE, Hand-list, ii, 1900, 22.

[*Psittacus leucocephalus*] ♂ GMELIN, Syst. Nat., i, pt. 1, 1788, 338 (based on *Psittacus martinicensis cyanocephalus* Brisson, Orn., iv, 251; Pl. Enl. 548; etc.).

[*Psittacus leucocephalus*] γ LATHAM, Index Orn., i, 1790, 119 (based on *Psittacus martinicensis cyanocephalus* Brisson, etc.).

*Psittacus leucocephalus* var. VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 332 (= *P. leucocephalus* ♂ Gmelin); Tabl. Enc. Méth., iii, 1823, 1377.

*Psittacus leucocephalus* (not of Linnæus) KÜHL, Consp. Psitt., 1820, 80, part (supposed young male).—LESSON, Traité d'Orn., 1831, 197, part.

*Psittacus leucocephalus* WAGLER, Mon. Psitt., 1832, 599, 718, part.

*Chrysotis sallæi* SCLATER, Proc. Zool. Soc. Lond., 1857 (pub. Jan. 12, 1858), 224, in text, pl. 127 (Santo Domingo; coll. Brit. Mus.);<sup>b</sup> Ann. and Mag. N. H., 3d ser., i, 1858, 223 (Santo Domingo; reprint); Cat. Am. Birds, 1862, 353.—SALLÉ, Proc. Zool. Soc. Lond., 1857, 234 (Santo Domingo; crit. habits).—CORY, Birds Haiti and San Dom., 1885, 115, pl. [23], fig. 6; Auk, iii, 1886, 458 (synonymy; descr.); Birds West Ind., 1889, 181.—MARSCHALL, Papag., 1889, 55.—CHRISTY, Ibis, 1897, 334 (Santo Domingo; habits).

[*Chrysotis*] *sallæi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.

*Amazona sallæi* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 58 (type of *Psittacus leucocephalus*, supposed young male, of Kuhl, Consp. Psitt., in coll. Leyden Mus.); no. 38 (Revue), 1874, 28.

*Amazona sallæi* CORY, Cat. West Ind. Birds, 1892, 11, 101, 131.—CHERRIE, Contr. Orn. San Dom., 1896, 22 (habits).—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 359 (Santo Domingo; habits).

[*Amazona*] *sallæi* CLARK (A. H.), Auk, xxii, 1905, 344 (Haiti).

*Psittacus sallæi* BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 96 (Santo Domingo).

*Chrysotis sallæi* FINSCH, Die Papag., ii, 1868, 513.—REICHENOW, Vogelbild., 1881, pl. 19, fig. 4.—CORY, Bull. Nutt. Orn. Club, vi, 1881, 154 (Jérémie, Haiti).

### AMAZONA COLLARIA (Linnæus).

#### JAMAICAN PARROT.

Most like *A. ventralis* but white of forehead more restricted, throat extensively pale brownish red or purplish pink, no red on abdomen, and remiges light greenish blue instead of deep violet-blue.

<sup>a</sup> Nine specimens.

<sup>b</sup> In Bull. 49, U. S. Nat. Mus. (Bibliography of published writings of Philip Lutley Sclater), p. 84, Dr. Sclater says that the type is in the collection of the Paris Museum.

*Adults (sexes alike).*—Anterior portion of forehead (more or less broadly), sometimes also upper edge of feathering beneath orbits, dull white; crown dull bluish green or greenish blue (french green to gobelin blue), passing into parrot green on hindneck, the feathers margined terminally with black, their black edgings much broader on lower hindneck; rest of upper parts bright parrot green, lighter and more yellowish green on upper tail-coverts, the alulae, primary coverts, and primaries light greenish blue (cendre blue or motmot blue), the inner webs of primaries dull black; middle pair of rectrices bright parrot green, paler and more yellowish at tip; next pair with outer webs similar, the inner webs with inner half (more or less) greenish yellow, flecked, more or less with red on proximal portion, the other rectrices with basal two-thirds (approximately) red, the terminal third clear yellowish green, the outer webs with both the red and green darker, that of the outermost rectrix mostly (sometimes wholly) light greenish blue; rictal and suborbital regions (sometimes auricular region also) light dull bluish green, the feathers narrowly tipped with black, the upper margin of the suborbital region often dull white, sometimes flecked or tinged with pale red; auricular region sometimes blackish, forming a more or less conspicuous spot on side of head; malar region, throat, and contiguous portion of sides of neck light brownish red or deep vinaceous, the feathers more or less distinctly margined with light yellowish green, those on sides of neck rather broadly tipped with black; rest of under parts clear light yellowish green (calliste green) sometimes tinged with light bluish green (cendre green), the thighs pale bluish green, the feathers of chest, etc., sometimes indistinctly margined with dusky; smaller under wing-coverts clear light yellowish green, the carpo-metacarpal edge of wing very pale yellowish green; under primary coverts and under surface of remiges dull bluish green, the primaries with narrowed distal portion and a broad stripe next to shaft on proximal portion dusky; bill brownish or olivaceous yellow; legs and feet yellowish brown (in dried skins).

*Young.*—Similar to adults but with much less of vinaceous on throat.

*Adult male.*—Length (skins), 273–294 (284); wing, 178–188.5 (183.7); tail, 96–103.5 (100.3); culmen, 22.5–27 (25.5); tarsus, 19–21 (20.2); outer anterior toe, 25–28 (26.5).<sup>a</sup>

*Adult female.*—Length (skins), 270–297 (279); wing, 171.5–182.5 (175.5); tail, 91–104 (95.8); culmen, 23.5–25.5 (24.4); tarsus, 19–20 (19.6); outer anterior toe, 23.5–26.5 (25.2).<sup>a</sup>

Island of Jamaica, Greater Antilles (Spanishtown; Moneague; St. Anns; Goshens; Priestmans River).

<sup>a</sup>Ten specimens.

- [*Psittacus*] *collarius* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 102 (Jamaica; based on *Psittacus minor, collo miniaceo* Sloane, Voy. Jamaica, ii, 297; *Psittacus jamaicensis gutture rubro* Brisson, Orn., iv, 241); ed. 12, i, 1766, 149.—GMELIN, Syst. Nat., i, pt. 1, 1788, 347.—LATHAM, Index Orn., i, 1790, 128.
- Psittacus collarius* BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 254, 711.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 330.—KÜHL, Consp. Psitt., 1820, 95.
- Psittacus collarius* BECHSTEIN, Kurze Uebers., 1811, 104.
- Chrysotis collaria* GRAY, List Birds Brit. Mus., Psittacidae, 1859, 83.—SCLATER, Proc. Zool. Soc. Lond., 1861, 79 (Jamaica; crit.); Cat. Am. Birds, 1862, 353; Rev. List Birds Jamaica, 1910, 12.—ALBRECHT, Journ. für Orn., 1862, 203.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 284.—FINSCH, Die Papag., ii, 1868, 517.—GARROD, Proc. Zool. Soc. Lond., 1874, 587.—CORY, Auk, iii, 1886, 459 (synonymy; descr.); Birds West Ind., 1889, 182.—MARSHALL, Papag., 1889, 55.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 318 (Moneague and Spanishtown, Jamaica).
- [*Chrysotis*] *collaria* GRAY, Hand-list, ii, 1870, 164, no. 8332.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20.—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.
- [*Chrysotis*] *collaria* NEWTON (A. and E.), Handb. Jamaica, 1881, 110.
- Androglossa collaria* REICHENOW, Journ. für Orn., 1881, 376 (monogr.); Consp. Psitt., 1882, 216; Vogelbild., 1883, Nachtr., 126.
- Amazona collaria* CORY, Cat. West Ind. Birds, 1892, 11, 101, 130.—SCOTT, Auk, ix, April, 1892, 128 (habits).—CLARK (A. H.), Auk, xxii, 1905, 344.
- [*Amazona*] *collaria* SHARPE, Hand-list, ii, 1900, 22.
- Amazona collarius* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.
- [*Chrysotis leucocephala*] Subspecies: *collaria* REICHENOW, Journ. für Orn., 1881, 376 (monogr.); Consp. Psitt., 1882, 216.
- Psittacus gutturalis* MÜLLER, Syst. Nat. Suppl., 1776, 79 ("Martinique"; based on Perroquet, de la Martinique Daubenton, Pl. Enl., pl. 549).
- Psittacus leucocephalus* (not of Linnæus) SHAW, Gen. Zool., viii, pt. 2, 1811, 517, part, pl. 78.—BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 236, 708, part.—KÜHL, Consp. Psitt., 1820, 80, part.—KÜSTER, Orn. Atlas, Papag., 1836, 76, part.—GOSSE, Birds-Jamaica, 1847, 269.
- Psittacus leucocephalus* BECHSTEIN, Kurze Uebers., 1811, 95, part.—WAGLER, Mon. Psitt., 1832, 599, 718, part.
- [*Psittacus*] *leucocephalus* GRAY, Gen. Birds, ii, 1846, 421, part.
- (?) [*Chrysotis*] *leucocephala* BONAPARTE, Rev. et Mag. de Zool., 1854, 151, part; Naumannia, 1856 (Consp. Psitt., no. 90, part).
- Chrysotis leucocephala* SOUANCÉ, Rev. et Mag. de Zool., 1856, 153 (cites *Pionus vinaceicollis* Lafresnaye).—SCLATER, Proc. Zool. Soc. Lond., 1857, 153, part.
- Pionus vinaceicollis* LAFRESNAYE, Rev. Zool., ix, Sept. (i. e. Nov.), 1846, 321 (Jamaica).
- [*Psittacus*] *vinaceicollis* GRAY, Gen. Birds, iii, 1849, app., p. 20.
- Chrysotis vinaceicollis* SCLATER, Proc. Zool. Soc. Lond., 1857, 225, in text (crit.).

### AMAZONA LEUCOCEPHALA LEUCOCEPHALA (Linnæus).

#### CUBAN PARROT.

*Adults (sexes alike).*—Forehead and at least anterior half of crown dull white, this sometimes (in fresh plumage) more or less tinged with pink; posterior portion of crown, together with occiput, dull bluish

green (near montpellier green), passing into parrot green on hindneck, the feathers broadly tipped with dull black; general color of remaining upper parts parrot green, the scapulars, interscapulars, and rump broadly, the wing-coverts (except greater) more narrowly, tipped or terminally margined with black, passing into bright yellowish green (cosse green to javel green) on upper tail-coverts; alulae, primary-coverts, primaries, and distal secondaries light greenish blue (cendré to light cerulean), passing into deeper, more violaceous, blue on inner portion of outer webs, the exposed portion of inner webs dull black, except at tip; middle pair of rectrices parrot green, the next pair with outer web parrot green but inner web light yellowish green or greenish yellow; remaining rectrices with inner web light yellowish green or greenish yellow, with an extensive subbasal area of deep red (spectrum red), this red area narrow and sometimes broken on third rectrix, becoming gradually broader toward the outermost, on which it occupies more than half the width of the inner web, the outer web being light greenish blue; whole throat, malar region, suborbital region, and rictal region pinkish red (rose doreé), the feathers white basally and with indistinct whitish terminal margins and shaft-streaks, the upper margin of the feathered area beneath lores and eyes mostly (sometimes wholly) white; rest of under parts, except abdomen, under tail-coverts, and thighs, parrot green,<sup>a</sup> the feathers broadly tipped with black; abdomen (more or less extensively) dull purplish red (eugenia red to daphne red), some of the feathers green basally and tipped with blackish; thighs pale grayish blue or light glaucous-blue; under tail-coverts clear light yellowish green or green-yellow tinged with viridian yellow; smaller under wing-coverts light bluish green (dull light cendré green to light oriental green), the feathers narrowly tipped with black—those coverts on edge of wing beneath basal half of alula, whitish; greater under wing-coverts and under surface of remiges light dull bluish green or greenish glaucous-blue, the primaries with a broad stripe of dull blackish slate along shaft and with the narrowed distal portion wholly of the latter color; bill dull light brownish yellow (dull cream-buffy) or ivory whitish; iris yellow or grayish yellow; legs and feet (in dried skins) light buffy brownish, yellowish in life.

*Adult male*.—Length (skins), 280–298 (291); wing, 185–195.5 (191.8); tail, 99–115 (107.7); culmen, 23.5–26.5 (25); tarsus, 19–21 (20.3); outer anterior toe, 28–31 (29.6).<sup>b</sup>

<sup>a</sup> Sometimes there are a few red feathers on median line of chest or breast.

<sup>b</sup> Five specimens.

*Adult female*.—Length (skin), 285; wing, 184–195 (189.5); tail, 105–108 (106.5); culmen, 24.5; tarsus, 19.5–20.5 (20); outer anterior toe, 26.5–28.5 (27.5).<sup>a</sup>

Island of Cuba, Greater Antilles (Yateres; San Diego de los Baños; Guamá; Monte Verde; San Pablo); island of Cayman Brac, south of Cuba?

[*Psittacus leucocephalus* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 100 (based on *The White-headed Parrot, Psittacus viridis capite albo* Edwards, Birds, vi, 166, pl. 246); ed. 12, i, 1766, 145.—GMELIN, Syst. Nat., i, pt. 1, 1788, 338.—LATHAM, Index Orn., i, 1790, 118.

*Psittacus leucocephalus* TEMMINCK, Cat. Syst., 1807, 31.—SHAW, Gen. Zool., viii, pt. 2, 1811, 517, part.—BECHSTEIN, Lathams Uebers. Vögel, i, 1793, 236, 708, part.—VIEILLLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 322, part (cites Pl. Enl., pl. 549); Tabl. Enc. Méth., iii, 1823, 1371, part.—KÜHL, Consp. Psitt., 1820, 80, part.—STEPHENS, Shaw's Gen. Zool., xiv, 1826, 100, part.—CUVIER, Règne Anim., ed. 2, i, 1829, 546, part.—LESSON, Traité d'Orn., 1831, 197, part.—KÜSTER, Orn. Atlas, Papag., 1836, 75, part.—DENNY, Proc. Zool. Soc. Lond., 1847, 38.—LEMBEYE, Aves de la Isla de Cuba, 1850, 132.—GUNDLACH, Journ. für Orn., 1871, 271 (Cuba; crit.).—GULLIVER, Proc. Zool. Soc. Lond., 1875, 489.

*Psittacus leucocephalus* BECHSTEIN, Kurze Uebers., 1811, 95, part.—WAGLER, Mon. Psitt., 1832, 599, 718, part.

[*Psittacus leucocephalus* GRAY, Gen. Birds, ii, 1846, 421, part.

[*Chrysotis leucocephalus* SWAINSON, Classif. Birds, ii, 1837, 301.—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); Repert. Fisico-Nat. Cuba, i, 1866, 297.—GRAY, Hand-list, ii, 1870, 164, no. 8330.

*Chrysotis leucocephalus* CABANIS, Journ. für Orn., 1856, 105 (Cuba; habits).—GUNDLACH, Contr. Orn. Cuba, 1876, 124.—MARSHALL, Papag., 1889, 55.—FINSCH, Nederl. Tijdschr. Dierk., i, 1863, Berigt., p. xv.

[*Chrysotis leucocephalus* GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); Repert. Fisico-Nat. Cuba, i, 1866, 297.—GRAY, Hand-list, ii, 1870, 164, no. 8330.

*Chrysotis leucocephalus* GUNDLACH, Orn. Cubana, ed. 1895, 149.

*Chrysotis leucocephala* BONAPARTE, Rev. et Mag. de Zool., 1854, 151; Naumannia, 1856 (Consp. Psitt., no. 82).—SCLATER, Proc. Zool. Soc. Lond., 1857, 224, part.—GRAY, List Birds Brit. Mus., Psittacidae, 1859, 82.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—FINSCH, Die Papag., ii, 1868, 520.—GUNDLACH, Journ. für Orn., 1874, 161 (Cuba).—CABANIS, Journ. für Orn., 1876, 444, in text (Cuba).—REICHENOW, Journ. für Orn., 1881, 376 (monogr.); Consp. Psitt., 1882, 216; Vogelbild., 1881, pl. 19, fig. 5.—CORY, Auk, iii, 1886, 459, part (synonymy; descr.); vi, 1889, 32 (Cayman Brac); Birds West Ind., 1889, 182, part.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 315.

<sup>a</sup> Two specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Five adult males from Cuba ( <i>A. l. leucocephala</i> ).....	191.8	107.7	25	20.3	29.6
Ten adult males from Isle of Pines ( <i>A. l. palmarum</i> ).....	197.9	113.2	26.2	21.6	29.9
Six adult males from Cayman Islands ( <i>A. l. caymanensis</i> ).....	196.7	113.8	25.9	21.1	27.8
Seven adult males from Bahamas ( <i>A. l. bahamensis</i> ).....	210.7	121.1	29.9	23.6	31.2
FEMALES.					
Two adult females from Cuba ( <i>A. l. leucocephala</i> ).....	189.5	106.5	24.5	20	27.5
Ten adult females from Isle of Pines ( <i>A. l. palmarum</i> ).....	192.6	110.7	25.7	21.3	28.6
Five adult females from Cayman Islands ( <i>A. l. caymanensis</i> ).....	196.7	113.8	25.9	21.1	27.8
Eight adult females from Bahamas ( <i>A. l. bahamensis</i> ).....	207.3	122.4	28.8	22.7	31.2

- [*Chrysotis leucocephala* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 113.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20, part (Cuba).—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.
- Amazona leucocephala* SCHLEGEL, Mus. Pays-Bas, iii, no. 26 (Psittaci), 1864, 59; no. 38 (Revue), 1874, 28.—CORY, Cat. West Ind. Birds, 1892, 11, 101, 141, part.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 297 (San Pablo, s. Cuba; habits; flight).—(?)LOWE, Ibis, 1911, 149 (Cayman Brac).
- [*Amazona leucocephala* SHARPE, Hand-list, ii, 1900, 22.—CLARK (A. H.), Auk, xxii, 1905, 344 (Cuba).
- Amazona leucocephalus leucocephalus* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 15.
- Amazona leucocephala leucocephala* TODD, Ann. Carnegie Mus., vii, Oct., 1911, 418, in text (measurements, etc.).
- Psittacus gutturalis* MÜLLER, Syst. Nat. Suppl., 1776, 79 ("Martinique"; based on *Perroquet de la Martinique* Daubenton, Pl. Enl., pl. 549).

Abnormal color variety.

- [*Psittacus paradisi* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 101 (based on *Psittacus paradisi*, ex Cuba Catesby, Nat. Hist. Carolina, i, 10, pl. 10); ed. 12, i, 1766, 147.—GMELIN, Syst. Nat., i, pt. 1, 1788, 342.—LATHAM, Index Orn., i, 1790, 127.
- Psittacus paradisi* SHAW, Gen. Zool., viii, pt. 2, 1811, 501, pl. 75; Nat. Misc., xxiii, 1812, pl. 1001.—BECHSTEIN, Kurze Ueb., 1811-'12, 97.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 330 (Cuba; cites Pl. Enl., pl. 336); Tabl. Enc. Méth., iii, 1823, 1376.—BREHM, Mon. Papag., 1854, pl. 58.
- [*Psittacus leucocephalus*] Var.  $\gamma$  WAGLER, Mon. Psitt., 1832, 600 (yellow and red variety).
- Psittacus leucocephalus* var.  $\gamma$  KÜSTER, Orn. Atlas, Papag., 1836, 76.

AMAZONA LEUCOCEPHALA PALMARUM Todd.

ISLE OF PINES PARROT.

Similar to *A. l. leucocephala*, but slightly larger; red of throat, cheeks, etc., deeper, somewhat more extended posteriorly, that of abdomen also deeper and much more extended, sometimes occupying greater part of under surface.

*Adult male*.—Length (skins), 275–317 (298); wing, 188–205 (197.9); tail, 96–121 (113.2); culmen, 25–27 (26.2); tarsus, 20.5–23 (21.6); outer anterior toe, 28.5–31.5 (29.9).<sup>a</sup>

*Adult female*.—280–310 (294); wing, 187–197.5 (192.6); tail, 101.5–116.5 (110.7); culmen, 24.5–27 (25.7); tarsus, 20.5–22 (21.3); outer anterior toe, 27–30 (28.6).<sup>a</sup>

Isle of Pines, Cuba (Nueva Gerona; Manáguá).

*Amazona leucocephala* (not *Psittacus leucocephalus* Linnæus) BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 201 (Isle of Pines; habits, etc.).

*Amazonia leucocephala palmarum* TODD, Annals Carnegie Mus., x, 1916, 228 (Los Indios, Isle of Pines; coll. Carnegie Museum).

AMAZONA LEUCOCEPHALA CAYMANENSIS (Cory).

CAYMAN PARROT.

Similar to *A. l. leucocephala* but the green of a decidedly more yellowish hue, and green of crown and occiput less strongly (sometimes not at all) tinged with blue;<sup>b</sup> slightly larger.

<sup>a</sup> Ten specimens.

<sup>b</sup> The specimens examined are all in worn and more or less soiled plumage, so that it is difficult to determine with exactness the points of difference from *A. l. leucocephala*. The white of the head is very much duller than in Cuban specimens, but this may result from an actual staining of the feathers.

*Adult male*.—Length (skins), 275–311 (295); wing, 192–202 (196.7); tail, 108–118 (113.8); culmen, 25.5–26.5 (25.9); tarsus, 20.5–21.5 (21.1); outer anterior toe, 25–30 (27.8).<sup>a</sup>

*Adult female*.—Length (skins), 285–315 (299); wing, 199–205 (202.5); tail, 108.5–124.5 (117.7); culmen, 24–27 (25.4); tarsus, 21–23 (21.7); outer anterior toe, 26.5–29.5 (27.8).<sup>b</sup>

Island of Grand Cayman, south of Cuba. Cayman Brac?<sup>c</sup>

*Chrysotis caymanensis* CORY, Auk, iii, no. 4, Oct., 1886, 497, 502 (Grand Cayman I., south of Cuba; coll. C. B. Cory); v, 1888, 159; Birds West Ind., 1889, 297.—SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 317; Ibis, 1906, 649.—NICOLL, Bull. Brit. Orn. Club, xiv, 1904, 94; Ibis, 1904, 584.—LOWE, Ibis, 1909, 340, in text.

[*Chrysotis*] *caymanensis* FORBES and ROBINSON, Bull. Liverpool Mus., i, no. 1, 1897, 14.

*Amazona caymanensis* CORY, Cat. West Ind. Birds, 1892, 11, 101, 129, 141.—LOWE, Ibis, 1911, 149.

[*Amazona*] *caymanensis* SHARPE, Hand-list, ii, 1900, 22.—CLARK (A. H.), Auk, xxii, 1905, 344.

*Amazona leucocephalus caymanensis* ROTHSCHILD, Bull. Brit. Orn. Club, xvi, no. cxviii, Nov. 1, 1905, 15.

*Amazona leucocephala caymanensis* TODD, Ann. Carnegie Mus., vii, Oct., 1911, 418, in text.

(?) *Amazona leucocephala* (not *Psittacus leucocephalus* Linnæus?) LOWE, Ibis, 1911, 149 (Cayman Brac).

**AMAZONA LEUCOCEPHALA BAHAMENSIS (Bryant).**

**BAHAMA PARROT.**

Similar to *A. l. leucocephala*, but with much less of purplish red on abdomen, often with none at all; red of throat extended over more or less of chest; white of head much more extended, reaching to considerably behind eyes and involving suborbital region and posterior portion of auricular region; inner webs of rectrices much less yellowish green and with red much more restricted, often wanting; size decidedly larger.

<sup>a</sup> Six specimens.

<sup>b</sup> Five specimens, from Grand Cayman.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Four adult males from Grand Cayman.....	196.9	114.5	25.9	21.1	27.6
Two adult males from Cayman Brac ( <i>A. l. leucocephala</i> ?).....	196.2	112.5	26	[21]	[28.5]

<sup>c</sup> The specimens examined from Cayman Brac are in bad condition of plumage, so that it is difficult to tell whether they should be referred to it. *A. l. caymanensis* or not. Percy R. Lowe, who perhaps had specimens in more satisfactory condition, refers the Cayman Brac bird to *A. l. leucocephala* (see Ibis, 1911, 149).

*Adult male*.—Length (skins), 295–322 (312); wing, 198–220 (210.7); tail, 113–131 (121.1); culmen, 28.5–32 (29.9); tarsus, 22.5–25 (23.6); outer anterior toe, 29–34 (31.2).<sup>a</sup>

*Adult female*.—Length (skins), 292–311 (301); wing, 196.5–216.5 (207.3); tail, 116.5–129 (122.4); culmen, 28–29.5 (28.8); tarsus 21–24 (22.7); outer anterior toe, 29–33 (31.2).<sup>b</sup>

Bahama Islands (Inagua, Acklin, and Fortune islands; formerly also Abaco and Long islands, where now extirpated).

*Psittacus collarius* (var. *bahamensis*) BRYANT, Proc. Bost. Soc. N. H., xi, April, 1867, 65 (Fortune, Acklin, and Inagua islands, Bahamas).

[*Chrysotis*] *bahamensis* CORY, Auk, iii, 1886, 460, in text (Inagua; crit.)—FORBES and ROBINSON, Bull. Liverpool Mus., i, 1897, 14.

*Chrysotis bahamensis* SALVADORI, Cat. Birds Brit. Mus., xx, 1891, 317; Ibis, 1906, 649.

*Amazona leucocephala bahamensis* CORY, Cat. West Ind. Birds, 1892, 141.—ROTHSCHILD, Bull. Brit. Orn. Club, xvi, 1905, 15.—TODD, Ann. Carnegie Mus., vii, 1911, 417 (Acklin I.; crit.).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 451 (Great Inagua and Acklin islands; habits, etc.).

[*Amazona leucocephala*] *bahamensis* CLARK (A. H.), Auk, xxii, 1905, 344.

[*Amazona*] *bahamensis* SHARPE, Hand-list, ii, 1900, 22.

*Amazona bahamensis* ALLEN (G. M.), Auk, xxii, 1905, 124 (Great Inagua and Acklin islands).

*Chrysotis collaria* (not *Psittacus collarius* Linnæus) CORY, Birds Bahama Is., 1880, 123 (Inagua I.; Abaco?; Long I.?)—BOLLE, Journ. für Orn., 1883, 107, in text.

[*Chrysotis*] *leucocephala* (not *Psittacus leucocephalus* Linnæus) CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 20, part (Bahamas).

*Chrysotis leucocephala* CORY, Auk, iii, 1886, 459, part (Bahamas); viii, 1891, 351 (Inagua I., Bahamas); Birds West Ind., 1889, 182, part (Bahamas).—BONHOTE, Ibis, 1903, 295 (extinct on Abaco and Long islands; still found on island name not divulged, possibly on Inagua).

*Amazona leucocephala* CORY, Cat. West Ind. Birds, 1892, 11, 101, 141, part (Abaco, Fortune, Acklin, and Great Inagua islands, Bahamas).

<sup>a</sup> Seven specimens.

<sup>b</sup> Eight specimens.

Locality.	Wing.	Tail.	Culmen.	Tarsus.	Outer anterior toe.
MALES.					
Four adult males from Inagua.....	204	116.5	29.4	23.6	30.6
Three adult males from Acklin Island.....	217.3	127.3	31	23.7	32
FEMALES.					
Four adult females from Inagua.....	204.3	121	28.7	[23]	[20]
Four adult females from Acklin Island.....	209.5	123.7	28.9	22.6	31.7



Order COLUMBIFORMES.<sup>a</sup>

## PIGEON-LIKE BIRDS.

- > *Columbae* BONAPARTE, Compt. Rend., xxxvii, 1853, 643 (includes *Aepiornis!*).  
 = *Columbae* FUERBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1277, 1567.—  
 SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, xi, 1.—GADOW, Classif. Vertebr.,  
 1898, 35.—EVANS, Cambridge Nat. Hist., ix, 325.—OBERHOLSER, Outl.  
 Classif. N. Am. Birds, 1905, 3.—KNOWLTON, Birds of the World, 1909, 50,  
 408.  
 = *Peristeromorphæ* HUXLEY, Proc. Zool. Soc. Lond., 1867, 459, 460.—NEWTON,  
 Encyc. Brit., 9th ed., iii, 1875, 699.  
 = *Gyrantes* CARUS, Handb. Zool., i, 1868, 311.  
 > *Pullastræ* COPE, Am. Nat., xxiii, Oct., 1889, 871, 873 (includes *Gallinæ Peris-*  
*teropodes* and *Pterocloformes*).  
 > *Columbiformes* FUERBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1567 (in-  
 cludes *Pterocloformes*).  
 < *Columbiformes* SHARPE, Rev. Rec. Att. Class. Birds, 1891, 70 (excludes  
*Geophaps!*).  
 = *Columbiformes* SHARPE, Hand-list, i, 1899, xi, 51.  
 > *Pteroclo-Columbæ* KNOWLTON, Birds of the World, 1909, 49 (includes *Ptero-*  
*cloformes*).  
 = *Giratores* BLAINVILLE, Journ. de Physique, lxxxi, 1816, 252.  
 = *Bipositores* EYTON, Osteologia Avium, 1867, pp. vii, 155.  
 = *Columbacci* or *Gemitores* OWEN, Anat. Vertebrates, ii, 1866, 10.  
 = *Peristereæ* HÆCKEL, Gen. Morphol., ii, 1866, cxli.  
 = *Peristeroidæ* SUNDEVALL, Tentamen, 1873, 97.  
 < *Columboideæ* STEJNEGER, Science Record, ii, 1884, 155 (excludes *Raphi*).

Terrestrial or arboreal granivorous, frugivorous, or phytophagous birds with palate schizognathous, nasals schizorhinal or (in *Gouridæ*) pseudo-holorhinal; dorsal vertebræ heterocœlous (their ankylosis Galline); subclavicular processes present; cæca nonfunctional, and young gymnopædic and nidicolous.

Basipterygoid processes present (except in Suborder *Raphi*) and placed medially; angle of mandible neither produced nor recurved, but abruptly truncated; subclavicular processes present; cervical vertebræ 14–16; spina interna sterni usually present but small, sometimes absent; spina externa present; metasternum usually 4-notched (the inner pair of notches sometimes converted into foramina), sometimes (in genus *Geophaps*) with only two notches, the sternum very narrow;<sup>b</sup> furcula well-developed (except in Suborder *Raphi*), U-shaped, without hypocleideum; basal end of coracoids in contact

<sup>a</sup> In the "Key to the Orders of the Subclass Ornithuræ" on pages 8–12 of Part I of this work, following Fuerbringer and Gadow, the *Columbiformes* are merged with the *Charadriiformes* (page 11); but the Pigeons, together with their nearest allies, the extinct Dodo and Solitaire, are so sharply circumscribed a group that, like the Parrots, they seem to be entitled to rank as a distinct Order.

<sup>b</sup> When there are four notches the lateral processes are much shorter than the inner ones, as in the Order *Galliformes*.

but not overlapping; toes 4, the hallux functional, incumbent, its basal phalanx as long as that of middle toe, connected with the flexor longus hallucis, not with the flexor perforans digitorum, the two deep plantar tendons united by a vinculum; flexors of Type I (Galline); thigh muscle formula ABX+ or ABXY; intestinal convolutions of type V (cyclocœlous); biceps slip present, peculiar in form; expansor secundariorum present; cæca nonfunctional, generally rudimentary; gall-bladder usually absent (present in genera *Muscadivores* and *Lopholaimus*); syrinx with one pair of asymmetrical extrinsic tracheal, or tracheo-bronchial, muscles; two carotid arteries; biceps slip present, peculiar in form; crop large, more or less protuberant; oil gland (if present) nude, sometimes absent; aftershaft absent or rudimentary; adult downs absent; spinal pterygia well-defined on neck by lateral apteria, forked on interscapular region; primaries 11; secondaries 11-15, usually aquinto-cubital (quinto-cubital in *Columbula*); rectrices 12-20.

The Columbiformes agree with the Charadiiformes in the following characters: Palate schizognathous; nares schizorhinal, pervious; cervical vertebræ 15 (except in *Ædinemidæ* and *Jacnidæ* of the latter, which have 16); primaries 11; secondaries aquinto-cubital (mostly); hallux connected with flexor longus hallucis, not with flexor perforans digitorum. They differ, however, in heterocœlous (instead of opisthocœlous) vertebræ; usually 4-notched (rarely 2-notched); sternum; absence or imperfect development of aftershaft to the contour feathers; absence of oil gland (or if this is present it is nude instead of tufted); incumbent and well-developed (instead of elevated and reduced, often absent) hallux, and gymnopædic and nidicolous young.

They agree with the Pterocloformes in schizorhinal nares, rudimentary vomer, usually 4-notched sternum, nude oil gland (if present), aquinto-cubital secondaries, and some other characters, but differ in the well-developed, functional, and incumbent hallux, absence of aftershaft (or else this rudimentary), very different (Columbine instead of Galline) bill, gymnopædic and nidicolous young, immaculate eggs, and other characters.

It is to the above groups that the Columbiformes are most nearly related; indeed, the Order Columbiformes is by some authors made to include not only the Charadiiformes in their most extended sense (that is to say, *Limicolæ*+*Lari*+*Alcæ*), but also the Pterocletes. The pigeons themselves, however, constitute, like the parrots, one of the most sharply circumscribed groups of birds, and therefore seem well entitled to rank as a distinct Order.

## KEY TO THE SUBORDERS OF COLUMBIFORMES.

- a. Wings well-developed, adapted for flight; furcula fully developed; basipterygoid processes present.....Columbæ (p. 277).  
 aa. Wings rudimentary, not adapted for flight; furcula greatly reduced; basipterygoid processes absent.....Raphi (extralimital and extinct).<sup>a</sup>

## Suborder COLUMBÆ.

## THE PIGEONS.

- =*Columbæ* BONAPARTE, Consp. Gen. Av., ii, 1857, 5.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 595.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—ELLIOT, Stand. Nat. Hist., iv, Birds, 1884, 237.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, 178 (and later editions).—RIDGWAY, Man. N. Am. Birds, 1887, 2, 210.—SHARPE, Rev. Rec. Att. Class. Birds, 1891, 70; Hand-list, i, 1899, xi, 51.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, xi, 2 (Sub-order).—BEDDARD, Struct. and Classif. Birds, 1898, 305.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 231.  
 <*Columbæ* CARUS, Handb. Zool., i, 1868, 311, 313 (excludes *Didunculus*).  
 <*Pleiodi* BONAPARTE, Consp. Gen. Av., ii, 1857, 5 (*Didunculus* only).—CARUS, Handb. Zool., i, 1868, 311, 313.  
 <*Gyrantes* BONAPARTE, Consp. Gen. Av., ii, 1857, 5 (excludes *Didunculus*).  
*Giratores* BLAINVILLE, Bull. Soc. Phil., 1816, 110; Journ. d'Phys., lxxxiii, 1816, 252.  
 =*Columbidæ* LILLJEBORG, Proc. Zool. Soc. Lond., 1866, 15.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 357.—AMERICAN ORNITHOLOGISTS' UNION, Check List 1886, 178 (and later editions).—FÜERBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1278.—GADOW, Bronn's Thier-Reich, Vög., ii, 1891, 210, 300; Classif. Vertebr., 1898, 35.—OBERHOLSER, Outl. Classif. N. Am. Birds, 1905, 3.—KNOWLTON, Birds of the World, 1909, 50, 413.

Columbiformes capable of more or less powerful flight, possessing well-developed furcula and basipterygoid processes.

Bill more or less plover-like, usually relatively small and slender (stout in some forms, especially genera *Didunculus* and *Butorion*), consisting of two dissimilar portions: a more or less tumid basal part, covered by a soft skin in which are situated the narrow, longitudinal or

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- a =*Didusidae* Lesson, L'Echo du Monde Savant, 9<sup>e</sup> ann., vi, ser. 2, no. 44, Dec. 8, 1842, col. 1036.  
 >*Inepti* Bonaparte, Consp. Gen. Av., ii, Oct., 1854, 1 (includes *Aepiornis*, *Ornithoptera*, *Didus*, and *Cyanornis*).  
 =*Inepti* Carus, Handb. Zool., i, 1868, 313.  
 >*Didinae* Bonaparte, Consp. Gen. Av., ii, Oct., 1854, 1 (= *Inepti* Bonaparte).  
 =*Didi* Sharpe, Rev. Rec. Att. Classif. Birds, 1891, 70; Hand-list, i, 1899, xii, 92; Salvadori, Cat. Birds Brit. Mus., xxi, 1893, xvii, 628.  
 =*Dididae* Fuerbringer, Unters. Morph. Syst. Vög., ii, 1888, 1567.—Knowlton, Birds of the World, 1909, 50, 409.

The birds of this suborder are all extinct though existing as late as 1693 in the case of the Dodo (*Raphus cucullatus*) or even later (about 1729) in the case of the Solitaire (*Pezophaps solitarius*). They were very large, flightless birds, confined to the Mascarene Islands, near Madagascar, each of the three islands of Mauritius, Réunion, and Rodriguez possessing its peculiar species.

oblique nostrils (overhung by a valve-like scale or operculum) and a hard or horny terminal part with outlines more or less convex, especially the culmen, which is more or less arched, the middle portion of the bill more or less constricted. Head relatively small, completely feathered, except a bare orbital space of greater or less extent. Anterior toes cleft to the base, or else with a slight membrane between middle and outer toes only; tarsus covered laterally and behind (sometimes in front also) with small hexagonal or roundish scales,<sup>a</sup> usually scutellate in front, where sometimes feathered on upper portion. Plumage peculiarly dense though easily detached from the very tender skin, the feathers with a thickened, spongy, loosely inserted rhachis; orbital region usually more or less naked. Young gymnopædic and nidicolous, nourished for a time by a secretion, later by half-digested seeds or grain, both regurgitated from the well-developed crop of the parents. Eggs, 1-2, immaculate, usually white, sometimes buff; nest a very simple structure, usually flat and frail, composed of twigs, straws, or similar materials, placed in a tree, upon stumps, rocks, or walls, clefts of cliffs, in buildings, or on the ground.

Pigeons<sup>b</sup> are monogamous, but nevertheless are to a degree fickle or inconstant in their affections, at least in the domesticated species, and are by no means the peaceful birds they are popularly supposed to be, fierce, bloody, and stubborn conflicts often occurring during the breeding season. Both sexes take equal part in nest building, incubation, and care of the young. The latter are hatched naked, except for scattered bits of filamentous down, and are fed with the moistened or partially digested seeds or grain from the parents' crop, the young one inserting its bill into the parents' mouth, the regurgitation of the food by the parent being accompanied by a violent or spasmodic shaking of the body and wings. The food of pigeons consists principally of grains, seeds, and fruits, and salt is seemingly a necessity to them. In drinking, the bill is immersed to the nostrils and the water drawn in a continuous draft, in which they are, so far as known, unique among birds. The voice of pigeons is, usually, a soft *coo*, varied in strength and modulation according to the species. In some it is extremely loud in proportion to the size of the bird, one of the smaller American species (*Claravis pretiosa*) producing a sound

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<sup>a</sup> These sometimes obsolete or indistinct.

<sup>b</sup> The names *pigeon* and *dove*, applied to birds of this suborder, are synonymous or interchangeable. The former is French (Italian *piccione* or *pipione*, Latin *pipio*); the latter is from the Dutch *duyve* (Danish *due*, Icelandic *dufa*, German *taube*). The name *dove* is commonly applied to the smaller members of the group, though in England the largest species (*Columba palumbus*) is called the Ring Dove; and as Professor Newton remarks (Dictionary of Birds, p. 162) "no sharp distinction can be drawn between Pigeons and Doves, and in general literature the two words are used almost indifferently, while no one species can be pointed out to which the word Dove, taken alone, seems to be absolutely proper."

resembling that made by blowing one's breath into the mouth of a bottle, but nearly as loud as the bellowing of a bull. In others the voice is plaintive or even mournful.

Pigeons are found throughout the temperate and tropical portions of the world, but are most numerous in the Eastern Hemisphere, especially in the islands of the Indo-Malayan and Australian regions, where the most beautifully colored species occur, many of them being among the most beautiful of birds. More than five hundred and fifty species and subspecies, belonging to ninety-one genera, are known, of which only about one hundred species and subspecies and twenty-five genera occur in America.

The nearest living relatives of the Pigeons are the Sand Grouse (Family Pteroclidæ), constituting the order or suborder Pterocloformes or Pterocletes, which are very nearly intermediate in structural characters between the Columbiformes and Galliformes. At the same time the Pigeons show relationship to the Charadriiformes, and even, though far more remotely, to the Owls (Striges) and American Vultures (Sarcoramphi).

KEY TO THE AMERICAN GENERA OF COLUMBÆ.<sup>a</sup>

- a. Wing relatively longer and more pointed, the longest primaries exceeding distal secondaries by more than one-third the length of wing; tarsus less than one-sixth as long as wing. (Secondaries diastataxic=aquintocubital).<sup>b</sup>
- b. Middle toe (without claw) at least nine-tenths as long as tarsus, the latter with upper portion more or less feathered in front.
- c. Tail less than four-fifths as long as wing (sometimes only half as long), rounded or truncated, the rectrices broad throughout, broadly rounded at tip. (Columbæ.)
- d. Tarsus as long as or longer than middle toe without claw; secondaries with exposed portion shorter than exposed portion of greater coverts.
- e. First and second primaries (from outside) longest, the first much longer than third, and, with second, subacute at tip and with inner webs not excised; foreneck with plumage metallic. . . . *Lithœnas* (extralimital).<sup>c</sup>
- ee. Second and third primaries (from outside) longest, the first not longer than fourth, the two outermost primaries rounded or obtuse at tip, their inner webs excised beyond middle portion; foreneck with plumage not metallic.
- f. Tarsus longer than middle toe without claw, only the extreme upper portion feathered in front; toes more slender, with smoother scutella and less expanded as well as less strongly papillose or spiculate soles;

<sup>a</sup> Including, for comparison, a few related European genera.

<sup>b</sup> In *Leptotila* and "*Geotrygon*" (= *Geotrygon*+*Oreopeleia*) the secondaries are diastataxic (aquintocubital). See Miller, Bull. Am. Mus. N. H., xxxiv (art. vi, March 19, 1915, 130). *Osculatia*, which is closely related to *Oreopeleia*, has not been examined with reference to this character.

<sup>c</sup> *Lithœnas* Reichenbach, Av. Syst. Nat., 1852, p. xxv; type, *Columba livia* Linnæus.—*Rupicola* (not of Brisson, 1760) Bogdanow, Trudy St.-Petersb. Obsch., xii, 1881, 99 (subgenus); type, *Columba livia* Linnæus. (Palaëartic.)

- tail relatively shorter (decidedly less than two-thirds as long as wing), slightly but distinctly rounded.<sup>a</sup>
- g. Tail much longer (nearly two-thirds as long as wing); bill larger (length from frontal antia greater than distance from the latter to anterior angle of eye); hindneck and sides of neck with plumage metallic.....*Palumbæna* (extralimital).<sup>a</sup>
- gg. Tail much shorter (only half as long as wing); bill smaller (length from frontal antia less than distance from the latter to anterior angle of eye); hindneck and sides of neck with plumage not metallic.....*Notiœnas* (extralimital).<sup>b</sup>
- ff. Tarsus not longer than middle toe, its upper half feathered in front; toes stouter, with more prominent scutella and more expanded, more strongly papillose or spiculate soles; tail relatively longer (two-thirds as long as wing), truncate.....*Columba* (extralimital).<sup>c</sup>
- dd. Tarsus shorter than middle toe without claw; secondaries with exposed portion longer than exposed portion of greater coverts, or else (in *Crossophthalmus*) the bare orbital space with an outer spiculate or papillose ring.
- e. Tail shorter (much less than three-fourths, usually less than two-thirds, as long as wing); feet relatively larger, with stouter toes; outermost primary longer than fifth (from outside).
- f. Tail more than three-fifths as long as wing; plumage of hindneck not barred nor spotted.
- g. Tail distinctly rounded; outermost primary little if any shorter than fourth (from outside); bare orbital space more contracted; plumage of hindneck not squamated.....*Chlorœnas* (p. 283).
- gg. Tail nearly truncate; outermost primary much shorter than fourth (from outside); bare orbital space much larger; plumage of hindneck conspicuously squamated.....*Patagiœnas* (p. 308).
- ff. Tail less than three-fifths as long as wing; plumage of hindneck barred or spotted.
- g. Distance from base of unguis to frontal feathering about one and a half times that (in straight line) from same point to tip of unguis, the latter with a shallow subterminal tomial notch; whole neck conspicuously spotted and squamated; under wing-coverts dusky purplish brown, rump brown or chestnut, and no white on wings.  
*Lepidœnas* (p. 315).
- gg. Distance from base of unguis to frontal feathering less than distance (in straight line) from same point to tip of unguis, the latter without obvious tomial notch; hindneck (alone) barred; under wing-coverts and rump bluish gray; wings partly white.

<sup>a</sup> *Palumbaena* Bonaparte, *Consp. Gen. Av.*, ii, 1857, 49; type, *Columba œnas* Linnæus.—*Sylvicola* (not of Harris, 1782, Humphreys, 1797, Hübner, 1810, Swainson, 1827, nor Eyton, 1836) Bogdanow, *Trudy St.-Petersb. Obsch.*, xii, 1881, 99 (subgenus); type, *Columba œnas* Linnæus?—*Calotreron* Heine, in Heine and Reichenow, *Nom. Mus. Hein. Orn.*, 1890, 275; new name for *Palumbæna* Bonaparte, on grounds of purism. (Palæarctic.)

<sup>b</sup> *Notiœnas* Ridgway, *Proc. Biol. Soc. Wash.*, xxviii, May 27, 1915, 106; type, *Columba maculosa* Temminck. (Southern South America; two species.) (*Nôrtios*, southern; *oivás*, a wild pigeon.)

<sup>c</sup> *Columba* Linnæus, *Syst. Nat.*, ed. 10, i, 1758, 162; type, as fixed by Selby, 1825, *C. palumbus* Linnæus.—*Palumbis* Forster, *Synopt. Cat. Brit. Birds*, 1817, 55; type, by tautonymy, *Columba palumbus* Linnæus.—*Palumbus* Kaup, *Naturl. Syst.*, 1829, 107; type, by tautonymy, *Columba palumbus* Linnæus. (Palæarctic.)

- h. Secondaries with exposed portion longer than exposed portion of greater wing-coverts; rectrices and tail-coverts extremely broad; bare orbital space smaller, without papillose outer ring.  
**Picazurus** (extralimital).<sup>a</sup>
- hh. Secondaries with exposed portion shorter than exposed portion of greater coverts; rectrices and tail-coverts moderate in width; bare orbital space much larger, with a conspicuous papillose outer ring ..... **Crossophthalmus** (p. 320).
- ee. Tail longer (more than three-fourths as long as wing); feet relatively smaller, the toes more slender; outermost primary shorter than fifth (from outside) ..... **Encenas** (p. 323).
- cc. Tail as long as or longer than wing, strongly graduated, the rectrices tapering terminally, pointed at tip. (*Ectopistex*.) ..... **Ectopistes** (p. 333).
- bb. Middle toe (without claw) less than five-sixths as long as tarsus, the latter with upper part entirely bare.
- c. Tail crossed by a post-median band of black (sometimes obsolete on middle rectrices); a subauricular spot or streak of black. (*Zenaidæ*.)
- d. Wings more or less spotted with black, the distal coverts not white.
- e. Rectrices 14, the tail more than three-fifths as long as wing; tarsus less than one-sixth as long as wing; bill not decurved; smaller wing-coverts immaculate; a black subauricular spot, but no pale auricular stripe.
- f. Tail longer and more graduated (nearly three-fourths as long as wing to longer than wing) ..... **Zenaidura** (p. 339).
- ff. Tail shorter, rounded rather than graduated (less than two-thirds as long as wing) ..... **Zenaida** (p. 354).
- cc. Rectrices 12; the tail less than three-fifths as long as wing; tarsus nearly one-fifth as long as wing; bill decurved; smaller wing-coverts spotted or streaked; no subauricular spot, but a pale auricular band margined above and below by a black line. .... **Nesopelia** (p. 372).
- dd. Wings immaculate, the distal coverts white ..... **Melopelia** (p. 376).
- cc. Tail without a black cross-band; sides of head and upper neck immaculate.
- d. Larger (wing not less than 140 mm.); culmen two-thirds as long as tarsus, the latter less than one-seventh as long as wing; tail more than two-thirds as long as wing, extensively white apically (except on middle rectrices); a black band across nape. .... **Streptopelia** (p. 385).
- dd. Smaller (wing less than 135 mm.); culmen less than two-thirds as long as tarsus, the latter nearly one-sixth as long as wing; tail less than two-thirds as long as wing, wholly black. .... **Metriopelia** (extralimital).<sup>b</sup>
- aa. Wing relatively shorter and more rounded, the longest primaries exceeding distal secondaries by not more (usually less) than one-third the length of wing. (Secondaries eutaxic=quintocubital, except in *Leptotila*, *Geotrygon*, and *Oreopeleia*.)<sup>c</sup>

<sup>a</sup> *Picazurus* Des Murs, in *Chenu Enc. d'Hist. Nat.*, Ois., vi, 1854, 39; type, by tautonymy, *Columba picazuro* Temminck. (Southern Brazil, Argentina, Paraguay, Bolivia, Peru, etc., two species.)

<sup>b</sup> *Metriopelia* Bonaparte, *Compt. Rend.*, xi, 1855, 23; *Consp. Gen. Av.*, ii, 1857, 75; type, *Columba melanoptera* Gmelin.—*Metriopelia* (emendation) Reichenbach, *Volls. Naturg. Columbariae*, i, 1861, 17. (Ecuador to Chile and Argentina; two species, of which *M. ayмара* has not been examined.)

<sup>c</sup> This character assumed for *Nesopelia*, *Melopelia*, and *Metriopelia*, which have not been examined with reference to the character in question.

- b. Acrotarsium covered by large, broad, transverse scutella.
- c. Tail more than two-thirds (usually nearly three-fourths) as long as wing.
- d. Tail as long as or longer than wing.
- e. Plumage barred with black.
- f. Outermost primary abruptly attenuated terminally; rectrices 14,  
*Geopelia* (extralimital).<sup>a</sup>
- ff. Outermost primary not attenuated; rectrices 12...*Scardafella* (p. 388).
- ee. Plumage not barred.
- f. Outermost primary attenuated terminally.....*Oxytelia* (extralimital).<sup>b</sup>
- ff. Outermost primary not attenuated.....*Uropelia* (extralimital).<sup>c</sup>
- dd. Tail decidedly shorter than wing.
- e. Smaller (wing less than 102 mm.); bare orbital region separated from rictus by feathering; no trace of tomial notch; mandible relatively deeper, with horny tip relatively longer and lateral groove shorter.
- f. None of the primaries with inner web lobed or toothed; orbital region extensively naked, extended to rictus; wing immaculate.  
*Gymnopelia* (extralimital).<sup>d</sup>
- ff. Fourth primary (from outside) with inner web toothed or lobed; orbital region slightly naked, the bare skin not extending to rictus; wings with black, purplish, or brown spots.
- g. Secondaries quinto-cubital; lateral rectrices and distal wing-coverts and secondaries white.....*Columbina* (extralimital).<sup>e</sup>
- gg. Secondaries aquinto-cubital; lateral rectrices and distal wing-coverts and secondaries with little if any white.
- h. Bill and feet much larger, the exposed culmen longer than lateral toes; nasal operculum conspicuously tumid or vaulted; outermost primary extremely broad, longer than fourth (from outside), the next four with outer webs very strongly sinuated.  
*Eupelia* (extralimital).<sup>f</sup>

<sup>a</sup> *Geopelia* Swainson, *Classif. Birds*, ii, 1837, 348; type, *Columba striata* Linnæus.—*Geopelia* (emendation) Reichenbach, *Av. Syst. Nat.*, 1852, p. xxv.—*Tomopelia* Reichenbach, *Av. Syst. Nat.*, 1852, p. xxv; type, *Columba maugeus* Temminck and Knip.—*Tomopelia* (emendation) Bonaparte, *Consp. Gen. Av.*, ii, 1857, 94.—*Stictopelia* Reichenbach, *Av. Syst. Nat.*, 1852, p. xxv; type, *Columba cuneata* Latham.—*Stictopelia* (emendation) Bonaparte, *Consp. Gen. Av.*, ii, 1857, 95.—*Erythrauchoena* Bonaparte, *Compt. Rend.*, xl, 1855, 210; type, *Columba humeralis* Temminck.—*Erythrauchoena* (emendation) Bonaparte, *Consp. Gen. Av.*, ii, 1857, 93.—*Chrysauchoena* Bonaparte, *Compt. Rend.*, xl, 1855, 210 (error for *Erythrauchoena*). (Burma and Philippines to Australia; five species, of which only *G. striata*, the type, has been examined in this connection.)

<sup>b</sup> *Oxytelia* Salvadori, *Cat. Birds Brit. Mus.*, xxi, 1893, 490; type, by designation, *Peristera cyanopsis* Pelzeln. (Interior of Brazil; monotypic.)

<sup>c</sup> *Uropelia* Bonaparte, *Compt. Rend.*, xl, 1855, 24; *Consp. Gen. Av.*, ii, 1857, 85; type, by monotypy, *Columbina campestris* Spix.—*Uropelia* (emendation) Reichenbach, *Volls. Naturg. Columbaria*, i, 1861, 18. (Brazil and Bolivia; monotypic.)

I have not seen either of these genera.

<sup>d</sup> *Gymnopelia* Sclater and Salvin, *Nom. Av. Neotr.*, 1873, 156; type, by designation, *Columba erythrothorax* Meyen (not of Temminck)=*Chamapelia anais* Lesson. (Peru, Bolivia, and northern Chile; monotypic.)

<sup>e</sup> *Columbina* Spix, *Av. Bras.*, ii, 1825, 57; type, *C. strepitans* Spix=*Columba picui* Temminck.—*Columbula* Bonaparte, *Compt. Rend.*, xl, 1855, 22; *Consp. Gen. Av.*, ii, 1857, 80; type *Columba picui* Temminck. (Southern South America; monotypic.)

<sup>f</sup> *Eupelia* Todd, *Ann. Carnegie Mus.*, viii, nos. 3-4, May 8, 1913, 512; type, by designation, *Columba cruziana* Prévost and Knip. (Ecuador to Bolivia and northern Chile; monotypic.)



- hh.* Bill and feet much smaller, the nasal operculum only moderately tumid; outermost primary shorter than fourth (from outside), only moderately broad (except in *C. talpacoti* and allies), the next four with outer webs moderately sinuated. . . . *Chæmepelia* (p. 393).
- ee.* Larger (wing more than 110 mm.); bare orbital region connected with rictus by a narrow unfeathered line; or else (in genus *Claravis*) wings spotted, feathering of forehead not advancing as far as malar antia, and tail truncate; a more or less distinct tomial notch; maxilla relatively narrower (laterally), with horny tip relatively much shorter and with lateral groove extending much the greater part of its length.
- f.* Tail truncate; bare orbital space small, the lores wholly feathered; feathering of forehead with antia posterior to malar antia; wings spotted with black, purplish, or brown; sexes very unlike in coloration. . . . . *Claravis* (p. 430).
- ff.* Tail decidedly rounded; bare orbital space large, continued in a narrow strip to rictus; wings not spotted; sexes essentially alike in coloration (except in *Oreopeleia*, part).
- g.* Outermost primary shorter than seventh, abruptly attenuated terminally . . . . . *Leptotila* (p. 438).
- gg.* Outermost primary longer than seventh (usually longer than sixth), not attenuated terminally.
- h.* Bill much larger and stouter, the exposed culmen as long as first two phalanges of middle toe, the tomial notch distinct; feathers of occiput and nape elongated, forming a decumbent, blended crest, those of forehead hair-like, somewhat stiffened.
- Geotrygon* (p. 464).
- hh.* Bill much smaller and weaker, the exposed culmen much shorter than first two phalanges of middle toe (except in *O. mystacea*); tomial notch obsolete; feathers of occiput and nape short, those of forehead not hair-like or stiffened. . . . . *Oreopeleia* (p. 467).
- cc.* Tail but little more than half as long as wing. (Outermost primary narrow, attenuated for terminal third). . . . . *Osculatia* (extralimital).<sup>a</sup>
- bb.* Acrotarsium (as well as planta tarsi) covered with small hexagonal scales.
- Starnœnas* (p. 496).

### Genus CHLORÆNAS Reichenbach.

*Chlorœnas* REICHENBACH, Av. Syst. Nat., 1852, p. xxv. (Type, *Columba fasciata* Say.)

*Chlorœnas* (emendation) BONAPARTE, Ann. Sci. Nat., Zool., (2), i, 1854, 140.

Large arboreal pigeons (length about 240–415 mm.) with middle toe (exclusive of claw) longer than tarsus, exposed portion of secondaries longer than exposed portion of greater coverts, tail one-half to two-thirds as long as wing, more or less rounded, and plumage of hindneck neither squamated nor barred.

Bill moderate in length (exposed culmen never longer than distance from its base to anterior angle of eye), usually rather slender (very stout in *C. flavirostris*), its greatest depth equal to only about one-third the length of exposed culmen (except in *C. flavirostris*, in

<sup>a</sup> *Osculatia* Bonaparte, Compt. Rend., xl, 1855, 102; Consp. Gen. Av., ii, 1857, 73; type, by monotypy, *Geotrygon sapphirina* Bonaparte. (Ecuador; two species.)

which its greatest depth is equal to one-half the exposed culmen); frontal feathering variable in its anterior extension, the antia scarcely or but little anterior to basal end of nasal operculum, and nearly opposite the malar antia, in *C. rufina*, nearly at its anterior end in *C. flavirostris*, of intermediate position in other species. Wing rather large, pointed, the longest primaries exceeding distal secondaries by at least one-third the length of wing; second, or second and third, primaries (from outside) longest, the first sometimes longer than third, sometimes shorter than fourth; none of primaries with inner web distinctly sinuated (the two outermost slightly sinuated in *C. flavirostris* and *C. rufina*). Tail one-half to a little more than two-thirds as long as wing, distinctly but never strongly rounded, the rectrices moderately rounded, with broadly rounded tips, moderately rigid. Tarsus slightly to decidedly shorter than middle toe without claw (the proportion of the latter to the former varying from 1.01 to 1 in *C. araucana* to 1.23 to 1 in *C. inornata*), the acrotarsium with very distinct broad transverse (sometimes partly hexagonal) scutella, the planta tarsi with more or less distinct very small roundish scales (except in *C. rufina*?), the upper portion always feathered (except behind) for greater or less distance below tibio-tarsal joint (upper half feathered in *C. araucana*, less than upper third feathered in *C. flavirostris*); toes rather stout, with moderately broad, minutely papillose tylari, the lateral toes about equal in length, with claws falling very slightly short of base of middle claw; hallux stout, broader than lateral toes, longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage in general dense, that of head, neck, and under parts blended, that of the hindneck, however, scale-like and metallic in the type-species and its nearest allies; bare circumorbital area rather contracted. Coloration plain, bluish gray and olive or grayish brown prevailing on upper parts, the head, neck and anterior under parts more or less vinaceous; hindneck sometimes metallic bronze or greenish, but never with bars or squamations, the type and allied species, however, with a single white or whitish bar across nape; in most species, the tail with a more or less distinct darker band across middle portion, or with apical half abruptly paler gray than basal portion; sexes alike or only slightly different in color.

*Range.*—Temperate and tropical South and Central America, western temperate North America, and Greater Antilles (Cuba, Haiti, Jamaica, and Porto Rico). (About seven species, not counting subspecies.)

It is possible that this genus requires subdivision, since some of the species herein included are decidedly aberrant. *C. flavirostris* differs conspicuously from all the others in its very thick and relatively short bill, with the frontal feathering advancing nearly to the anterior end of the nostrils, and the feet, especially the tarsi, are also

relatively stouter than in other species; but in coloration it is remarkably like *C. inornata*, which in form of bill and other characters is much like typical *Chlorœnas*. *C. rufina* is peculiar in its much less prominent nasal operculi, slight anterior extension of frontal feathering (the extremity of which is practically in vertical line with the point of the malar antia), and, apparently, want of small roundish scales on the planta tarsi.

## KEY TO THE SPECIES AND SUBSPECIES OF CHLORÆNAS.

- a. Color of smaller wing-coverts and chest uniform. (*Adults*.)
- b. Hindneck metallic green or bronze; tail tricolored (a darker basal and a paler apical portion, separated by a more or less distinct black or dusky band).
- c. A white bar across nape; metallic feathers of hindneck sharply defined, scale-like.
- d. Bill yellow (with or without black tip).
- e. Tip of bill black; abdomen and under tail-coverts white. (*Chlorœnas fasciata*.)
- f. Darker, with dusky subterminal band of tail distinct. (British Columbia to northern Nicaragua; east to Rocky Mountains.)
- Chlorœnas fasciata fasciata* (p. 288).
- ff. Paler, with subterminal band of tail indistinct. (Southern Lower California.) ..... *Chlorœnas fasciata viosœ* (p. 292).
- ee. Bill entirely yellow; abdomen vinaceous-grayish, like more anterior under parts; under tail-coverts gray (more or less deep). (*Chlorœnas albilinea*.)
- f. Pileum, nape, and chest deep purple-drab; under tail-coverts pale gray; wing-coverts paler than back and scapulars. (Costa Rica and Panama.) ..... *Chlorœnas albilinea crissalis* (p. 292).
- ff. Pileum, nape, and chest dark vinaceous-gray; under tail-coverts mouse gray; wing-coverts concolor with scapulars and back. (Colombia to British Guiana, Bolivia, and Peru.)
- Chlorœnas albilinea albilinea* (extralimital).<sup>a</sup>
- dd. Bill entirely black. (Chile.) ..... *Chlorœnas araucana* (extralimital).<sup>b</sup>

<sup>a</sup> [*Chlorœnas*] *albilinea* Bonaparte, Consp. Gen. Av., ii, 1857, 51 (Colombia; coll. Brit. Mus.; ex *Columba albilinea* Gray, manuscript).—*Chlorœnas albilinea* Bonaparte, Consp. Gen. Av., ii, 1857, 51, in text.—*Columba albilinea* Sclater, Proc. Zool. Soc. Lond., 1860, 72 (Pallatanga, w. Ecuador); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 294.—*Columba albilineata* Gray, List Birds Brit. Mus., Columbæ, 1856, 34.—[*Chlorœnas*] *albilineata* Gray, Hand-list, ii, 1870, 235, no. 9270.—*Columba guayaquilensis* Ridgway, Proc. U. S. Nat. Mus., xi, sig. 8, Nov. 8, 1888, 112 ("Guayaquil," w. Ecuador; coll. U. S. Nat. Mus.).

I have seen specimens of this form only from "Guayaquil" (locality in doubt).

<sup>b</sup> *Columba araucana* Lesson, Voy. Coq., Zool., livr. 4, July, 1827, pl. 40; text, i, pt. ii, livr. 16, May, 1830, 706 (Talcahuana, Prov. Concepcion, Chile; coll. Paris Mus.); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 296.—[*Chlorœnas*] *araucana* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 277.—*Columba denisea* Temminck, Pl. Col., iv, livr. 86, Sept., 1830, pl. 502 and text (Chile; coll. Leyden Mus.).—[*Chlorœnas*] *denisea* Bonaparte, Consp. Gen. Av., ii, 1857, 51.—*Columba fitzroyii* King, Proc. Zool. Soc. Lond., pt. i, no. 1, Jan. 6, 1831, 15 (Chiloë I., Chile).—(?) *Columba meridionalis* (not of Latham, 1801, nor King, 1828) Peale, U. S. Expl. Exped. (Wilkes), Birds, 1848, 111 (Rio Negro, Patagonia).

cc. No white bar across nape; metallic feathers of hindneck blended. (Jamaica.)  
*Chlorœnas caribæa* (p. 294).

bb. Hindneck not metallic; tail unicolorous, or if bicolored (*C. rufina*, part) the occiput and nape metallic.

c. Occiput and nape concolor with crown and hindneck (not metallic); tail deep slate to slate-blackish, darker terminally.

d. Bill light colored (yellowish or reddish), stout, with feathers of forehead advancing much beyond malar antia. (*Chlorœnas flavirostris*.)

e. Coloration darker, with white edgings to distal wing-coverts narrower; smaller (wing averaging less than 195 in male, less than 192 in female).

f. Larger (wing averaging 191.7 in male, 191.3 in female). (Northern Mexico, including Rio Grande Valley in Texas, to Honduras.)

*Chlorœnas flavirostris flavirostris* (p. 300).

ff. Smaller (wing averaging 190 in male, 183.7 in female). (Nicaragua and Costa Rica.)..... *Chlorœnas flavirostris minima* (p. 304).

ee. Coloration paler, with white edgings to distal wing-coverts broader; larger (wing averaging 200.4 in male, 198 in female). (Tres Marias Islands, western Mexico.)... *Chlorœnas flavirostris madrensis* (p. 303).

dd. Bill black, slender, with feathers of forehead advancing but little beyond malar antia. (*Chlorœnas inornata*.)

e. More deeply colored, the general color of head, neck, and under parts strongly purple-drab.

f. Darker, the forehead purple-drab, like rest of pileum. (Jamaica.)

*Chlorœnas inornata exigua* (p. 298).

ff. Paler, the forehead appreciably lighter or grayer than rest of pileum.

g. Darker (nearly as dark as *C. i. exsul*, but forehead appreciably paler than crown, etc.). (Porto Rico.) *Chlorœnas inornata exsul* (p. 299).

gg. Slightly paler, with forehead distinctly paler and grayer than crown. (Cuba; Haiti?)..... *Chlorœnas inornata inornata* (p. 296).

ee. Coloration much paler, the general color of head, neck, and under parts light purple-drab to vinaceous-gray. (Isle of Pines, near Cuba.)

*Chlorœnas inornata proxima* (p. 299).

cc. Occiput and nape metallic bronze-green or purplish, in contrast with purple-drab or vinaceous-brown of forehead and hindneck; tail brownish gray, paler terminally (sometimes with a dusky subterminal band).

d. Malar and auricular regions gray. (*Chlorœnas rufina*.)

e. Tail with apical portion conspicuously and abruptly paler than basal portion, in contrast with a more or less distinct dusky subterminal band.

f. Under tail-coverts paler gray; subterminal band of tail less distinct, dull slaty or dusky grayish. (Guianas and Amazon Valley; Venezuela?; Colombia?)..... *Chlorœnas rufina rufina* (extralimital).<sup>a</sup>

<sup>a</sup> *Columba rufina* Temminck, Pigeons, i, fam. seconde, 1808-11, 59, pl. 24 (French Guiana); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 287, part.—*Janthoenas rufina* Reichenbach, Av. Syst. Nat., 1852, p. xxv.—[*Chlorœnas*] *rufina* Bonaparte, Consp. Gen. Av., ii, 1857, 52.—*Melopelia plumbeiceps* Lawrence, Ibis, 4th ser., iv, 1880, 238 (Guiana; coll. G. N. Lawrence;=young).

The series examined of this form is very small, and not sufficient to enable one to get a clear idea as to its distinctions from the Central American form (*C. r. pallidicrissa*), to which it seems much nearer than to *C. r. sylvestris*; indeed, in the few specimens examined the darker subterminal band of the tail is practically obsolete, and there are some Central American examples in which the abdomen and under tail-coverts are quite as gray.

*ff.* Under tail-coverts deeper gray (nearly slate-gray). (Southern Brazil, Paraguay, and eastern Peru.)

*Chlorœnas rufina sylvestris* (extralimital).<sup>a</sup>

*ee.* Tail with apical portion neither conspicuously nor abruptly paler than basal portion, and without any obvious darker subterminal band.

*f.* Posterior under parts dark gull gray (as dark as or darker than in *C. r. sylvestris*). (Sierra da Lua, near Boa Vista, Amazonas, Brazil.)

*Chlorœnas rufina andersoni* (extralimital).<sup>b</sup>

*ff.* Posterior under parts whitish gray to pure white.

*g.* Posterior under parts more extensively and purely white. (Tobago.)

*Chlorœnas rufina tobagensis* (extralimital).<sup>c</sup>

*gg.* Posterior under parts less extensively and less purely white (the white more or less tinged with gray, even on under tail-coverts). (Panama to southeastern Mexico; Colombia?; Venezuela?.)

*Chlorœnas rufina pallidicrissa* (p. 305).

*dd.* Malar and auricular regions purple-drab or dull vinaceous. (Peru.)

*Chlorœnas œnops* (extralimital).<sup>d</sup>

*aa.* Color of smaller wing-coverts and feathers of chest broken by paler margins (more or less distinct). (*Young*.)

*b.* Tail with a more or less distinct darker subterminal band.

*c.* Distal middle and greater wing-coverts conspicuously edged with whitish.

*Chlorœnas fasciata fasciata*, young (p. 289).

*cc.* Distal middle and greater wing-coverts not edged with whitish.

*d.* Bill pale-colored; under tail-coverts pale grayish.

*Chlorœnas albilinea crissalis*, young (p. 293).

*dd.* Bill dusky; under tail-coverts white or buffy white.

*Chlorœnas caribæa*, young (p. 295).

<sup>a</sup> *Columba sylvestris* Vieillot, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 366 (Paraguay; based on *Paloma de la montés* Azara, Apunt. Parag., iii, 11); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 289, footnote (synonym); Chubb, Ibis, 1910, 59 (synonymy; range; crit.).—*Ch[lorœnas] sylvestris* Reichenbach, Volls. Naturg., Columbariæ, i, 1861, 62.—*Columba rufina sylvestris* Hellmayr, Novit. Zool., xiii, Feb., 1906, 47 (s. Brazil); xv, 1908, 91 (Goyaz, s. Brazil).

A very strongly marked form, of which a fair series has been examined.

<sup>b</sup> *Columba rufina andersoni* Cory, Pub. 182, Field Mus. Nat. Hist. (Orn. Ser., i, no. 8), Feb. 23, 1915, 294 (Sierra de Lua, near Boa Vista, n. Brazil; coll. Field Mus. Nat. Hist.).

Not seen by me.

<sup>c</sup> *Columba rufina tobagensis* Cory, Pub. 182 (Orn. Ser., i, no. 8) Field Mus. Nat. Hist., Feb. 23, 1915, 295 (Tobago; coll. Field Mus. Nat. Hist.).

A very strongly marked subspecies, easily distinguished by its extensively and purely white posterior under parts.

<sup>d</sup> *Columba œnops* Salvin, Novit. Zool., ii, no. 1, Feb. 1, 1895, 20 (Viña, Huamachuco at 5,500 ft., Malca, and Cajabamba at 8,000 ft., Peru; coll. Tring Mus.?).

Having neither seen this species nor been able to refer to the original description, it is not unlikely that it may not be in proper place in the "key."

bb. Tail without a darker subterminal band.

c. Tail dusky, not paler terminally.

d. Tail darkening terminally; smaller wing-coverts tinged or intermixed with reddish brown . . . . . *Chlorœnas flavirostris flavirostris*, young (p. 301).

dd. Tail not darkening terminally; smaller wing-coverts without tinge or intermixture of reddish brown <sup>a</sup>. . . . . *Chlorœnas inornata*, young (p. 297).

cc. Tail brownish gray, paler and more brownish terminally.

*Chlorœnas rufina pallidicrissa*, young (p. 306).

### CHLORÆNAS FASCIATA FASCIATA (Say).

#### BAND-TAILED PIGEON.

*Adult male*.—Head purplish drab or light purplish drab, becoming paler and usually more grayish on malar region and throat, which are sometimes distinctly more grayish (light quaker drab), in contrast with color of pileum; across nape or upper hindneck a bar of white; below this, the whole hindneck metallic bronze or greenish bronze, the feathers with sharp outlines, producing a somewhat squamate effect; back, scapulars, and anterior lesser wing-coverts grayish brown (nearly hair brown, but varying considerably in depth), very faintly glossed, in certain lights, with bronzy; rump and upper tail-coverts neutral gray or light neutral gray, sometimes a little more brownish; proximal half, or more, of tail neutral gray, the apical half lighter and more brownish gray (sometimes drab-gray), with a more or less distinct, more or less interrupted, band of darker gray to dull black across the middle portion, separating the darker and lighter gray areas; posterior lesser wing-coverts, middle coverts, and greater coverts brownish gray, the greater coverts narrowly edged with white; proximal secondaries similar but more brownish, without distinct whitish edgings, the distal ones much darker, distinctly though narrowly edged with whitish; primaries, primary coverts, and alulæ dusky, the first narrowly edged distally with white; under parts purple-drab to light purple-drab, usually somewhat clearer or more vinaceous on under parts of body and more grayish on throat, the abdomen (at least the lower portion), anal region, and under tail-coverts white; axillars and under wing-coverts pale neutral gray; bill yellow, the apical third (approximately) black; iris pale yellow next to pupil with outer ring of pink or lilac; eyelids red; legs and feet clear cadmium yellow; length (skins), 342–400 (363); wing, 195–221 (208.6); tail, 122–151 (139.4); culmen, 16–20 (18); tarsus, 24.5–29.5 (27); middle toe, 27.5–34 (30.4).<sup>b</sup>

*Adult female*.—Similar to the adult male, but coloration duller, the upper parts more brownish, the head and under parts less vinaceous; length (skins), 334–395 (338); wing, 193–218 (204); tail,

<sup>a</sup> Having but one specimen of each of these two species, and that of *C. inornata* much younger than the other, I can not be sure that the differences given above are constant.

<sup>b</sup> Thirty-eight specimens.

121-149 (134.1); culmen, 15.5-19.5 (17.6); tarsus, 24-28.5 (26); middle toe, 26.5-33 (29.6).<sup>a</sup>

*Young*.—Very different in coloration from adults, only the rectrices, remiges, primary coverts, and alulae being similar; no white bar on nape nor metallic feathers on hindneck; pileum, hindneck, sides of neck, and sides of head brownish gray (quaker drab to mouse gray), much paler on chin and upper throat; smaller wing-coverts margined (more or less distinctly) with paler, as are also feathers of chest; scapulars sometimes suffused with brown.

*Downy young*.—Entirely (but rather thinly) covered with rather long down, of deep yellowish buff or chamois color.

Western United States (in Transition Life-Zone), north to southwestern British Columbia (Comox; Howe Sound); Vancouver Island (Parksville, Errington, Union Bay, head of Tahsis Canal, Nootka Sound, and near summit of Mount Arrowsmith; Lulu Island), and Montana, from Pacific coast to Rocky Mountains; east to Montana, western North Dakota (Eaglevale, Ransom County), Colorado, New Mexico, and western Texas (Davis, Chisos, and Guadalupe Mts.; Fort

<sup>a</sup> Twenty-eight specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Washington.....	218	145.1	18.5	29	31.3
Four adult males from California.....	212.6	141.7	19.5	28.2	31.6
Eight adult males from Arizona.....	205.4	138.4	17.9	26.5	29.7
Five adult males from New Mexico.....	209.4	141.4	18	27.1	31.1
Four adult males from western Texas.....	203	138.4	17.4	26.9	30.4
Two adult males from Chihuahua.....	201	130.7	17.7	25.2	28.7
Five adult males from Sonora.....	206.3	138.3	17.8	26.9	29.9
One adult male from Oaxaca.....	210	145	19	26	28
One adult male from Chiapas.....	216	145	17.5	27	31.5
Three adult males from Guatemala.....	213.8	133.7	18.2	26.8	30.7
Ten adult males from southern Lower California (= <i>C. f. vioscaæ</i> ).....	208.2	146.5	18.6	26.4	29.8
FEMALES.					
One adult female from British Columbia.....	209	137	17.5	26	29
Two adult females from Washington.....	205.5	139.2	18.2	27.2	32.5
Five adult females from California.....	213.2	138.2	18.2	27.3	31
Seven adult females from Arizona.....	198.6	131.3	17.1	24.9	28.9
Six adult females from New Mexico.....	204.6	132.2	17.7	25.9	29.6
One adult female from western Texas.....	204	144	17.5	25.5	28
One adult female from Vera Cruz.....	206	129	17	27.5	30.5
Two adult females from Jalisco.....	201	122	17	25.7	30
Two adult females from Chiapas.....	197.7	133.5	18	25.5	29
One adult female from Guatemala.....	201.5	134	18	25	30
Seven adult females from southern Lower California (= <i>C. f. vioscaæ</i> ).....	198.9	141.4	17.9	25	29.9

Clark); southward over nearly the whole of Mexico, in States of Sonora (Quijano; San José Mts.; s. of Nogales), Chihuahua (Cajón Bonita Creek; Pacheco; Barbicora), Nuevo León, Coahuila (Sierra Guadalupe), San Luis Potosí (Sierra de San Luis Potosí), Puebla, (San Miguel Molino), Guanajuato, Durango (La Cienega, 7,500 ft.), Jalisco (Sierra Madre; Sierra Nevada de Colima; Sierra de Bolaños; Bolaños; Volcán de Nieve; La Pisagua), Sinaloa (Mazatlán), Colima (Sierra Nevada), Oaxaca (La Parada), Vera Cruz (Orizaba; Córdova; Jalapa; Las Vigas), Chiapas (San Cristóbal; Pinabete; Teopisca), and Territory of Tepic (Sierra de Jeréz), and through highlands of Guatemala (Volcán de Fuego, at 6,000 ft.; near Tecpám, at 8,400 ft.; Dueñas; Cobán; Tolimán) to northern Nicaragua (Matagalpa; San Rafael del Norte).<sup>a</sup>

*Columba fasciata* SAY, in Long's Exped. Rocky Mts., ii, 1823, 10, note (Plum Creek, near Castle Rock, Douglas Co., Colorado).—BONAPARTE, Am. Orn., i, 1825, 77, pl. 8; Ann. Lyc. N. Y., ii, 1826, 119; Geog. and Comp. List, 1838, 41.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 624; 2d ed., 1840, 753.—AUDUBON, Orn. Biog., iv, 1838, 479, pl. 367; Synopsis, 1839, 191; Birds Am., oct. ed., iv, 1842, 312, pl. 279.—NEWBERRY, Rep. Pacific R. R. Surv., iv, pt. iv, ch. i, 1857, 92 (McCumbers, n. e. of Fort Reading, California; Dalles, Oregon).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 597; Rep. Mex. Bound. Surv., ii, pt. ii, 1859, 21 (Nogales, Arizona; Nuevo Leon), Cat. N. Am. Birds, 1859, no. 445.—SCLATER, Proc. Zool. Soc. Lond., 1858, 359 (Córdova, Vera Cruz); 1859, 236 (Vancouver I.), 369 (Jalapa, Vera Cruz).—SALVIN and SCLATER, Ibis, 1860, 276 (Volcan de Fuego, at 6,000 ft., and Coban, Guatemala).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 217 (Washington).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 93 (Fort Whipple, Arizona, summer res.); Check List, 1873, no. 367; 2d ed., 1882, no. 539; Birds North-West, 1874, 385.—BROWN, Ibis, 1868, 423 (Vancouver I.).—SUMCHRAST, Mem. Bost. Soc. N. H., i, 1869, 562 (alpine region, Vera Cruz).—COOPER, Am. Nat., iii, 1869, 80 (Montana); Orn. Calif., 1870, 506.—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 67.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 359, 360, pl. 57, fig. 2.—RIDGWAY, Field and Forest, ii, 1877, 209 (Colorado); Orn. 40th Parallel, 1877, 595 (San Francisco, California, Jan.); Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am. Birds, 1881, no. 456.—HENSHAW, Auk, iii, 1886, 80 (upper Pecos R., New Mexico).—ANTHONY, Auk, iii, 1886, 164 (Washington Co., Oregon, common summer res.).—SCOTT, Auk, iii, 1886, 421 (Santa Catalina Mts., Arizona, most of year).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 174 (Puebla, Mexico).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 312.—BENDIRE, Proc. U. S. Nat. Mus., x, 1888, 551 (Fort Huachuca, Arizona; habits; descr. nest and eggs); Life Hist. N. Am. Birds, 1892, 122.—MEARNS, Auk, vii, 1890, 52 (Mogollon Mts., Arizona, breeding).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 134 (Vancouver I.; Kalama, etc., mainland coast, Brit. Columbia; habits).—RHODES, Proc. Ac. Nat. Sci. Phila., 1892, 114 (Santa Catalina Mts., Arizona, breeding in pine belt); 1893, 39 (Tacoma, Washington; Vancouver I. and Lulu I., B. C.).—SALVIN and GODMAN, Ibis, 1892, 328 (Matagalpa, n. Nicaragua); Biol. Centr.-Am., Aves, iii, 1902, 237 (Nogales, Sonora; Nuevo Leon; Guanajuato; Mazatlan, Sinaloa; Sierra de San Luis Potosi; Sierra de Jerez, Tepic; Sierra de Bolaños, Jalisco;

<sup>a</sup> Nicaraguan specimens not seen by me. There are apparently no records for Honduras and Salvador.



Sierra Nevada, Colima; Jalapa, Cordova, Las Vigas, etc., Vera Cruz; San Miguel Molino, Puebla; Oaxaca; Coban, Volcan de Fuego, and Toliman, Guatemala; Matagalpa and San Rafael del Norte, Nicaragua).—**JOUY**, Proc. U. S. Nat. Mus., xvi, 1893, 789 (n. Sonora).—**SALVADORI**, Cat. Birds Brit. Mus., xxi, 1893, 291.—**LOWE**, Auk, xi, 1894, 267 (Wet Mts., Colorado, 7,000-10,000 ft.).—**COOKE**, Bull. 44, Col. Agric. Exp. Sta., 1898, 160 (breeding in mts. near Glenwood Springs, Colorado).—**OBERHOLSER**, Auk, xix, 1902, 300 (Chisos, Davis, and Guadalupe Mts., w. Texas).—**SWARTH**, Pacific Coast Avifauna, no. 4, 1904, 4 (Huachuca Mts., Arizona; habits); Rep. Birds and Mam. Vancouver I., 1912, 26 (Parksville, Errington, head of Tahsis Canal, Nootka Sound, and near summit of Mt. Arrowsmith, Vancouver I.).—**BAILEY** (Florence M.), Auk, xxi, 1904, 352 (upper Pecos R., New Mexico, 10,000-11,000 ft.).—**MONTGOMERY**, Auk, xxii, 1905, 13 (Chisos Mts., w. Texas).—**GRINNELL** (J.), Auk, xxii, 1905, 382 (Mt. Piños, California; notes).—**JENKINS**, Condor, viii, 1906, 126 (Monterey Co., California).—**HUNN**, Auk, xxiii, 1906, 420 (Silver City, New Mexico, in summer).—**DEARBORN**, Pub. 125, Field Mus. N. H., 1907, 79 (near Tecpam, Guatemala, 8,400 ft.).—**KERMODE**, Provincial Mus. B. C., 1909, 42 (Vancouver I. and s. w. parts of mainland, Brit. Columbia).—**HENDERSON**, Univ. Col. Studies Zool., vi, 1909, 228 (Boulder Co., Colorado, near Gold Hill, June).—**CLARK** (A. H.), Proc. U. S. Nat. Mus., xxxviii, 1910, 56 (Union Bay, Vancouver I.).—**VISHER**, Auk, xxvii, 1910, 281 (Pima Co., Arizona, above 5,000 ft., nesting above 7,000 ft.).—**STEPHENS**, Condor, xvi, 1914, 259 (near Greaterville, Santa Rita Mts., Arizona, breeding).

[*Columba*] *fasciata* **REICHENBACH**, Syn. Av., 1847, fig. 1255.—**GRAY**, Hand-list, ii, 1870, 235, no. 9269.—**COUES**, Key N. Am. Birds, 1872, 225.—**SCLATER** and **SALVIN**, Nom. Av. Neotr., 1873, 132.—**SHARPE**, Hand-list, i, 1899, 70.—**FORBES** and **ROBINSON**, Bull. Liverp. Mus., ii, 1900, 132 (Columbia R.; Coban, Guatemala).

*Columba* *fasciata* **COUES**, Key N. Am. Birds, 2d ed., 1884, 565.—**RIDGWAY**, Man. N. Am. Birds, 1887, 211.

*Columba fasciata fasciata* **MILLER** (W. De W.), Bull. Am. Mus. N. H., xxii, 1906, 163 (La Cienega, n. w. Durango, 7,500 ft.).—**AMERICAN ORNITHOLOGISTS' UNION**, Check List, 3rd ed., 1910, 147.—**WIDMANN**, Auk, xxviii, 1911, 312 (Estes Park, Colorado, 8,500 ft., July).—**SHUFELDT**, Auk, xxix, 1912, 539 (Englevale, Ransom Co., North Dakota, June 2, 1912).

*P[eristera?]* *fasciata* **HARTLAUB**, Syst. Verz., 1844, 99.

*Taeniaenas fasciata* **REICHENBACH**, Av. Syst. Nat., 1852, p. xxv.

[*Chloroenas*] *fasciata* **BONAPARTE**, Consp. Av., ii, 1857, 51.—**HEINE** and **REICHENOW**, Nom. Mus. Hein. Orn., 1890, 276 (Mexico).

*Chloroenas fasciata* **SCLATER**, Proc. Zool. Soc. Lond., 1856, 309 (Mexico); 1858, 305 (Oaxaca).

*Ch[loroenas]* *fasciata* **REICHENBACH**, Tauben, i, 1861, 60, pl. 223, fig. 1255; pl. 255, figs. 2865-6; ii, 1862, 171.

*Columba monilis* **VIGORS**, Zool. Vög. "Beagle," 1839, 26, pl. 10 (Monterey, California).—**REICHENBACH**, Syn. Av. Novit., Columbariae, 1851, fig. 2481.

*Ch[loroenas]* *monilis* **REICHENBACH**, Av. Syst. Nat., 1852, p. xxv; Tauben, 1861, 61, pl. 227, fig. 2481.

## CHLORÆNAS FASCIATA VIOSCÆ (Brewster).

## VIOSCA'S PIGEON.

Similar to *C. f. fasciata*, but color of head and under parts decidedly paler and less tinged with vinaceous (the general tone of the anterior under parts approximately light heliotrope gray), and dusky band across middle of tail indistinct, sometimes obsolete.

*Adult male*.—Length (skins), 325–385 (340); wing, 201–218 (208.2); tail, 141–152 (146.5); culmen, 16–21 (18.6); tarsus, 25–27.5 (26.4); middle toe, 28.5–31 (29.8).<sup>a</sup>

*Adult female*.—Length (skins), 325–363 (341); wing, 187–212 (198.9); tail, 136–145 (141.4); culmen, 17–19 (17.9); tarsus, 23–26 (25); middle toe, 27–31 (29.9)<sup>b</sup>

Southern Lower California (Sierra de la Laguna; La Laguna; near Triunfo; Pearce's Ranch; Victoria Mts.; Mt. Miraflores; El Saúz; La Chuperosa; Cape San Lucas; San José del Rancho).

*Columba fasciata* (not of Say) RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 533, footnote (Cape San Lucas and Miraflores, Lower California).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 350 (Sierra de la Laguna, Lower California; habits).

*Columba fasciata vioscæ* BREWSTER, Auk, v, Jan., 1888, 86 (La Laguna, Lower California; coll. W. Brewster).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 8 (no. 312a); Check List, 2d ed., 1895, no. 312a; 3rd ed., 1910, 147.—BRYANT (W. E.), Proc. Ac. Sci., ser. 2, 1889, 277 (Cape San Lucas, Miraflores, and Victoria Mts., Lower California).—BENDIRE, Life Hist. N. Am. Birds, 1892, 127.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 591.

*Columba vioscæ* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 293 (San Jose del Rancho, Lower California.)

[*Columba*] *vioscæ* SHARPE, Hand-list, i, 1899, 70.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132.

## CHLORÆNAS ALBILINEA CRISSALIS (Salvadori).

## COSTA RICAN BAND-TAILED PIGEON.

Similar to *C. a. albilinea*,<sup>c</sup> but under tail-covert grayish white instead of deep gray and general coloration lighter, the under parts strongly tinged with vinaceous. Similar also to *C. fasciata fasciata*, but bill wholly yellow and general coloration decidedly darker, with white of under parts restricted to under tail-coverts and strongly tinged with gray.

*Adult male*.—Pileum dark purple-drab, the sides of head more grayish, passing into pale quaker drab on chin and throat; a white band across nape or upper hindneck, below which the entire hindneck is metallic bronze (varying from coppery to greenish), the feathers sharply outlined, producing a scaly or imbricated effect; back and scapulars fuscous or chætura drab, faintly glossed, in certain lights,

<sup>a</sup> Ten specimens.<sup>b</sup> Seven specimens.<sup>c</sup> See p. 285.

with bronzy; rump neutral gray, the upper tail-coverts similar but slightly more brownish; proximal half or more of tail neutral gray, the apical half (or less) decidedly paler and more brownish gray, the two areas separated by a band of dull black (this sometimes obsolete on middle rectrices); wing-coverts and proximal secondaries similar in color to back but appreciably lighter, sometimes very slightly more grayish; distal secondaries, primaries, primary coverts, and alulae dusky (nearest chætura black or fuscous-black), the secondaries narrowly edged distally with pale grayish, the second, or second and third, primaries (from outside) edged narrowly with whitish; under parts, posterior to throat, purple-drab superficially (the feathers gray beneath surface), the under tail-coverts dull buffy whitish shaded with pale mouse gray; axillars and under wing-coverts neutral gray; bill and cere entirely yellow (chrome yellow in life);<sup>a</sup> iris deep lake red with a narrow outer ring of white;<sup>a</sup> eyelids lake red;<sup>a</sup> legs and feet clear lemon-chrome yellow; length (skins)<sup>a</sup> 325-381 (355); wing, 190-213 (202.4); tail, 119.5-134 (128.2); culmen, 18-20.5 (19.2); tarsus, 25.5-28.5 (26.9); middle toe, 29-34.5 (31.4).<sup>b</sup>

*Adult female*.—Similar to the adult male, but slightly duller in color, white nuchal band slightly narrower (?), and tip of maxilla partly dusky; length (skins), 321-370 (347); wing, 190-204 (198.6); tail, 123-131 (126); culmen, 17-21.5 (19.6); tarsus, 25-26 (25.4); middle toe, 28.5-31.5 (30.3).<sup>c</sup>

*Young male*.—Very much duller in coloration than the adult female, the white nuchal band entirely absent, and without metallic, scale-like feathers on hindneck.

*Young female*.—Similar to the young male, but under parts grayish drab, only slightly, if at all, tinged with vinaceous, the feathers of chest with indistinct paler margins.

Highlands of Costa Rica (San José; San Juan; Rancho Redondo; La Estrella de Cartago; Azahár de Cartago; Volcán de Irazú; Volcán de Turrialba; Volcán de Poás; El Mojón; La Carpintera; Desamparados; Alajuela; El Berilla; El Saltrillo; Escazú; Cedral de Candelária; Carrillo; Bagaces; Miravalles; Ujurrás de Térraba; Dota;

<sup>a</sup> Fresh colors of a specimen killed by the author on the Volcán de Turrialba, Costa Rica.

<sup>b</sup> Twelve specimens.

<sup>c</sup> Nine specimens (all from Costa Rica).

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Costa Rico.....	208.1	127.9	19	26.9	31.7
Four adult males from western Panama.....	201	128.9	20	26.5	30.6

Santa Maria de Dota), and western Panamá (Boquete; Chitra; Boquete de Chitra; Volcán de Chiriquí, 4,000-10,800 ft.; Calóvevora; Calobre).

*Chloroenas albilinea* (not *Columba albilinea* Bonaparte, 1854) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 135 (Rancho Redondo and San Juan, Costa Rica).—CABANIS, Journ. für Orn., 1869, 211 (Costa Rica; crit.).—FRANTZIUS, Journ. für Orn., 1869, 370 (El Mojon and San Juan, Costa Rica).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.

*Columba albilinea* SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Chitra, Boquete de Chitra, Calovevora, Calobre, and Volcan de Chiriquí, w. Panama; crit.).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (San Jose and Alajuela, Costa Rica).—CHERRIE, Auk, ix, 1892, 328 (San Jose, Costa Rica).

*Columba fasciata* var. *albilinea* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 359 (Costa Rica; diagn.)

[*Columba*] *albilineata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.

*Columba albilineata* BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (Volcan de Irazu and Desamparados, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 498 (Volcan de Irazu).

*Columba crissalis* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 294 (Boquete de Chitra, Veragua, w. Panama; coll. Brit. Mus.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 238 (Rancho Redondo, El Mojon, San Juan, Volcan de Irazu, Cot, San Jose, Alajuela, La Carpintera, El Berilla, El Saltrillo, Tres Rios, Azahar de Cartago, La Estrella de Cartago, Cedral de Candelaria, and Carrillo, Costa Rica; Volcan de Chiriquí, Chitra, Boquete de Chitra, Calobre, and Calovevora, w. Panama).

[*Columba*] *crissalis* SHARPE, Hand-list, i, 1899, 70.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 133 ("Guatemala"; crit.).

*Columba albilinea crissalis* BANGS, Proc. New Engl. Zool. Club, iii, Jan. 30, 1902, 23 (Boquete and Volcan de Chiriquí, 4,000-10,800 ft., w. Panama; crit.).—FERRY, Pub. 146 Field Mus. N. H., 1910, 261 (Volcan de Turrialba, Costa Rica; habits).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 394 (Volcan de Turrialba, Volcan de Irazu, Volcan de Poas, Santa Maria de Dota, La Carpintera, La Estrella de Cartago, Escazu, Ujurras de Terraba, Miravalles, and Bagaces, Costa Rica; crit.; habits).

### CHLORŒNAS CARIBÆA (Jacquin).

#### JAMAICAN BAND-TAILED PIGEON.

*Adult male*.—Head and upper neck (all round) and under parts plain pale vinaceous-drab, somewhat more decidedly tinged with vinaceous or pinkish on under parts of body; hindneck metallic light green or bronze, the feathers blended; rest of upper parts, except primaries and tail, plain brownish gray (mouse gray to nearly neutral gray); primaries dusky, narrowly edged with paler, the edgings more distinct and nearly (if not quite) white on second to third or fourth quills (from outside); basal third (or more) of tail neutral gray, the terminal third much paler and more brownish (nearly smoke gray or drab-gray), the middle portion dusky slate or dull blackish slate, forming a distinct broad band across tail; anal region and under tail-coverts dull brownish white; axillars and under wing-coverts clear

light neutral gray; bill, including cere, wholly black; iris brilliant orange; <sup>a</sup> bare orbital space carmine red; <sup>a</sup> legs and feet coral red; <sup>a</sup> length (skins), 382–486 (404); wing, 206–224 (215.5); tail, 144–156 (149.9); culmen, 16.5–19.5 (17.7); tarsus, 27–29 (27.8); middle toe, 30.5–34.5 (32.9).<sup>b</sup>

*Adult female*.—Similar to the adult male, but back, scapulars, and wing-coverts more brownish or olivaceous, under parts of body more vinaceous-fawn or avellaneous, and metallic hues of hindneck less brilliant; length (skins), 379–431 (400); wing, 196–209 (204.1); tail, 138.5–149 (143.5); culmen, 17.5–20 (18.7); tarsus, 26.5–28 (27.2); middle toe, 30–35.5 (32.8).<sup>c</sup>

*Young*.—Very different in coloration from adults, except tail, remiges, primary coverts, and alulæ; head and neck brownish gray, paler and more brownish on throat; smaller wing-coverts narrowly margined (more or less distinctly) with paler; foreneck, chest, and breast grayish brown (drab tinged with cinnamon-drab) passing into light cinnamon-drab or fawn color on abdomen; otherwise, much as in adults.

Island of Jamaica (Trelawney; Moneague; Spanishtown; St. Anns; St. Andrews; mountains above Bath; Priestman's River); island of Porto Rico?

*Columba (caribæa)* JACQUIN, Beytr., 1784, 30 ("Karibaischen Inseln"; cites *Columba cauda annulo cincta jamaicensis* Brisson, Orn., i, 138).—LATHAM, Synop., Suppl., i, 1787, 199; Index Orn., ii, 1790, 603.—GMELIN, Syst. Nat., i, pt. 2, 1789, 773.

(?) *Columba caribæa* TEMMINCK and KNIP, Pigeons, i, fam. seconde, 1808–11, 22 [86], pl. 10 (specimen said to be from Porto Rico figured).—TEMMINCK, Fig. et Gallin., i, 1813, 114, 450.

*Columba caribæa* STEPHENS, Shaw's Gen. Zool., xi, 1819, 36.—REICHENBACH, Syn. Av. Novit., Columbariae, 1851, fig. 3362.—SUNDEVALL, Oefv. K. Vet.-Ak. Förl., 1869, 601 (Porto Rico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 359.—CORY, Auk, iv, 1887, 110 (synonymy; descr.; range); Birds West Ind., 1889, 211; Cat. West Ind. Birds, 1892, 9, 97, 138 (Jamaica; Porto Rico?).—SCOTT, Auk, ix, 1892, 122 (Jamaica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 290 (Trelawney and Spanishtown, Jamaica).—SCLATER, Revised List Birds Jamaica, 1910, 18.

*Col[umba] caribæa* BONAPARTE, Compt. Rend., xxxix, 1854, 1110.

[*Columba*] *caribæa* GRAY, Hand-list, ii, 1870, 234, no. 9259.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—CORY, List Birds West Ind., rev. ed., 1886, 23 (Jamaica; Porto Rico).—SHARPE, Hand-list, i, 1899, 70.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132 (Jamaica).

*C[olumba] caribæa* NEWTON (A. and E.), Handb. Jamaica, 1881, 114.

*Columba caribæa* VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 359.

*Columba caribæa* DENNY, Proc. Zool. Soc. Lond., 1847, 39, 40 (Jamaica).—GOSSE, Naturalists' Soj. in Jamaica, 1851, 173.

<sup>a</sup> Gosse, Birds Jamaica, 1847, 291, footnote.

<sup>b</sup> Eight specimens.

<sup>c</sup> Six specimens.

*Columba caribbea* GOSSE, Birds Jamaica, 1847, 291.

*Janthoenas caribaea* REICHENBACH, fide Bonaparte, Consp. Av., ii, 1857, 54.

[*Patagioenas*] *caribaea* BONAPARTE, Consp. Av., ii, 1857, 54.

*P[atagioenas] caribaea* REICHENBACH, Volls. Naturg., Columbaria, 1861, 65, pl. 230 b., fig. 3362 (Jamaica).

*Patagioenas caribæa* SCLATER, Proc. Zool. Soc. Lond., 1861, 80 (Jamaica).—REICHENBACH, Tauben, i, 1862, 65, pl. 2306, fig. 3362; ii, 1862, 172.—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).

*Columba caribæa* MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 301 (Jamaica).

*Columba caribæa* TRISTRAM, Cat. Coll. Birds, 1889, 37 (Jamaica).

*C[olumba] lamprochaena* WAGLER, Syst. Av., 1827, Columba, sp. 46 (Porto Rico; coll. Museum Paris).

*Patagioenas lamprochaena* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 294.

### CHLORÆNAS INORNATA INORNATA (Vigors).

#### PLAIN PIGEON.

*Adult male*.—Head and neck, all round, and under parts (except posterior flanks, anal region, and under tail-coverts), plain vinaceous-drab, slightly darker on pileum, slightly paler and grayer on forehead; smaller wing-coverts, except anterior portion of lesser covert area and coverts near edge of wing, vinaceous-brown; back, scapulars, anterior lesser wing-coverts, and proximal greater coverts and secondaries, plain grayish brown (hair brown or nearly benzo brown); rump and upper tail-coverts plain bluish gray (dark gull gray), the tail similar basally but becoming much darker (deep to dark mouse gray) terminally; smaller wing-coverts near edge of wing, and alulae, similar in color to scapulars, etc., but more grayish, the alulae and distal middle coverts edged with white, the greater coverts (except innermost ones) more broadly edged with white; secondaries somewhat grayer (sometimes also darker) than scapulars, the distal ones sometimes narrowly edged with whitish; primary coverts and primaries rather darker than secondaries, narrowly edged with paler, especially on distal quills, which are sometimes narrowly edged with grayish white; sides and flanks (beneath wings), anal region, and under tail-coverts bluish gray, like color of rump (the longer under tail-coverts sometimes tinged with purplish brown), the axillars and under wing-coverts similar but slightly paler; bill, including cere, wholly black; iris with an inner ring of pale blue and an outer one of pale orange, separated by a line of dark blue;<sup>a</sup> bare orbital space gray;<sup>a</sup> legs and feet lake red;<sup>a</sup> length (skin), 413; wing, 223; tail, 143; culmen, 20; tarsus, 28.5; middle toe, 35.<sup>b</sup>

*Adult female*.—Similar to the adult male but coloration slightly paler and duller, especially the under parts, which incline more to

<sup>a</sup> Gosse, Birds Jamaica, 1847, 296, footnote. (The Jamaican form doubtless agreeing with the typical one in color of the eyes, etc.)

<sup>b</sup> One specimen (from Cuba).

light cinnamon-drab or pale vinaceous-drab, and vinaceous-brown patch on lesser wing-coverts much less distinct, more restricted; length (skin), 388; wing, 199.5; tail, 119; culmen, 18.5; tarsus, 26; middle toe, 36.<sup>a</sup>

*Young*.—Very different in coloration from adults, except remiges and rectrices; general color grayish brown (paler than dusky drab), becoming much paler (nearly drab-gray) on abdomen and other posterior under parts, the wing-coverts and feathers of chest with narrow and rather indistinct terminal margins of paler.

Island of Cuba; island of Haiti (Maguá and Samaná Bay, Santo Domingo).

*Columba inornata* VIGORS, Zool. Journ., iii, no. xi, Dec., 1827, 446 (near Havana, Cuba; coll. Zool. Soc. Lond.).—D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 173 (large ed., p. 127), pl. 28.—DENNY, Proc. Zool. Soc. Lond., 1847, 39, part (Cuba).—CORY, Auk, iv, 1887, 110, part (Cuba); Birds West Ind., 1889, 211, part (Cuba); Cat. Birds West Ind., 1892, 9, 97, part (Cuba).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 284, part (Cuba).

(?) *Columba inornata* CORY, Birds Haiti and San Dom., 1885, 136 (Magua, Santo Domingo); Auk, iv, 1887, 110, part (Santo Domingo); Birds West Ind., 1889, 211, part, (Santo Domingo); Cat. West Ind. Birds, 1892, 9, 97, part (Santo Domingo).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 284, part (Santo Domingo).—CHRISTY, Ibis, 1897, 336 (Samana Bay, Santo Domingo; habits).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Santo Domingo).

[*Columba*] *inornata* BONAPARTE, Compt. Rend., xxxix, 1854, 1108 (Cuba; crit.); xl, 1855, 24 (crit.).

[*Columba*] *inornata* CORY, List Birds West Ind., rev. ed., 1886, 23, part (Cuba).—SHARPE, Hand-list, i, 1899, 70, part.

<sup>a</sup> One specimen (from Cuba).

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Cuba.....	223	143	20	28.5	35
Two adult males from Haiti (= <i>C. i. inornata</i> ?).....	217.5	132.5	23	28.5	35
Three adult males from Isle of Pines (= <i>C. i. proxima</i> ).....	205	123.8	19	28.8	34
Three adult males from Jamaica (= <i>C. i. exigua</i> ).....	220.3	139.8	18.7	28.2	35.7
Two adult males from Porto Rico (= <i>C. i. exsul</i> ).....	209.7	125	18.2	28.5	36.5
FEMALES.					
One adult female from Cuba.....	199.5	119	18.5	26	36
Ten adult females from Isle of Pines (= <i>C. i. proxima</i> ).....	204.4	121.7	19.8	27.9	33.5
One adult female from Jamaica (= <i>C. i. exigua</i> ).....	222	127	19.5	29.5	37
One adult female from Porto Rico (= <i>C. i. exsul</i> ).....	209.5	126	19	30	35

The specimens from Haiti (Santo Domingo) agree best with Cuban examples, but are somewhat grayer and may prove to be separable. The series is very small of all forms except that from the Isle of Pines.

- (?) [*Columba inornata* GRAY, Hand-list, ii, 1870, 235, no. 9274, part (Santo Domingo).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part (Haiti). *Columba . . . inornata* GUNDLACH, Journ. für Orn., 1871, 282 (Cuba). *Carpophaga ? inornata* REICHENBACH, Syn. Av. Novit., Columbariae, 1851, [pl. 28, fig. 2582] (Cuba). [*Chloroenas*] *inornata* BONAPARTE, Consp. Gen. Av., ii, 1857, 53, part (Cuba).—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); Repert. Fisico-Nat. Cuba, i, 1866, 298. *Chloroenas inornata* CABANIS, Journ. für Orn., 1856, 106 (Cuba; habits).—GUNDLACH, Journ. für Orn., 1861, 416, part (Cuba); 1874, 286 (Cuba; habits). (?) *Chloroenas inornata* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 78 (Santo Domingo). *Ch[loroenas] inornata* REICHENBACH, Tauben, i, 1861, 62, part, pl. 222, fig. 2582 (Cuba); ii, 1862, 172.

### CHLOEENAS INORNATA EXIGUA Ridgway.

#### JAMAICAN PLAIN PIGEON.

Similar to *C. i. inornata* but decidedly deeper in color, the back and scapulars browner (approaching olive-brown), the head and neck deep vinaceous-drab, the forehead between hays brown and vinaceous-brown, the chest, breast, etc., between sorghum brown and vinaceous-brown; adult female very similar to the adult male of *C. i. inornata* but forehead deeper colored (nearly concolor with rest of pileum).

*Adult male*.—Length (skins), 380–403 (391); wing, 208–229 (220.3); tail, 125–151.5 (139.8); culmen, 18.5–19 (18.7); tarsus, 26–29.5 (28.2); middle toe, 34–36.5 (35.7).<sup>a</sup>

*Adult female*.—Length (skin), 374; wing, 222; tail, 127; culmen, 19.5; tarsus, 29.5; middle toe, 37.<sup>b</sup>

Island of Jamaica (Trelawney; Moneague; Cumberland Valley; St. Catherines; Spanishtown).

- Columba inornata* (not of Vigors) DENNY, Proc. Zool. Soc. Lond., 1847, 39, part (Jamaica).—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 301 (Jamaica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 360 (Jamaica).—CORY, Auk, iv, 1887, 110, part (Jamaica); Birds West Ind., 1889, 211, part (Jamaica); Cat. West. Ind. Birds, 1892, 9, 97, part (Jamaica).—SCOTT, Auk, ix, 1892, 122 (Jamaica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 284, part (Spanishtown, Jamaica).—SCLATER, Rev. List. Birds Jam., 1910, 18. [*Columba inornata* GRAY, Hand-list, ii, 1870, 235, no. 9274, part (Jamaica).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part (Jamaica).—CORY, List Birds West Ind., rev. ed., 1886, 23, part (Jamaica).—SHARPE, Hand-list, i, 1899, 70, part.

[*Chloroenas*] *inornata* BONAPARTE, Consp. Gen. Av., ii, 1857, 53, part (Jamaica).

*Ch[loroenas] inornata* REICHENBACH, Tauben, i, 1861, 62, part (Jamaica).

*Chloroenas inornata* SCLATER, Proc. Zool. Soc. Lond., 1861, 80 (Jamaica).—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).

*C[columba] inornata* NEWTON (A. and E.), Handb. Jamaica, 1881, 114.

*Columba rufina* (not of Temminck) GOSSE, Birds Jamaica, 1847, 296; Naturalists' Soj. in Jamaica, 1851, 173.

*Chloroenas inornata exigua* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, 1915, 177.

<sup>a</sup> Three specimens.

<sup>b</sup> One specimen.



## CHLORÆNAS INORNATA PROXIMA (Todd).

## ISLE OF PINES PIGEON.

Similar to *C. i. inornata* but coloration much paler and grayer, the pileum grayish purple-drab, the rest of head and neck, chest, etc., light purple-drab, the rufescent wing-patch dull livid brown, the rump, etc., lighter gull gray, and white edgings to distal wing-coverts averaging decidedly narrower; the adult female with occiput and nape quaker drab (whole head sometimes light mouse gray, deepening into neutral gray or deep gull gray on occiput and nape), neck and upper chest light purple-drab passing into pale vinaceous-drab on lower chest, breast, etc., and brown wing-patch indistinct (nearly obsolete).

*Adult male*.—Length (skins), 333–360 (344); wing, 199–211 (205); tail, 121–127.5 (123.8); culmen, 18–20 (19); tarsus, 27.5–30 (28.8); middle toe, 32.5–35.5 (34).<sup>a</sup>

*Adult female*.—Length (skins), 312–358 (333); wing, 199.5–211 (204.4); tail, 114–124.5 (121.7); culmen, 18–21 (19.8); tarsus, 26–29 (27.9); middle toe, 31.5–35.5 (33.5).<sup>b</sup>

Isle of Pines, near Cuba (Los Indios).

*Chloroenas inornata* (not *Columba inornata* Vigors) GUNDLACH, Journ. für Orn., 1861, 416, part (Isle of Pines); Contr. Orn. Cubana, 1876, 128, part (Isle of Pines); Orn. Cubana, 1895, 155, part (Isle of Pines).

*Columba inornata* CORY, Cat. West Ind. Birds, 1892, 9, 97, part (Isle of Pines).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 196 (Isle of Pines).

*Columba inornata proxima* TODD, Proc. Biol. Soc. Washington, xxviii, 1915, 170.

## CHLORÆNAS INORNATA EXSUL Ridgway.

## PORTO RICAN PLAIN PIGEON.

Similar to *C. i. inornata* but coloration slightly deeper, the forehead nearly, if not quite, concolor with rest of pileum, and white edgings to distal wing-coverts averaging broader; similar also to *C. i. exigua* but coloration less deep.

*Adult male*.—Length (skins), 328–334 (331); wing, 203–216.5 (209.7); tail, 119–131 (125); culmen, 17–19.5 (18.2); tarsus, 27.5–29.5 (28.5); middle toe, 36–37 (36.5).<sup>c</sup>

*Adult female*.—Wing, 209.5; tail, 126; culmen, 19; tarsus, 30; middle toe, 35.<sup>d</sup>

Island of Porto Rico (Utuaado).

*Chloroenas inornata* (not *Columba inornata* Vigors) GUNDLACH, Journ. für Orn., 1874, 312 (Porto Rico); 1878, 160, 185 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 343 (Porto Rico).—SUNDEVALL, Gefv. K. Vet.-Ak. Förh., 1869, 601 (Porto Rico).

<sup>a</sup> Three specimens.

<sup>b</sup> Ten specimens.

<sup>c</sup> Two specimens; neither of them sexed by the collector, but almost certainly males.

<sup>d</sup> One specimen.

- Columba inornata* CORY, Auk, iv, 1887, 110, part; Birds West Ind., 1889, 211, part; Cat. West Ind. Birds, 1892, 9, 97, part (Porto Rico).  
 [*Columba*] *inornata* GRAY, Hand-list, ii, 1870, 235, no. 9274, part (Porto Rico).—CORY, List Birds West Ind., rev. ed., 1886, 23, part (Porto Rico).—SHARPE, Hand-list, i, 1899, 70, part.  
*Chlorœnas inornata exsul* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106 (Porto Rico; coll. U. S. Nat. Mus.).

**CHLORÆNAS FLAVIROSTRIS FLAVIROSTRIS (Wagler).**

**RED-BILLED PIGEON.**

*Adult male*.—Head, neck, chest, and breast plain purple-drab, usually duller (sometimes decidedly grayish) on pileum, often deeper (deep livid brown) on hindneck, much paler (pale grayish vinaceous to dull vinaceous-white) on chin and upper throat; back, scapulars, and proximal secondaries and greater wing-coverts, uniform deep hair brown or light fuscous; rump and upper tail-coverts clear bluish gray (between slate-gray and plumbeous), the tail similar but darker (dull slate color to dark neutral gray); smaller wing-coverts (for greater or less part)<sup>a</sup> vinaceous-brown or livid brown, those not thusly colored clear bluish gray; greater coverts bluish gray, the outermost (distal) coverts narrowly edged with white (distally at least); secondaries similar but darker and duller (less bluish), very narrowly and indistinctly edged with paler; primaries gray (nearly neutral or light neutral gray), narrowly edged with whitish, at least on longer quills; abdomen, sides, flanks, and under wing-coverts plain bluish gray (somewhat lighter than color of rump), the axillars and under wing-coverts similar but slightly paler; terminal half (more or less) of bill whitish to pale horn color, the basal half (including cere) light pink to rosy red; eyelids lake red or carmine; iris orange-yellow to reddish orange; legs and feet lake red; length (skins), 320–347 (335); wing, 180–198.5 (192.4); tail, 105–127 (118.7); culmen, 13–16 (14.3); tarsus, 23–28 (25.8); middle toe, 28–31.5 (29.8).<sup>b</sup>

*Adult female*.—Similar in coloration to the adult male and not always distinguishable, but usually slightly duller, with pileum more grayish, and reddish brown patch on lesser wing-covert area more restricted; smaller; length (skins), 300–370 (329); wing, 184.5–207

<sup>a</sup> Sometimes the entire lesser covert area, except along margin of the wing, is of this reddish brown color, but occasionally the greater part of the area is bluish gray, there being much individual variation in this respect.

<sup>b</sup> Fifteen specimens.

(193.6); tail, 112–126 (119.2); culmen, 14–15.5 (14.8); tarsus, 24–26.5 (25.2); middle toe, 28.5–31.5 (30.2).<sup>a</sup>

*Young*.—Much duller in coloration than adults; general color of head, neck, and anterior under parts dull, light vinaceous-drab, and reddish brown on lesser wing-coverts more rusty and less uniform (mostly on terminal portion of the feathers).

Mexico and part of Central America; north to lower Rio Grande Valley in Texas (Brownsville; Fort Brown; Hidalgo; Lomita Ranch; accidental at Corpus Christi), Nuevo León (Monterrey; Las Escobas; Santa Ingracia; Los Treviños; Villa Grande; Montemorelos), and southern Sonora (Sierra de Álamos); southward, through Sinaloa (Mazatlán; Presidio de Mazatlán; Rosario; Plomosas; El Toro; Escuinapa), Tepic (Santiago; San Blas), Guanajuato (Silao), Tamaulipas (Forlón; Linares; Victoria; Matamoros; Aldama; Tampico; Alta Mira; Rio de la Cruz; Camargo), Vera Cruz (Motzorongo; Misantla; Atoyac; Vega de Casadero; San Lorenzo; Orizaba; Potrero; Córdoba; Jalapa; Vera Cruz; Rancho Nuevo; Plan del Rio; Hacienda de Tortugas; Alvarado), San Luis Potosí (Vallés), Mexico (near City of Mexico), Colima (Manzanillo; Tonila; Sierra Madre), Guerrero (Acapulco), Oaxaca (Huilótepec; Tuxtepec; Tapanátepec; Tehuantepec; Tapaná; Teotalcingo; Santa Efigenia;

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Six adult males from southern Texas.....	193	119.2	14.8	25.9	29.8
One adult male from Tamaulipas.....	198	127	15	26.5	31
One adult male from Sinaloa.....	197	126	14	26.5	28
One adult male from Colima.....	190	117	14.5	23	28.5
One adult male from Guerrero.....	184	118	15	24	29
Three adult males from Oaxaca.....	195	121.2	14	26.7	30.3
One adult male from Yucatan.....	180	109	13	24.5	30
One adult male from Salvador.....	193	105	15.5	26.5	30
Two adult males from Nicaragua (= <i>C. f. minima</i> ).....	191.5	117.5	14	26.2	30
Four adult males from Costa Rica (= <i>C. f. minima</i> ).....	191	114.5	13.4	24.2	28.6
Five adult males from Tres Marias Islands (= <i>C. f. madrensis</i> )..	200.4	127.1	15.7	27	30.6
FEMALES.					
Two adult females from southern Texas.....	203.5	125.5	15	25.7	31.2
Three adult females from Tamaulipas.....	193.7	118	14.7	25.5	30.8
One adult female from San Luis Potosi.....	196	120	15	26.5	31
One adult female from Vera Cruz.....	185	116	14	25	29.5
One adult female from Sinaloa.....	184.5	112	15.5	24	28.5
One adult female from Colima.....	191	123	15.5	24.5	29.5
One adult female from Chiapas.....	191.5	116	14.5	24	29
Three adult females from Costa Rica (= <i>C. f. minima</i> ).....	183.7	114.7	13.8	24.2	27.7
Three adult females from Tres Marias Islands (= <i>C. f. madrensis</i> )..	198	124	16.2	26.7	31.7

Salina Cruz), Chiapas (Tonala; San Vicente; Gineta Mts.), Campeche (Apazote), and Yucatan (Temax; La Vega; Chichen-Itza; Buctzotz; Tunkas) to Guatemala (Retalhuleu; Escuintla; Costa Grande, Zapote; Naranjo; San José; Volcán de Fuego), Salvador (Volcán de San Miguel), and Honduras (Tigre Island).

*Columba flavirostris* WAGLER, Isis, xxiv, 1831, 519 (Mexico).—BONAPARTE, Proc. Zool. Soc. Lond., 1837, 113 (Mexico; descr.).—LAWRENCE, Ann. Lyc. N. Y., v, 1861 (1862), 116 (s. Texas); Mem. Bost. Soc. N. H., ii, 1874, 304, part (Mazatlan, Sinaloa; Sierra Madre; habits); Bull. U. S. Nat. Mus., no. 4, 1876, 44 (Tapana, Oaxaca).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 334 (Rio Grande, Texas); Rep. Pacific R. R. Surv., ix, 1858, 598 (Nuevo Leon; Rio Grande, Texas); ed. 1860 (Birds N. Am.), 598, pl. 61; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 21, pl. 23 (Nuevo Leon; Rio Grande, Texas); Cat. N. Am. Birds, 1859, no. 446.—McCOWN, Ann. Lyc. N. Y., vi, 1853, 13 (Rio Grande, Texas; habits).—SCLATER, Proc. Zool. Soc. Lond., 1859, 369 (Jalapa), 391 (Teotalcingo, Oaxaca); 1864, 178 (near City of Mexico).—TAYLOR, Ibis, 1860, 226 (Tigre I., Honduras).—DRESSER, Ibis, 1865, 313 (s. Texas); 1866, 23 (s. Texas).—COOPER, Orn. Calif., 1870, 508 (Rio Grande Valley).—COUES, Check List, 1873, no. 368.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 366, pl. 57, fig. 5.—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 157, (Fort Brown, Texas, in summer; habits; descr. nest and eggs; etc.).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 45 (Hidalgo, Texas; habits, etc.); v, 1879, 422 (Lomita Ranch, Texas; habits; eggs).—SALVIN, Proc. Zool. Soc. Lond., 1883, 428 (Acapulco, Guerrero).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 458 (Yucatan).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 313; 3rd ed., 1910, 147.—RHOADS, Proc. Ac. Nat. Sci. Phila., 1892, 112 (Corpus Christi, Texas, straggler).—BENDIRE, Life Hist. N. Am. Birds, 1892, 128.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 285, part (Brownsville and Hidalgo, Texas; Matamoros, Aldama, and Tampico, Tamaulipas; Los Escobas, Santa Ingracia, Los Treviños, Villa Grande, and Monte Morelos, Nuevo Leon; Misantla, Atoyac, Vega de Casadero, San Lorenzo, and Cordova, Vera Cruz; Sierra de Alamos, Sonora; El Toro, Mazatlan, and Presidio, Sinaloa; Santiago and San Blas, Tepic; Acapulco, Guerrero; Salina Cruz, Oaxaca; Buctzotz, Yucatan; Retalhuleu, Escuintla, and Costa Grande, Zapote, Guatemala; Volcan de San Miguel, Salvador).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 287 (Chichen-Itza, Yucatan).—LANTZ, Trans. Kansas Ac. Sci., for 1896-7 (1899), 219 (Naranjo, Guatemala).—DUGÈS, Auk, xvi, 1899, 287 (Silao, Guanajuato).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 234, part (Las Escobas, Santa Ingracia, Los Treviños, Villa Grande, and Monte Morelos, Nuevo Leon; Matamoros, Aldama, and Tampico, Tamaulipas; Santiago and San Blas, Tepic; Salina Cruz, Tapana, Santa Efigenia, Tapantepec, and Teotalcingo, Oaxaca; Sierra de Alamos, Sonora; El Toro, Mazatlan, and Presidio, Sinaloa; Sierra Madre, Colima; Acapulco, Guerrero; Valley of Mexico; Jalapa, Vera Cruz, Vega del Casadero, Misantla, Atoyac, Cordova, Rancho Nuevo, Plan del Rio, Hacienda de Tortugas, Alvarado, Orizaba, and Potrero, Vera Cruz; Tonalá and Gineta Mts., Chiapas; Buctzotz, Tunkas, and Chichen-Itza, Yucatan; Escuintla, Retalhuleu, Volcan de Fuego, and Zapote, Guatemala; Tigre I., Honduras; Volcan de San Miguel, Salvador).—COLE, Bull. Mus. Comp. Zool., 1, 1906, 385 (Chichen-Itza).—BAILEY (H. H.), Auk, xxiii, 1906, 385 (San Blas, Tepic).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 78 (San Jose, Guatemala).

- [*Columba*] *flavirostris* GRAY, Hand-list, ii, 1870, 235, no. 9272.—COUES, Key N. Am. Birds, 1872, 225.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—SHARPE, Hand-list, i, 1899, 70, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132 (Valley of Mexico; "River St. John, Centr. Am.").
- Columba flavirostris* BONAPARTE, Compt. Rend., xxxix, 1854, 1108 (Mexico; crit.).
- Columba flavirostris flavirostris* MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, Nov. 24, 1905, 344 (Escuinapa, etc., s. Sinaloa; crit.).—PHILLIPS, Auk, xxviii, 1911, 75 (Alta Mira and Rio de la Cruz, Tamaulipas).
- Chlorænas flavirostris* BONAPARTE, Compt. Rend., xxxix, 1854, 1110 (crit.).
- [*Chloroenas*] *flavirostris* BONAPARTE, Consp. Av., ii, 1857, 52.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 277 (Jalapa, Vera Cruz).
- Chlorænas flavirostris* SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz).—SALVIN, Ibis, 1861, 355 (Volcan de Fuego, Guatemala).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 78 (Mexico).
- Chloroenas flavirostris* REICHENBACH, Volls. Naturg., Columbariae, i, 1861, 61 (Mexico); ii, 1862, 171, pl. 2, fig. 20.
- Columba erythrina* RIDGWAY, Proc. U. S. Nat. Mus., iii, March 27, 1880, 9, 195 (nomen nudum; ex Lichtenstein, manuscript; name used as substitute for *C. flavirostris*, rejected on account of inappropriateness); Nom. N. Am. Birds, 1881, no. 457.—COUES, Check List, 2d ed., 1882, no. 540.
- [*Columba*] *erythrina* COUES, Key N. Am. Birds, 2d ed., 1884, 565.
- Columba dorsalis* GRAY, List Spec. of Birds, Brit. Mus., part iii, 1844, 9 (Mexico).
- (?) *Columba solitaria* McCALL, Proc. Ac. Nat. Sci., Phila., iii, July, 1847, 233 (Matamoros to Camargo, Tamaulipas); Am. Journ. Sci. and Arts, iv, 1847, 421.—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 333 (Matamoras).—BONAPARTE, Consp. Av., ii, 1857, 53 (descr.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 366, footnote.
- Chloroenas inornata* (not *Columba inornata* Vigors) REICHENBACH, Volls. Naturg., Columbariae, i, 1861, 62, part (Rio Grande, near Matamoros and Camargo, Tamaulipas).

### CHLORÆNAS FLAVIROSTRIS MADRENSIS (Nelson).

#### TRES MARIAS PIGEON.

Similar to *C. f. flavirostris*, but larger, general coloration lighter, and distal greater wing-coverts much more broadly edged with white.

*Adult male*.—Length (skins), 337–357 (345); wing, 189–207 (200.4); tail, 117–132.5 (127.1); culmen, 15–16.5 (15.7); tarsus, 26.5–27.5 (27); middle toe, 29–32 (30.6).<sup>a</sup>

*Adult female*.—Length (skins), 334–385 (355); wing, 195–201 (198); tail, 119–127 (124); culmen, 16–16.5 (16.2); tarsus, 26–27 (26.7); middle toe, 31.5–32 (31.7).<sup>b</sup>

Tres Marias Islands, western Mexico (Maria Madre Island; Cleofa Island).

*Columba flavirostris* (not of Wagler) GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 275 (Tres Marias Islands, w. Mexico; habits).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 304, part (Tres Marias; habits).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 285, part (Tres Marias).

<sup>a</sup> Five specimens.

<sup>b</sup> Three specimens.

*Columba flavirostris madrensis* NELSON, Proc. Biol. Soc. Wash., xii, Jan. 27, 1898, 6 (Maria Madre I., Tres Marias group, w. Mexico; coll. U. S. Nat. Mus.).—BAILEY (H. H.), Auk, xxiii, 1906, 385 (Cleofa I., Tres Marias).

[*Columba*] *flavirostris* subsp. *madrensis* FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132 (reprint of orig. descr.).

[*Columba*] *madrensis* SHARPE, Hand-list, i, 1899, 70.

*Columba madrensis* SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 235 (Tres Marias).

#### CHLORÆNAS FLAVIROSTRIS MINIMA (Carriker).<sup>a</sup>

##### COSTA RICAN RED-BILLED PIGEON.

Similar to *C. f. flavirostris*, but smaller.

*Adult male*.—Length (skins), 280–330 (303.2); wing, 185–198 (191.2); tail, 111–120 (115.5); culmen, 12.5–14 (13.5); tarsus, 23–27 (21.6); middle toe, 27.5–30 (29.1).<sup>b</sup>

*Adult female*.—Length (skins), 295–338 (312); wing, 181–185 (183.7); tail, 112–118 (114.7); culmen, 13.5–14.5 (13.8); tarsus, 23.5–25 (24.2); middle toe, 26.5–29 (27.7).<sup>c</sup>

Nicaragua (La Libertád, Chontales; Omotepe) and Costa Rica (Ciruelas; Guayabo; Coliblanco; Juan Viñas; Turrialba; Naranjo de Cartago; Cartago; Laguna de Coris; Tambór; Cuadros de Irazú; Tres Rios; Sarchí; La Candelária; Alajucla; El Zarcero de Alajucla; Bolsón; Bagaces; Barranca; Dota).

*Chlorænas flavirostris* (not *Columba flavirostris* Wagler) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 134 (Barranca and Dota, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 370 (Costa Rica).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.

*Columba flavirostris* ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Cartago, Turrialba, Alajucla, and El Zarcero de Alajucla, Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 285, part (Dota, Costa Rica; La Libertad, Chontales, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 234 (Dota, Cartago, Turrialba, El Zarcero de Alajucla, Barranca, Laguna de Coris, Tambor, Cuadros de Irazu, Tres Rios, Sarchi, and Candelaria, Costa Rica; Omotepe, and La Libertad in Chontales, Nicaragua).—FERRY, Pub. 146, Field Mus. N. H., 1910, 261 (Guayabo, Costa Rica; habits).

[*Columba*] *flavirostris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part (Costa Rica).—SHARPE, Hand-list, i, 1899, 70, part (Costa Rica).

*Columba flavirostris minima* CARRIKER, Ann. Carnegie Mus., vi, 1910, 392 (Ciruelas, Costa Rica; coll. Carnegie Mus.; also, Guayabo, Coliblanco, Naranjo de Cartago; Juan Viñas; Bolson, and Bagaces).

<sup>a</sup> I am doubtful whether this can be maintained as a recognizable form.

<sup>b</sup> Six specimens.

<sup>c</sup> Three specimens.

**CHLORÆNAS RUFINA PALLIDICRISSA** (Chubb).**PALE-VENTED PIGEON.**

Similar to *C. rufina rufina*<sup>a</sup> but under tail-coverts averaging much paler gray (often nearly white), and tail without a distinct subapical band of darker, usually without trace of any darker band.

*Adult male*.—Forehead and anterior portion of crown vinaceous-drab to light purple-drab, passing on hinder crown, occiput, and nape into grayish highly glossed with metallic green and bronze; suborbital, auricular, and malar regions gray (neutral or light neutral gray to nearly gull gray), fading into white, grayish white, or very pale gray on chin and upper throat, the lower throat distinctly gray; neck (all round), chest, and breast (sometimes abdomen also) plain purple-drab or vinaceous-drab, the hindneck glossed with metallic purple, violet, or greenish; back and scapulars similar in color to hindneck (but less distinctly glossed), the smaller wing-coverts similar but usually more reddish (vinaceous-brown); greater (sometimes also middle) wing-coverts and proximal secondaries ((tertials) grayish brown (benzo brown, hair brown, or nearly mouse gray), the outermost coverts narrowly edged with paler; secondaries similar, but darker (sometimes dark as primaries), distinctly though very narrowly edged with paler; alulæ, primary coverts, and primaries darker (especially the first two), the primaries more or less distinctly edged with paler, especially the outermost quills; rump and upper tail-coverts plain gray (between neutral gray and dark gull gray), the tail similar but usually slightly more brownish gray; under tail-coverts, anal region, lower abdomen, and posterior flanks (sometimes entire abdomen and flanks), grayish white to pale gray (light gull gray to pallid neutral gray), this color passing gradually into the vinaceous color of more anterior portions, which are paler posteriorly; axillars and under wing-coverts clear light bluish gray (deep gull gray); bill, including cere, black; iris, orange-red; legs and feet, lake red; length (skins), 237–358 (313); wing, 169.5–190 (180.9); tail, 105–123 (114.7); culmen, 15–20 (17.1); tarsus, 22.5–27 (24.9); middle toe, 27–31.5 (29).<sup>b</sup>

*Adult female*.—Similar to the adult male but coloration duller, the vinaceous-brown of upper parts less extended (sometimes restricted to extreme upper back and more anterior lesser wing-coverts), and purple-drab or vinaceous-drab of under parts mostly restricted to foreneck and upper chest; length (skins), 278–359 (320); wing, 164–

<sup>a</sup> See p. 286.<sup>b</sup> Thirty-eight specimens.

189 (177.2); tail, 101-122 (111.4); culmen, 15-18.5 (16.9); tarsus, 23.5-26 (24.7); middle toe, 26.5-31 (28.3).<sup>a</sup>

*Young*.—Coloration much duller than in adults; pileum deep gray, or brownish gray (the forehead more brownish), without any metallic gloss; back, scapulars, and smaller wing-coverts brownish, some of the feathers (especially wing-coverts) with pale rusty brown terminal margins; foreneck and chest vinaceous-grayish, sometimes tinged with fawn color or intermixed with fawn-colored feathers; otherwise essentially as in adults.

<sup>a</sup> Twenty-one specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from Chiapas.....	178	118.7	17.7	25	29
One adult male from Guatemala.....	183.5	120	16.5	25	29
Four adult males from British Honduras.....	179.2	110.9	17	24.7	29.1
One adult male from Honduras.....	180	111	.....	26.5	30
One adult male from Nicaragua.....	180.5	115.5	18	25.5	29.5
Ten adult males from Costa Rica.....	177.8	112.5	16.9	24.5	28.1
One adult male from western Panama.....	176.5	110.5	16.5	24.5	29.5
One adult male from middle Panama (Canal Zone).....	182	116	16	25	30
One adult male from Buenaventura I., Panama.....	190	119.5	20	24.5	30
Four adult males from San Miguel I., Panama.....	185.5	116.5	17.6	25.9	29.6
Seven adult males from Colombia.....	183.5	118.6	17.1	24.6	29.4
Five adult males from Venezuela.....	181.4	112.5	16.6	25	28.9
Four adult males from Tobago (= <i>C. r. tobagensis</i> ).....	187.9	117.5	17.1	26.2	30.1
Four adult males from trans-Amazonian Brazil (= <i>C. r. sylvestris</i> ).....	188.9	106.9	17.4	26.5	33.4
One adult male from Paraguay (= <i>C. r. sylvestris</i> ).....	180.5	106	17	22	31.5
FEMALES.					
One adult female from Tabasco.....	173	113	18	23.5	28
Two adult females from Guatemala.....	177	114.2	16.2	24.2	27.7
One adult female from British Honduras.....	169	113	16	24.5	27
Six adult females from Costa Rica.....	173	107.7	17	24.2	28
Two adult females from western Panama.....	176	106.2	15.7	24.5	27.2
Six adult females from San Miguel I., Panama.....	184.8	113.7	17.5	25.7	30.1
Three adult females from Santa Marta, Colombia.....	175.5	113.5	16.3	24.8	27.2
One adult female from British Guiana (= <i>C. r. rufina</i> ).....	170	97	15.5	22.5	28
One adult female from Diamantina, Lower Amazon (= <i>C. r. rufina</i> ).....	170	101	16	24.5	27.5
Three adult females from Chapada, Matto Grosso, Brazil (= <i>C. r. sylvestris</i> ).....	179.8	106.2	16.2	24.5	25.5
One adult female from Bolivia (= <i>C. r. sylvestris</i> ).....	183	113	17	23.5	28.5
One adult female from eastern Peru (= <i>C. r. rufina</i> ?).....	176	.....	15	24	28

Specimens from Venezuela, Colombia, and San Miguel Island, Panama, average more deeply colored than those from Central America and southern Mexico (Costa Rican specimens being, apparently, the palest), but on the whole they seem to agree better with *C. r. pallidicrissa* than with *C. r. rufina*. Some specimens from the countries named are, however, quite as gray beneath as typical *C. r. rufina*.



Southeastern Mexico, in States of Vera Cruz (Orizaba), Tabasco (Montecristo), and Chiapas (Palenque), and southward through Guatemala (Rio Managua; Rio Montagua; Rio Dulce; Sayuchil; Cubilguitz; Los Amates, Yzabál), British Honduras (pine ridge near Manatee Lagoon; Manatee District), Honduras (San Pedro; San Pedro Sula), Nicaragua (Rio Escondido), Costa Rica (San José; Rio Sicsola, Talamanca; Guápiles; Pigres; Pozo del Rio Grande; El Coronado de Terraba; El Pozo de Terraba; Buenos Aires; Lagarto; Paso Real, Boruca; Tenorio; Barranca de Puntarenas; Volcán de Miravalles), Panamá (Bugaba; Boquete; Divala; Boquerón; Calovévora; Chitra; Cordillera de Tolé; Agua Dulce; Lion Hill; Panamá; Coiba Island; San Miguel Island; Buenaventura Island), and Colombia (Turbo; Rio Atrato; Rio Truando; Dabilla, Fundación, Gaira, Bonda, Punta Cai-man, and Mamatoco, Santa Marta; Rio Zapata; lower Rio Magdalena), to Venezuela (Settlement River, Vagre; Corosal; Rio Aurare; Maripa, Rio Caura; El Trompilla, Carabobo; La Bomba, Cayuni; Encontrados).

*Columba rufina* (not of Temminck, 1908-11) SCLATER and SALVIN, Ibis, 1859, 222 (Rio Dulce, Guatemala); Proc. Zool. Soc. Lond., 1864, 370 (Panama).—SALVIN, Proc. Zool. Soc. Lond., 1867, 159 (Cordillera de Tole, Veragua, w. Panama); 1870, 217 (Calovevora, Chitra, and Bugaba, w. Panama), 838 (Honduras).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 359.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Talamanca, Costa Rica).—CHERRIE, Expl. Zool. C. R. en 1891-2 (1893), 53 (Lagarto and Buenos Aires, s. w. Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 287, part (Rio Dulce and Cubilguitz, Guatemala; Brit. Honduras; San Pedro Honduras; Costa Rica; Bugaba, Cordillera de Tole, Calovevora, and Lion Hill, Panama).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 523 (Rio Escondido, Nicaragua).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 236, part (Brit. Honduras; Rio Dulce, Sayuchil, and Cubilguitz, Guatemala; San Pedro Honduras; Rio Escondido, Nicaragua; Talamanca and Miravalles, Costa Rica; Divala, Boquete, Cordillera de Tole, Chitra, Calovevora, Lion Hill, and Coiba I., Panama).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvii, 1905, 147 (San Miguel I., Panama).—RIDGWAY, Condor, vii, 1905, 154, in text (Pigres, Costa Rica).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 78 (Los Amates, Guatemala; crit.).—BANGS, Auk, xxiv, 1907, 291 (Paso Real, El Pozo de Terraba, and Barranca de Puntarenas, w. Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 393 (Pigres, Tenorio, Miravalles, Guapiles, Coronado de Terraba, and Rio Sicsola, Costa Rica; crit.).

[*Columba*] *rufina* GRAY, Hand-list, ii, 1870, 235, no. 9273, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—SHARPE, Hand-list, i, 1899, 70, part.

[*Chloroenas*] *rufina* BONAPARTE, Consp. Av., ii, 1857, 52, part (Central America).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 333 (Isth. Panama).

*Chloroenas rufina* CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 194 (Rio Atrato and Rio Truando, n. w. Colombia).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 79 part (Mexico).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.

*Ch[loroenas] rufina* REICHENBACH, Volls. Naturg., Columbariae, i, 1861, 62, part (Central America).

*Columba pallidicrissa* CHUBB, Ibis, ser. 9, iv, Jan., 1910, 60 (Costa Rica; coll. Brit. Mus.).

Genus *PATAGIENAS* Reichenbach.

*Patagioenas* REICHENBACH, Av. Syst. Nat., 1852, p. xxv. (Type, *Columba leucocephala* Linnæus.)

*Patagiaenas* (emendation) BONAPARTE, Ann. Sci. Nat., Zool., (2), i, 1854, 140.

*Patagoenas* (emendation) HEINE, Nom. Mus. Hein. Orn., 1890, 276.

Rather large arboreal Pigeons (length about 300–400 mm.), similar to *Chlorænas*, but tail nearly if not quite truncated, with rectrices broader and more rigid, nasal operculi smaller and narrower, bare orbital space larger, plumage of hindneck with scale-like markings, and color wholly dark gray except head and neck.

Bill moderate or rather small, the length of exposed culmen much less than distance from its base to anterior angle of eye, and equal to more than twice the greatest depth of bill; nasal operculi relatively smaller than in *Chlorænas*, their lower edge not reaching to edge of maxilla; frontal feathering extending to about middle of nasal operculi, decidedly in advance of malar antia, but falling far short of mental antia. Wing rather long, pointed, the longest primaries exceeding distal secondaries by nearly to quite one-third the length of wing; third, or second and third, primaries (from outside) longest, the first (outermost) shorter than fourth; inner webs of two outer primaries very faintly sinuated. Tail about two-thirds (a little more or less) as long as wing, truncated or very slightly rounded, the rectrices relatively broad, with very broadly rounded tips, and decidedly rigid. Tarsus decidedly shorter than middle toe (the latter as 1.18 to 1.26 to 1), the acrotarsium with a single row of very distinct, broad, slightly oblique transverse scutella, the planta tarsi covered with minute, rather indistinct, roundish scales, the extreme upper portion feathered in front; lateral toes equal in length, their claws falling slightly short of base of middle claw; hallux strong, longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage normal, but that of hindneck conspicuously scale-like in adults; bare orbital space very large beneath eyes. Color plain dark gray, except pileum, which is white (or light brownish or grayish) in one species, deep purplish brown in the other; hindneck metallic green, bronze, or purple conspicuously squamated with black or dark purplish brown.

*Range.*—West Indies, one species occurring also on the Florida Keys and Caribbean coast of Central America. (Two species.)

## KEY TO THE SPECIES OF PATAGIENAS.

- a. Hindneck metallic (green, bronze, or purplish), the feathers sharply margined with black or dark chestnut. (*Adults.*)
- b. Pileum white or smoky gray; hindneck metallic green or bronze, squamated with black; sides of head, chin, throat, and foreneck slate color or slate-gray. (Florida Keys, West Indies, and coast of Yucatan and British Honduras.)  
*Patagienas leucocephala*, adults (p. 309).
- bb. Pileum purple-drab to vinaceous-slate; hindneck metallic purplish, squamated with dark chestnut; sides of head, chin, throat, and foreneck purple-drab. (West Indies, except Bahamas and Jamaica; accidental on Florida Keys.).....*Patagienas squamosa*, adults (p. 312).
- aa. Hindneck neither metallic nor squamated. (*Young.*)
- b. Forehead pale gray or dull whitish; neck and chest grayish brown.  
*Patagienas leucocephala*, young (p. 310).
- bb. Forehead dark brownish gray or dull purplish brown, concolor with rest of pileum; neck and chest rusty brown. *Patagienas squamosa*, young (p. 314).

## PATAGIENAS LEUCOCEPHALA (Linnæus).

## WHITE-HEADED PIGEON.

*Adult male.*—Pileum immaculate white (sometimes drab or smoky);<sup>a</sup> nape dark maroon or warm blackish brown; hindneck metallic bronze-green or bronze (rarely purplish bronze), the feathers margined with black, producing a squamate effect; rest of upper parts plain slate color, somewhat lighter (approaching slate-gray) on rump and upper tail-coverts, duller (slightly more brownish) on inner secondaries and apical portion of primaries; under parts (including malar, suborbital and auricular regions, chin, throat, axillars, and under wing-coverts) slate color, darker anteriorly, passing into slate-gray posteriorly; tip of bill greenish white, horn white, or pearly green, basal portion dull crimson lake, dull crimson, or brownish purple;<sup>b</sup> iris white or creamy white;<sup>b</sup> bare orbital space white and pinkish;<sup>b</sup> legs and feet bright crimson, claws brown;<sup>b</sup> length (skins), 291–397 (340); wing, 181–204 (190.4); tail, 113–145 (126.4); culmen, 15–20 (16.9); tarsus, 23.5–28 (25.8); middle toe, 28–33 (30.4).<sup>c</sup>

*Adult female.*—Similar to the adult male, but lighter and somewhat duller in coloration, the slate color of back, scapulars and proximal wing-coverts and secondaries more brownish, under parts of body decidedly lighter (sometimes approaching pale purplish gray or pale neutral gray), and pileum more frequently brownish gray or smoky (rarely white?); length (skins), 290–386 (330); wing, 171.5–

<sup>a</sup> It is difficult to account for this variation in the color of the pileum, since it occurs in adult birds of both sexes, though perhaps more frequently in females. Possibly it may be an adventitious stain.

<sup>b</sup> Lowe, *Ibis*, 1909, 332.

<sup>c</sup> Fifty-five specimens.

195 (183.7); tail, 111.5–133.5 (122.5); culmen, 15.5–19.5 (17); tarsus, 21.5–27 (25); middle toe, 27.5–33 (29.9).<sup>a</sup>

*Young*.—Much duller in coloration than adults, the general slaty color more brownish (less bluish); entire hindneck dull grayish brown (nearly hair brown); pileum dull sooty grayish posteriorly, grayish white clouded with sooty grayish anteriorly.

West Indies in general, Florida keys, and Caribbean coast from Yucatan to Panama. Southern Florida (Indian, Horseneck, Boca Grande, Boca Chica, Vaca, Sugar Loaf, No Name, Bahia Honda, and Summerland Keys; Key West; Tortugas; Punta Rassa; Caloosahatchie River); Bahamas (Abaco, Biminis, Berry, Eleuthera, New Providence, Andros, San Salvador, Long Rock near Exuma Cay, Watling, Rum Cay, Long, Green Cay, Acklin, Maragauna, Caicos, Moraine Cay, Highburn Cay, Buena Vista Cay, Ragged, Washburn Cay, and Cay Lobos islands); Greater Antilles: Cuba, Isle of Pines, Grand Cayman, Cayman Brac, Jamaica, Haiti, Mona Island, Porto

<sup>a</sup> Forty-four specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Four adult males from Florida Keys.....	192.7	124.1	17	26.5	31.6
Eleven adult males from Bahamas.....	186.6	121.5	16.7	26	31.3
Three adult males from Cuba.....	192.2	126.8	16.5	26	31
Eight adult males from Isle of Pines.....	190.4	130.5	16.8	25.9	31
Two adult males from Cayman Brac.....	195.5	124.5	18	27	32
Nine adult males from Santo Domingo.....	189.4	125.7	16.7	25.4	29.7
Two adult males from Jamaica.....	199.2	133.2	17.7	26.5	31.7
Two adult males from Mona Island.....	188	128	17.5	26	30
One adult male from St. Croix.....	189.5	129	16	26.5	31.5
Five adult males from Barbuda.....	188.8	124	16.7	25.9	30.9
Three adult males from Antigua.....	186.5	124	17	25.7	31.8
Three adult males from Swan Island, Caribbean Sea.....	200.3	135.8	17.8	26.7	30.5
One adult male from Old Providence Island, Caribbean Sea....	196	133	17	26.5	32.5
One adult male from Cozumel Island, Yucatan.....	188	130	16.5	25	30
FEMALES.					
Four adult females from Florida Keys.....	187.7	123.6	17	26.2	31
Five adult females from Bahamas.....	185.3	122.7	17.2	24.9	29.4
Three adult females from Cuba.....	177.3	120.2	17.2	24.3	29.8
Two adult females from Isle of Pines.....	183	121	17	25.7	30
One adult female from Grand Cayman.....	183.5	122.5	17	26	29
Eight adult females from Santo Domingo.....	184	119.1	16.4	24.9	29.7
Six adult females from Jamaica.....	184.6	123.5	16.4	24.4	29.9
Five adult females from Porto Rico.....	183.6	123.1	17.5	24.4	29.9
One adult female from Mona Island.....	179	116	16.5	24.5	29
One adult female from Virgin Gorda.....	178	117	19	26	31
Three adult females from Antigua.....	181.7	124.3	17.2	25.2	30.8
Four adult females from Swan Island, Caribbean Sea.....	191.6	130.6	17.2	25.7	29.7
One adult female from Yucatan.....	160	119	17	25	29

Notwithstanding the considerable local variation in size, I have been unable to discover any differences of coloration correlated therewith.

Rico, Vieque Island, Virgin Gorda, and St. Croix. Lesser Antilles: St. Bartholomew, Barbuda, Antigua, Montserrat, Dominica, and Guadeloupe. Swan Island and Old Providence Island, Caribbean Sea. Yucatan (Cozumél Island; La Vega). British Honduras (Half Moon Cay; Glovers Cay; Middle Cay; Turneff Island). Honduras (Bay of Honduras; Ruatan Island). "Panama."

[*Columba leucocephala* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 164 (Bahamas; based on *Columba capite albo*, Catesby, i, pl. 25; Sloane, ii, p. 303, pl. 261); ed. 12, i, 1766, 281.—GMELIN, Syst. Nat., i, pt. 2, 1789, 772.—LATHAM, Index Orn., ii, 1790, 594.—REICHENBACH, Syn. Av., 1847, figs. 1257, 1258; Syn. Av. Novit., Columbariæ, 1851, figs. 2863, 2864.—GRAY, Hand-list, ii, 1870, 234, no. 9257.—COUES, Key to N. Am. Birds, 1872, 225.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—CORY, List Birds West Ind., rev. ed., 1886, 23.—SHARPE, Hand-list, ii, 1899, 70.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132 (Jamaica).

*Columba leucocephala* TEMMINCK, Pigeons, i, fam. seconde, 1808-11, 57 [101], pl. 13 (Jamaica; Santo Domingo; Bahamas; Porto Rico).—TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 204, 459 (Jamaica; Santo Domingo; Bahamas; Porto Rico).—VIEILLIOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 367; Gal. Ois., i, 1825, 331, pl. 194.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 119; Am. Orn., ii, 1828, 11, pl. 17, fig. 1; Geog. and Comp. List, 1838, 41.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 625; 2d ed., 1840, 755.—WILSON and BONAPARTE, Am. Orn., iii, 1832, 467, pl. 17, fig. 1.—AUDUBON, Orn. Biog., ii, 1834, 443, pl. 177; v, 1839, 557; Synopsis, 1839, 191; Birds Am., oct. ed., iv, 1842, 315, pl. 280.—D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 171 (large ed., p. 126).—GOSSE, Birds Jamaica, 1847, 299.—SALLÉ, Proc. Zool. Soc. Lond., 1857, 235 (Santo Domingo; habits).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 599 (Indian Key and Tortugas, Fla.); Cat. N. Am. Birds, 1859, no. 447.—MOORE, Proc. Zool. Soc. Lond., 1859, 61 (cays off coast of Belize, Brit. Honduras).—BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 119 (Bahamas; breeding); xi, 1867, 96 (Santo Domingo).—SALVIN and SALVIN, Ibis, 1859, 222 (coast of Honduras).—ALBRECHT, Journ. für Orn., 1861, 55 (Bahamas).—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 301 (Jamaica; crit.).—TAYLOR, Ibis, 1864, 171 (Porto Rico).—SALVIN, Ibis, 1864, 380 (Half Moon Cay, Brit. Honduras); 1885, 193 (Cozumel I., Yucatan); 1889, 377 (Cozumel I., Yucatan; Ruatan I., Honduras).—SUNDEVALL, Öfv. k. Vet.-Ak. Förh., 1869, 585 (St. Bartholomew), 600 (Porto Rico).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 68 (Santo Domingo; Panama).—COUES, Check List, 1873, no. 369, 2d ed., 1882, no. 541.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 363, pl. 57, fig. 3.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 241 (Barbuda); i, 1879, 487 (Barbuda; Antigua).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am. Birds, 1881, no. 458; Proc. U. S. Nat. Mus., v, 1888, 577 (Swan I., Caribbean Sea); Auk, viii, 1891, 339 (Green Cay, Bahamas).—CORY, Birds Bahama Is., 1880, 137 (New Providence; Andros; Bimini; Buena Vista Cay; Ragged Islands; Long Rock, near Exuma Cay); Bull. Nutt. Orn. Club, vi, 1881, 154 (interior of Haiti); Birds Haiti and San Dom., 1885, 134 (Puerta Plata, Santo Domingo); Auk, iv, 1887, 108 (synonymy; descr.; West Indian range), 180 (Old Providence I., Caribbean Sea); vi, 1889, 32 (Cayman Brac); vii, 1890, 375 (Virgin Gorda); viii, 1891, 47 (Antigua; St. Croix), 295 (Berry Islands), 296 (Bimini Islands), 297 (Caicos Islands); ix, 1892, 48 (Maraгуana I., Bahamas), 272 (Cuba); Birds West Ind., 1889, 209; Cat. West Ind. Birds, 1892, 96 (West Indian range).—TRISTRAM, Ibis, 1884, 168 (Santo Do-

- mingo).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 314; 3rd ed., 1910, 147.—SCOTT, Auk, v, 1888, 185 (Punta Rassa, Florida, Aug. 16, 1886; Key West, Florida, Aug. 9, 1887); vi, 1889, 246 (Key West, summer res.; Punta Rassa, 1 spec.); ix, 1892, 122 (Jamaica; habits), 212 Caloosahatchie R., Florida).—NORTHROP, Auk, viii, 1891, 76 (Andros I., Bahamas).—BENDIRE, Life Hist. N. Am. Birds, i, 1892, 131.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 291 (near Trinidad, s. Cuba).—VERRILL (G. E.), Trans. Conn. Ac. Sci. and Arts, viii, 1892, 323 (Dominica; habits).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 278 (Punta Rassa and Key West, Florida; San Cristobal and Remedios, Cuba; Spanishtown and Midgeham, Jamaica; Santo Domingo; Antigua; Cozumel I.; Brit. Honduras; Bay of Honduras).—FIELD, Auk, xi, 1894, 123 (Jamaica; common, breeding).—CHERRIE, Contr. Orn. San. Dom., 1896, 23.—BONHOTÉ, Ibis, 1899, 516 (New Providence I., Bahamas); 1903, 298 (New Providence I.; Washerwoman Cay; habits); Auk, xx, 1903, 174 (Cay Lobos, Bahamas).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 232 (Turneff I., Glovers Cay, Half Moon Cay, and Middle Cay, Brit. Honduras; Ruatan I., Honduras; Bahamas; Virgin Island; St. Bartholomew; Swan I.).—RILEY, Smithson. Misc. Coll., xlvii, 1904, 281 (Barbuda; Antigua); Auk, xxii, 1905, 354 (New Providence, Andros, Green Cay, Eleuthera, Cat, Watling, Long, and Abaco islands, Bahamas).—ALLEN (G. M.), Auk, xxii, 1905, 122 (Green Cay, Moraine Cay, and Great Abaco, Bahamas; nesting habits).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 197 (Isle of Pines).—FOWLER, Auk, xxiii, 1906, 398 (Boca Grande, Boca Chica, Sugar Loaf, No Name, Vaca, Bahia Honda, and Summerland keys, Florida).—LOWE, Ibis, 1909, 332 (Swan I.); 1911, 144 (Grand Cayman; Cayman Brac).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Santo Domingo; habits).—SCLATER, Revised List Birds Jamaica, 1910, 18.—TODD, Ann. Carnegie Mus., vii, 1911, 416 (New Providence and Abaco, Bahamas; molt; etc.).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 450 (New Providence, Acklin, and Abaco islands).
- Columba leucocephala* BONAPARTE, Journ. Ac. Nat. Sci. Phila., v, 1825, 30 (s. Florida); Compt. Rend., xxxix, 1854, 1110.—COUES, Key N. Am. Birds, 2d ed., 1884, 565.—RIDGWAY, Man. N. Am. Birds, 1887, 212.
- [*Patagioenas*] *leucocephala* REICHENBACH, Av. Syst. Nat., 1852, p. xxv.—BONAPARTE, Consp. Av., ii, 1857, 54.—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); 1874, 312 (Porto Rico).—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 276 (Haiti).
- P[atagioenas] leucocephala* REICHENBACH, Volls. Naturg., Columbaria, i, 1861, 64, pl. 223, figs. 1257, 1258, pl. 255, figs. 2863, 2864; ii, 1862, 172.
- Columba leucocapilla* (lapsus) TEMMINCK, Cat. Syst., 1807, 142.
- Patagioenas leucocephala* CABANIS, Journ. für Orn., 1856, 107 (Cuba).—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).—GUNDLACH, Repert. Físico-Nat. Cuba, i, 1866, 298; Journ. für Orn., 1874, 288 (Cuba); 1878, 161, 186 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 345 (Porto Rico).
- Patagioenas leucocephalus* NEWTON (A. and E.), Ibis, 1859, 253 (St. Croix; habits).
- Patagioenas leucocephala* SCLATER, Proc. Zool. Soc. Lond., 1861, 80 (Jamaica).

### PATAGIENAS SQUAMOSA (Bonnaterre).

#### SCALY-NAPED PIGEON.

*Adult male*.—Head and upper neck (all round), and chest plain dark purple-drab to vinaceous-slate; nape rich dark purplish brown (dark livid purple or dark perilla purple), forming a crescentic or shield-shaped patch; hindneck metallic dull purplish (nearly dull indian purple), changing to bluish green and violet, the feathers sharply margined with rich dark purplish brown (like color of nuchal patch),

producing a conspicuous squamate effect; rest of plumage plain slate color, darker on primaries and tail, paler (dark gull gray to slate-gray) below, this shading gradually into the purple-drab of breast; bill lake-red, white or yellowish white at tip; iris with an inner ring of scarlet and an outer one of golden yellow; bare orbital space dull red, with a fine yellow bloom,<sup>a</sup> or yellow;<sup>b</sup> legs and feet lake red; length (skins), 325-409 (366); wing, 184-224 (208.4); tail, 123-153 (137.3); culmen, 14-20 (16.7); tarsus, 25-30.5 (27.7); middle toe, 31-39 (33.5).<sup>c</sup>

*Adult female.*—Similar to the adult male, but duller in color, the head, neck, and chest much less purplish, the color of back, scapulars, innermost wing-coverts, and tertials more brownish, and color of under parts lighter; length (skins), 339-386 (361); wing, 182-219 (203.4); tail, 119-149 (132.7); culmen, 15.5-18 (16.6); tarsus, 25-29 (26.5); middle toe, 30-36 (32.6).<sup>d</sup>

<sup>a</sup> A. and E. Newton, Ibis, 1859, 252 (St. Croix specimens).

<sup>b</sup> Hartert, Ibis, 1893, 333, and Cory, Pub. 137 Field Mus. N. H., 1909, 210 (Bonaire specimens).

<sup>c</sup> Thirty-nine specimens.

<sup>d</sup> Eighteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Cuba.....	207.4	137.9	17.4	27.4	31.9
Four adult males from Santo Domingo.....	206.7	128.7	16.9	28.2	34.1
Seven adult males from Porto Rico.....	211.6	141.4	17	27.2	33.3
Two adult males from Culebra.....	200	138	17.5	28	31.5
One adult male from Vieques.....	193	131	17	27.5	33
One adult male from St. Thomas.....	215	138.5	17	28.5	35
Two adult males from St. Johns.....	209.7	132.5	17	27.2	35
One adult male from St. Croix.....	196	133	15.5	27	36.5
One adult male from Antigua.....	196	128	18	28	35
One adult male from Guadeloupe.....	217	146	16.5	30	39
Four adult males from Dominica.....	211	140.5	15.5	26.9	33.9
One adult male from Martinique.....	224	138	18.5	30	35
Three adult males from Santa Lucia.....	215.3	140.3	17.5	28.3	34.2
One adult male from St. Vincent.....	197	132	16	30.5	35
One adult male from Grenada.....	220	139.5	16	27	32
One adult male from Curaçao.....	199	138.5	15.5	28	31.5
FEMALES.					
Six adult females from Cuba.....	202.9	129.9	16.1	26.3	32
Two adult females from Santo Domingo.....	207.2	119.7	16.7	28	33
Two adult females from Porto Rico.....	193.5	130.5	17.2	27	32.5
One adult female from St. Johns.....	202.5	144	16.5	27	33.5
One adult female from St. Eustatius.....	196	132	17.5	27	36
One adult female from Guadeloupe.....	199	136	17.5	27	30
Two adult females from Dominica.....	208	137.5	15.7	27.5	33.2
One adult female from Santa Lucia.....	208	142.5	16.5	29	33
One adult female from St. Vincent.....	219	149	18	26.5	32
One adult female from Curaçao.....	191	129.5	16.5	27	32

*Young*.—Coloration much duller than in adults; whole hindneck dull sooty slate or brownish, without metallic coloring or dark squamations; color of chest more rusty brown, and wing-coverts more or less distinctly margined at tips with brownish.

West Indies in general, except Bahamas and Jamaica; accidental at Key West, Florida (one specimen, Oct. 24, 1898). Greater Antilles: Cuba, Isle of Pines, Haiti, Porto Rico, St. John, St. Thomas, and St. Croix. Lesser Antilles: St. Eustatius, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, Santa Lucia, St. Vincent, Barbados, Mustique, and Grenada. Dutch West Indies: Curaçao and Bonaire. Los Testigos Island, near Trinidad.

*Columba corensis* (not of Jacquin, 1784) TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 211 (Porto Rico).—SALLÉ, Proc. Zool. Soc. Lond., 1857, 235 (Santo Domingo; crit.).—NEWTON (A. and E.), Ibis, 1859, 252 (St. Croix; habits; fresh colors of soft parts; etc.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 377 (St. Thomas).—TAYLOR, Ibis, 1864, 171 (Dominica; Porto Rico).—BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 96 (Santo Domingo).—SUNDEVALL, Cēiv. K. Vet.-Ak. Förh., 1869, 601 (Porto Rico).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 68 (Haiti).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 360.—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 66 (Dominica); i, 1879, 275 (Grenada; habits), 360 (Martinique), 460 (Guadeloupe), 487 (Guadeloupe; Dominica; Martinique; St. Vincent; Grenada); Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).—SCLATER, Proc. Zool. Soc. Lond., 1879, 765 (Montserrat); 1889, 395 (Santa Lucia).—CORY, Birds Haiti and San Dom., 1885, 136 (Magua, Santo Domingo); Auk, iv, 1887, 96 (Martinique), 109 (synonymy; descr.; range); viii, 1891, 47 (St. Eustatius; St. Croix); Birds West Ind., 1889, 210; Cat. West Ind. Birds, 1892, 9, 96.—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 624 (Grenada; habits; descr. nest and eggs).—HARTERT, Bull. Brit. Orn. Club, no. iii, 1892, p. xii (Bonaire).—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 291 (near Trinidad, s. Cuba; food; notes).—VERRILL (G. E.), Trans Conn. Ac. Arts and Sci., viii, 1892, 323 (Dominica; habits; fresh colors of soft parts).—CHERRIE, Contr. Orn. San Dom., 1896, 24.—ATKINS, Auk, xvi, 1899, 272 (Key West, Florida, 1 spec., Oct. 24, 1898).—LOWE, Ibis, 1909, 313 (Los Testigos I., near Trinidad).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Santo Domingo).

[*Columba corensis* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 461.—BONAPARTE, Compt. Rend., xxxix, 1854, 1110 (crit.).

*Columbo corensis* LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 196 (St. Vincent; habits).

[*Columba corensis* GRAY, Hand-list, ii, 1870, 234, no. 9258.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—CORY, List Birds West Ind., rev. ed., 1886, 23.

[*Patagioenas corensis* BONAPARTE, Consp. Av., ii, 1857, 54.—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); Repert. Fisico-Nat. Cuba, i, 1866, 299.

[*Patagioenas corensis* REICHENBACH, Tauben, i, 1862, 64, pl. 222, fig. 2581; ii, 1862, 172 (Porto Rico; Cuba; Santo Domingo).

*Patagioenas corensis* CABANIS, Journ. für Orn., 1856, 108 (Cuba; habits).—GUNDLACH, Journ. für Orn., 1874, 289 (Cuba; habits), 312 (Porto Rico); 1878, 160, 186 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 344 (Porto Rico).

*Columba squamosa* BONNATERRE, Tabl. Enc. Méth., i, 1790, 234 (Guadeloupe).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1913, 280 (Monte Verde and San Cristobal, Cuba; Haiti; Santo Domingo; Montserrat; Dominica; Santa Lucia;



- St. Vincent; Mustique; Grenada).—RILEY, *Smithson. Misc. Coll.*, xlvii, 1904, 280 (Antigua).—NICOLL, *Ibis*, 1904, 566 (Grenada).—BANGS and ZAPPEY, *Am. Nat.*, xxxix, 1905, 197 (Isle of Pines).—CLARK, *Proc. Bost. Soc. N. H.*, xxxii, 1905, 259 (Barbados; St. Vincent; Grenada; Grenadines; habits; descr. nest and eggs); *West Ind. Bull.*, xi, no. 3, 1911, 183 (Santa Lucia).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 3rd ed., 1910, 148.—RAMSDEN, *Auk*, xxx, 1913, 271 (Sierra del Maquey, near Guantanamo, Cuba, Dec., numerous).
- [*Columba*] *squamosa* SHARPE, *Hand-list*, i, 1899, 70.—FORBES and ROBINSON, *Bull. Liverp. Mus.*, ii, 1900, 132 (Santa Lucia; "Coban, Guatemala").
- Columba portoricensis* TEMMINCK and KNIP, *Pigeons*, i, fam. seconde, 1808-11, 41, pl. 15 (Porto Rico).<sup>a</sup>—D'ORBIGNY, in *La Sagra's Hist. Nat. Cuba*, Ois., 1839, 172 (large ed., p. 127), pl. 27.—REICHENBACH, *Syn. Av. Novit., Columbaria*, 1847, fig. 2581.—HARTERT, *Ibis*, 1893, 332 (Bonaire; crit.; habits); *Novit. Zool.*, ix, 1902, 304 (Bonaire).—CORY, *Pub. 137, Field Mus. N. H.*, 1909, 210 (Bonaire; fresh colors of unfeathered parts).
- Columba monticola* VIEILLOT, *Nouv. Dict. d'Hist. Nat.*, xxvi, 1818, 355 (Santo Domingo; Porto Rico; cites *C. corensis* Latham).
- [*Columba*] *imbricata* WAGLER, *Syst. Av.*, 1827, *Columba*, sp. 48 (Santo Domingo, Porto Rico, and Venezuela; coll. Paris Mus.).
- Patagioenas imbricata* BURMEISTER, *Syst. Ueb. Th. Bras.*, iii, 1856, 294.

#### Genus LEPIDŒNAS Reichenbach.

- Lepidoenas* REICHENBACH, *Av. Syst. Nat.*, 1852, p. xxv. (Type, *Columba speciosa* Gmelin.)
- Lepidaenas* (emendation) BONAPARTE, *Ann. Sci. Nat., Zool.*, (2), i, 1854, 140.

Medium-sized arboreal pigeons (length about 275-340 mm.) with tail less than two-thirds as long as wing, exposed culmen much longer than distance from its base to anterior angle of eye, frontal antiae extending only to base of nasal operculi, and whole neck conspicuously spotted and squamated.

Bill relatively large, the length of exposed culmen much greater than distance from its base to anterior angle of eye, the maxillary tomium with an obvious subterminal notch; frontal feathering extending only to base of nasal operculi, the latter very broad and strongly vaulted. Wing rather large, pointed, the longest primaries exceeding distal secondaries by decidedly more than one-third the length of wing; second, or second and third, primaries (from outside) longest, the first equal to or longer than fourth; two outer primaries with inner webs very faintly sinuated, the outermost slightly but decidedly bowed distally. Tail between two-thirds and one-half as long as wing, very slightly rounded, the rectrices relatively rather broad, broadly rounded at tip, decidedly rigid. Tarsus decidedly shorter than middle toe, stout, the acrotarsium with two longitudinal rows of large hexagonal scutalla, the planta tarsi covered with distinct small roundish scales, only the extreme upper portion of

<sup>a</sup> According to Schlegel, *Mus. Pays-Bas*, iv, no. 35 (Columbae), p. 68, the type is said to be in the Leyden Museum, and from Haiti.

tarsus in front feathered; middle toe (without claw) much longer than tarsus (in ratio of 1.20 to 1); lateral toes much shorter, the outer one slightly longer than the inner, its claw falling a little short of base of middle claw; hallux rather large, longer (without claw) than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage essentially normal but rather hard, the feathers everywhere (except on pileum and sides of head) distinctly outlined; naked circumorbital space restricted. Neck, all round, spotted with white and light cinnamon-rufous and broadly squamated with black; under parts whitish or pale purplish brown, squamated with darker; sexes distinctly different, the adult male with back, scapulars, wing-coverts, and rump purplish chestnut, the adult female with the same parts dull brown.

*Range.*—Continental tropical America, from southeastern Mexico to Brazil and Peru. (Monotypic.)

#### LEPIDENAS SPECIOSA (Gmelin).

##### SCALED PIGEON.

*Adult male.*—Pileum (including nape) and sides of head plain dark livid brown, mars violet, or dark mineral red—rarely dusky brown; hindneck broadly squamated with black, strongly glossed with metallic purple, bronze, or green, each feather of the upper hindneck with a central triangular or subcordate spot of white, these spots gradually larger and tinged with light cinnamon-rufous on middle hindneck, those of the lower hindneck and extreme upper back still larger and wholly cinnamon-rufous; back, scapulars, lesser wing-coverts, and rump plain chestnut or bay, the upper tail-coverts middle and greater wing-coverts, and proximal secondaries much duller and browner; tail deep grayish brown (nearly clove brown) basally passing into dull black apically; distal secondaries, primaries, primary coverts, and alulæ dark grayish brown, the remiges, especially longer primaries, narrowly edged with paler; chin and extreme upper throat plain light russet-vinaceous to very pale grayish vinaceous; lower throat, foreneck, sides of neck, and upper chest heavily squamated with black, glossed with metallic violet, purple, or bronze, each feather with a central transversely semicircular or subcordate spot of white or light cinnamon-rufous and tipped with white; lower chest, breast, and sides varying from white to pale grayish brown or pale purple-drab, the feathers more or less broadly margined with dark vinaceous-brown to seal brown or blackish brown, the abdomen and under tail-coverts white, more narrowly margined terminally with dark brown or dusky; axillars and under wing-coverts quaker drab to deep vinaceous-gray, tinged with chestnut toward edge of wing; bill vermilion red (in life); <sup>a</sup> iris brown; <sup>a</sup> legs and feet laven-

<sup>a</sup> According to Dr. Charles W. Richmond.

der,<sup>a</sup> length (skins), 276-343 (299); wing, 170-195.5 (185.2); tail, 93.5-117.5 (103.8); culmen, 18-23.5 (19.7); tarsus, 22.5-26 (24.4); middle toe, 25.5-33 (29.1).<sup>a</sup>

*Adult female.*—Similar to the adult male but back, rump, scapulars, and smaller wing-coverts brown or grayish brown (dull brownish chestnut to deep brownish drab—usually much nearer the latter) instead of chestnut or bay, color of pileum and sides of head less purplish brown, neck with spots mostly white and black squamations less highly glossed, and under parts without purplish or vinaceous tinge; length (skins) 281-319 (300); wing, 169-181.5 (175.4); tail, 97-111 (103.5); culmen, 16.5-21 (19.2); tarsus, 21-24.5 (23.4); middle toe, 27-31 (28.8).<sup>b</sup>

<sup>a</sup> Forty-two specimens.

<sup>b</sup> Thirteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from Vera Cruz.....	181.5	105	19	24.5	28.7
One adult male from Oaxaca.....	179.5	103	18	24	31.5
One adult male from Yucatan.....	181	106	18.5	25	27.5
One adult male from Guatemala.....	188	108	19.5	25.5	30.5
One adult male from British Honduras.....	180	110	21	24	31
One adult male from Honduras.....	181.5	101	20	25.5	28
Ten adult males from Costa Rica.....	179.9	101.8	19	23.8	28.4
Eight adult males from western Panama.....	174.2	99.2	19.2	24.4	28.2
Three adult males from middle Panama (Canal Zone).....	176.6	100.8	21	24.3	29.3
Seven adult males from Colombia (Santa Marta).....	184.1	108.1	20.4	24.5	29.6
Three adult males from Trinidad.....	191	110	22.2	25.5	31.3
One adult male from northern Brazil.....	183	106	20	25	28
Three adult males from southwestern Brazil (Chapada, Matto- grosso).....	179.3	101.3	18.8	24.5	29.3
FEMALES.					
One adult female from Vera Cruz.....	180	98	21	24	30
One adult female from Guatemala.....	174	97	20	24	29.5
One adult female from British Honduras.....	173	104	18.5	23	29
Four adult females from Costa Rica.....	174	103.2	19.6	23.6	28
Two adult females from middle Panama (Canal Zone).....	175	104	19	23	28.5
Two adult females from Colombia (Santa Marta).....	180.5	110	18.2	22.7	30.7
One adult female from Venezuela.....	177	101	19	24	30
One adult female from Lower Amazon (Diamantina).....	169	104	19	23	28.5

There is a remarkable range of individual variation in the coloration of the under parts, a fine series of specimens from Costa Rica showing practically all the extremes in this respect. The only suggestion of possible geographic difference in coloration is in the case of three adult males from Chapada, Matto Grosso, western Brazil. These three examples have the under parts (including chest) white, the feathers rather broadly margined with dark livid brown, in which respect they are not materially different from specimens from Central America and more northern parts of South America, the suggestive feature being that the three Chapada specimens are practically alike. It is, however, of course possible that a larger series from Chapada would show the usual individual variation in coloration of the under parts.

*Young male*.—Very much duller in coloration than the adult male; squamations and spotting of neck nearly obsolete, pileum and sides of head bone brown to hays brown or sorghum brown, chest nearly uniform brown (more or less deep), and chestnut of upper parts duller, the feathers sometimes with an indistinct paler tip and darker subterminal bar, and the under parts of body (posterior to chest) indistinctly squamated with light brown on a dull or grayish white ground color.

*Young female*.—Similar to the young male but general color of upper parts and squamations on under parts decidedly more grayish brown.

Southeastern Mexico, in States of Vera Cruz (Pasa Nueva; Tolosa; Miradór; Córdoba; San Lorenzo, near Córdoba; Potrero, near Córdoba), Oaxaca (Túxtepec), and Yucatan (Xbac; Tizimín; Chichen-Itza), and southward, through Guatemala (El Petén; Guadalupe Sakluk), British Honduras (forest near Manatee Lagoon), Honduras (Céiba), Nicaragua (La Libertád, Chontales; Rio Escondido), Costa Rica (Boruca; El General; Buenos Aires; Paso Real; Térraba), Panamá (Bugaba, Boquete, El Banco, Volcán de Chiriquí, Chitra, and Boquerón, Chiriquí; Lion Hill, Rio Indio, and Tabernilla, Canal Zone), Colombia (Bonda, Minca, Cincinnati, and Las Táguas, Santa Marta; Remedios, Antioquia; Bogotá), Venezuela (El Callao; Maipures; Suapure), Trinidad (Aripa, 2,000 ft.; Chaguanas), British Guiana (Demerara; Bartica Grove; Camacusa; Roraima, 3,500 ft.), French Guiana (Cayenne), Dutch Guiana (Surinám), and Ecuador (Esmeraldas; Balzar Mts.; Sarayacu; Gualaquiza), to Peru (Chamicuros; Amable María; La Mercéd), Bolivia (lower Rio Beni), and Brazil (Rio Capim; Counaní; Goyana, Tapajós; Engenho do Gama; Pará; Santarém; Diamantina, near Santarém; Bahia; Sierra de Lua, Amazonas; Chapada, Mattogrosso).

[*Columba*] *speciosa* GMELIN, Syst. Nat., i, pt. 2, 1789, 783 (Cayenne; based on *Pigeon ramier, de Cayenne* Daubenton, Pl. Enl., pl. 213).—LATHAM, Index Orn., ii, 1790, 605.—REICHENBACH, Syn. Av., 1847, cxxxii, figs. 1253, 1254.—GRAY, Hand-list, ii, 1870, 234, no. 9564.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—SHARPE, Hand-list, i, 1899, 70.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132 (Demerara, Brit. Guiana; Venezuela?).

*Columba speciosa* BONNATERRE, Tabl. Enc. Méth., i, 1790, 245, pl. 80, fig. 2.—TEMMINCK and KNIP, Pigeons, i, fam. seconde, 1808-11, 39, pl. 39, pl. 14 (French Guiana).—TEMMINCK, Cat. Syst., 1807, 139 (note on p. 29; Cayenne); Hist. Nat. Fig. et Gallin., i, 1813, 208 (French Guiana).—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 364 (Cayenne); xxix, 1819, 2.—MAXIMILIAN, Reis. Bras., i, 1820, 251.—BONAPARTE, Compt. Rend., xxxix, 1854, 1110.—SCLATER and SALVIN, Ibis, 1859, 222 (Guatemala); Proc. Zool. Soc. Lond., 1864, 371 (Panama); 1867, 590 (Para, Brazil); 1873, 306 (Chamicuros, e. Peru); 1879, 543 (Remedios, Antioquia, Colombia; descr. eggs).—SCLATER, Proc. Zool. Soc. Lond., 1860, 298 (Esmeraldas, w. Ecuador).—SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Bugaba, Veragua, Panama); Ibis, 1886, 173 (Bartica Grove,

- Camacusa, and Roraima, 3,500 ft., Brit. Guiana).—BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 119 (Esmeraldas, w. Ecuador); Novit. Zool., xv, 1908, 204 (Cayenne).—TACZANOWSKI, Orn. du Pérou, iii, 1886, 231, tables, p. 101.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Costa Rica).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 105 (lower Rio Beni, Bolivia); v, 1893, 148 (Chapada, Matogrosso, s. w. Brazil); xiii, 1900, 129 (Bonda, Santa Marta, Colombia).—RIKER and CHAPMAN, Auk, viii, 1891, 161 (Santarem, lower Amazon).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 281 (San Lorenzo, near Cordova, Vera Cruz; Tizimin, Yucatan; Guadalupe Sakluk, Guatemala; La Libertad, Nicaragua; Volcan de Chiriqui, Bugaba, and Lion Hill, Panama; Remedios and near Bogota, Colombia; Balzar Mts. and Sarayacu, Ecuador; Bartica Grove and Roraima, Brit. Guiana; Para, Bahia, Engenho do Gama, and Chapada, Brazil).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 523 (Rio Escondido, Nicaragua).—CHAPMAN, Bull. Am. Mus., vi, 1894, 73 (Trinidad; notes).—GOELDI, Ibis, 1897, 153, 160 (Counani, n. e. Brazil); 1903, 499 (Rio Capim, n. e. Brazil).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 34 (Gualaquiza, e. Ecuador).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 23 (Bugaba and Boquete, 5,000 ft., w. Panama); Bull. Mus. Comp. Zool., xxxix, 1903, 142 (Ceiba, Honduras); Auk, xxiv, 1907, 291 (Boruca and Paso Real, Costa Rica).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1902, 43 (La Merced, centr. Peru; fresh colors of unfeathered parts).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 116 (Maipures and Suapure, Orinoco Valley, Venezuela).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 233 (Cordova, San Lorenzo, and Potrero, Vera Cruz; Tizimin, Yucatan; Sakluk and Lake Peten, Guatemala; La Libertad and Rio Escondido, Nicaragua; Buenos Aires, Costa Rica; Volcan de Chiriqui, Bugaba, and Boquete, Panama; Colombia; Peru; Guiana; Brazil).—HELLMAYR, Novit. Zool., xiii, 1906, 46 (Aripo, 2,000 ft., and Chaguanas, Trinidad; crit.), 383 (near Para, Brazil; crit.).—COLE, Bull. Mus. Comp. Zool., i, 1906, 116 (Chichen-Itza, Yucatan).—SNETHLAGE, Journ. für Orn., 1908, 516 (Goyana, Tapajos, Brazil).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 392 (El General and Terraba, s. w. Costa Rica; crit.).
- Col[umba] speciosa* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 460 (Cayenne).—MAXIMILIAN, Beitr. Naturg. Bras., iv, 1832, 447.—SCHOMBURGK, Reis. Brit. Guiana, iii, 1848, 743.
- Col[umba] speciosa?* SWAINSON, Zool. Journ., iii, 1827, 362.
- Patagioenas speciosa* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 293.
- Chlorænas speciosa* SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz); 1858, 76 (e. Ecuador).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.
- P[eristera] speciosa* HARTLAUB, Syst. Verz., 1844, 99.
- [*Lepidoenas*] *speciosa* REICHENBACH, Av. Syst. Nat., 1852, p. xxv.
- [*Lepidoenas*] *speciosa* REICHENBACH, Volls. Naturg., Columbariae, i, 1861, 66, pl. 223, figs. 1253, 1254; ii, 1862, 172 (Bahia, Brazil; Guiana; Colombia).—BONAPARTE, Consp. Av., ii, 1857, 54 (Guiana; Brazil; Colombia).—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 276.
- Lepidoenas speciosa* MOORE, Proc. Zool. Soc. Lond., 1859, 61 (Lake Peten, Guatemala).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 301. (Isth. Panama).—PELZELN, Orn. Bras., 1870, 274 (Brazilian localities; crit., in footnote), 450; Ibis, 1875, 331 (Spanish Guiana).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 70 (Cayenne; Surinam).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 555 (Amable Maria, centr. Peru).
- Lepidænas speciosa* SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 560 (tierra Caliente of Vera Cruz).—BOUCARD, Liste Ois. récol. Guat., 1878, 14 (Vera Paz, Guatemala).

*Peristera spilodera* BONAPARTE, Compt. Rend., xxxix, 1854, 1109 (crit.).

*Chlorœnas spilodera* BONAPARTE, Compt. Rend., xxxix, 1854, 1109 (based on *Peristera spilodera* Gray, manuscript).

[*Chlorœnas*] *spilodera* BONAPARTE, Consp. Av., ii, 1857, 52 (locality unknown; ex *Peristera spilodera* Gray, manuscript); Compt. Rend., xli, 1855, 659.

#### Genus CROSSOPHTHALMUS Bonaparte.

*Crossophtalmus* BONAPARTE, Compt. Rend., xxxix, 1854, 1110; Consp. Gen. Av., ii, Nov. 20, 1854 [i. e. 1857?], 55. (Type, *Columba gymnophthalmos* Temminck.)

Medium-sized arboreal pigeons (length about 300–370 mm.) with tail less than three-fifths (but little more than half) as long as wing; exposed portion of distal secondaries shorter than exposed portion of greater coverts; wing-tip decidedly less than one third as long as wing; bare orbital space very large, with a conspicuous outer papillose ring; unguis occupying more than terminal half of maxilla, and plumage of the hindneck conspicuously barred.

Bill very short (the horny tip of maxilla, or unguis, occupying decidedly more than half of culmen), stout, its greatest depth about equal to length of nasal operculum, the latter very tumid, and very broad, its lower edge reaching lower edge of maxilla; frontal feathering extending to about middle of nasal operculi, decidedly in advance of malar antia. Wing rather large but with relatively short tip, the longest primaries exceeding distal secondaries by decidedly less than one-third the length of wing; second, or second and third, primaries (from outside) longest, the first (outermost) intermediate between third and fourth, the inner webs of two outer primaries very faintly sinuated; secondaries also relatively short, their exposed portion shorter than exposed portion of greater coverts. Tail less than three-fifths as long as wing, decidedly rounded, the retrices moderately broad, with broadly rounded tips. Tarsus decidedly shorter than middle toe, stout, the acrotarsium covered by a single row of broad, transverse scutella, the planta tarsi by very small, roundish, centrally depressed scales, the extreme upper portion feathered in front; middle toe decidedly longer than tarsus (in proportion of about 1.18 to 1); lateral toes much shorter, their claws falling decidedly short of base of that of middle toe, the outer slightly longer than the inner; hallux strong, longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage normal, but orbital region unusually denuded and with an outer ring of rough or papillose skin. Coloration plain, the head, neck and under parts grayish washed with vinaceous (passing into white posteriorly), the hindneck narrowly barred with black and light vinaceous-brownish; back, scapu-

lars, and wing-coverts grayish brown, and distal wing-coverts white (forming a conspicuous elongated patch).

*Range*.—Dutch West Indies (islands of Curaçao, Aruba, and Bonaire); Caribbean coast of Colombia and Venezuela. (Monotypic.)

### CROSSOPHTHALMUS GYMNOPHTALMOS (Temminck).

#### BARE-EYED PIGEON.

*Adult male*.—Head and upper neck plain vinaceous-gray (more grayish on occiput, more vinaceous on forehead), somewhat paler on sides of head, still paler (pallid vinaceous-drab) on chin and throat; hindneck darker, each feather with a narrow subapical bar of dull black (passing into light gray on terminal edge), preceded by a light-colored bar, these latter bars narrower and mostly whitish on upper hindneck, broader and mostly (if not wholly) vinaceous on lower hindneck; back, scapulars, wing-coverts (except outermost ones) and proximal secondaries (tertials) drab, some of the feathers with indistinctly paler margins; distal (outer) wing-coverts white or buffy white, forming a conspicuous longitudinal patch or stripe on wing; remiges (except proximal secondaries), primary coverts, and alulae dull blackish brown or dusky, the secondaries conspicuously margined with white apically, the primaries less sharply margined with brownish gray; rump clear light bluish gray (nearly gull gray) anteriorly, becoming slightly deeper gull gray posteriorly, passing into nearly mouse gray on upper tail-coverts and tail, the lateral rectices, however, with proximal half or more much paler (dull whitish), especially on inner webs; under parts plain pale purple-drab anteriorly, passing into light vinaceous-drab, tinged with light grayish vinaceous, posteriorly, the posterior flanks, anal region, and under tail-coverts white; axillars and under wing-coverts light gull gray, the latter intermixed with white, especially on posterior coverts; under surface of remiges deep brownish gray; bill pink or flesh color (in life); iris orange to orange-brown; papillose bare orbital space dark brownish red or reddish brown, the narrow, smooth inner ring bluish gray (in life); legs and feet red (in life); length (skins), 320–370 (344); wing, 186–203 (193.8); tail, 110–126 (117.1); culmen, 15.5–17 (16.1); tarsus, 25–28 (26.9); middle toe, 29–32.5 (31).<sup>a</sup>

*Adult female*.—Similar to the adult male but averaging decidedly duller, the head, neck, and under parts grayer (less vinaceous), the pinkish bars on lower hindneck usually somewhat paler, sometimes less sharply defined; length (skins), 300–345 (322); wing, 180–190.5

<sup>a</sup> Nine specimens.

(185.5); tail, 103–121 (112.5); culmen, 13.5–18 (15.9); tarsus, 24–27 (25.6) middle toe, 28.5–33 (30.1).<sup>a</sup>

*Young*.—Resembling the adult female, but whole hindneck plain light brownish gray or else with narrow dull whitish or pale pinkish bars but no black bars.

Arid Caribbean coast district of Venezuela (Porlamár; Tocuyo) and Colombia (Barranquilla; Taganga, Gaira, and Donjaro, Santa Marta), and adjacent islands of Curaçao, Aruba, Bonaire, Margarita, and Blanquilla; St. Thomas, Greater Antilles (introduced?).

(??) *Columba (corensis)* JACQUIN, *Beytr. Gesch. Vögel*, 1784, 31 (Coro, Venezuela).—GMELIN, *Syst. Nat.*, i, pt. 2, 1789, 783.

[*Columba*] *corensis* LATHAM, *Index Orn.*, ii, 1790, 605.—CHUBB, *Birds S. Am.*, i, 1912, 15 (crit. nomencl.).

*Columba corensis* BONNATERRE, *Tabl. Enc. Méth.*, i, 1792, 245.

*Columba gymnophthalmos* TEMMINCK and KNIP, *Pigeons*, i, seconde fam., 1808–11, 48 [112], pl. 18, excl. syn. (no locality given).—TEMMINCK, *Hist. Nat. Pig. et Gallin.*, i, 1813, 225.

[*Columba*] *gymnophthalmos* TEMMINCK, *Hist. Nat. Pig. et Gallin.*, i, 1813, 461 (“India”).

[*Columba*] *gymnophthalmos* GRAY, *Hand-list*, ii, 1870, 234, no. 9266.

*Columba gymnophthalmus* STEPHENS, in *Shaw's Gen. Zool.*, xi, 1819, 6.—GRAY, *List Birds Brit. Mus.*, *Columbæ*, 1856, 31 (South America).—HARTERT, *Bull. Brit. Orn. Club*, iii, 1892, p. xii (Curaçao; Aruba; Bonaire); *Novit. Zool.*, ix, 1902, 305 (Curaçao; Aruba; Bonaire).

*Columba gymnophthalma* SCLATER, *Proc. Zool. Soc. Lond.*, 1865, 239 (no. of eggs); 1869, 627 (breeding in captivity).—ALLEN, *Bull. Am. Mus. N. H.*, xiii, 1900, 129 (Taganga, Santa Marta, Colombia).—HARTERT, *Ibis*, 1893, 304, (Aruba; crit.), 322 (Curaçao; crit.; habits), 332 (Bonaire).—CORY, *Pub. 137, Field Mus. N. H.*, 1909, 198 (Aruba), 205 (Curaçao), 210 (Bonaire), 240 (Margarita I., Venezuela).—SALVADORI, *Cat. Birds Brit. Mus.*, xxi, 1893, 269 (Curaçao; Aruba; Bonaire).—ROBINSON, *Proc. U. S. Nat. Mus.*, xviii, 1896, 658 (Margarita I.; habits).—RICHMOND, *Proc. U. S. Nat. Mus.*, xviii, 1896, 658 (Margarita I.; crit.; descr. female).

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from St. Thomas, Greater Antilles.....	203	126	17	27	31.5
Three adult males from Curaçao Island.....	190	113	16.2	26.5	30.5
One adult male from Aruba Island.....	194	113	.....	27.5	31
One adult male from Margarita Island.....	193	121	15.5	28	32
One adult male from coast of Venezuela (Tocuyo).....	192	113	16	26	30
One adult male from unknown locality.....	194.5	121	16	.....	.....
One adult male from coast of Colombia (Santa Marta).....	195	121	16	27	32
FEMALES.					
One adult female from Bonaire Island.....	182.5	109	17	24.5	29.5
Three adult females from Curaçao Island.....	184	114	15.7	25.3	29.8
One adult female from Margarita Island.....	190.5	111	16	26	33
One adult female from coast of Venezuela (Tocuyo).....	186	112	16.5	27	29
Four adult females from coast of Colombia (Barranquilla and Santa Marta).....	186.1	113.1	15.7	25.7	30



- Columba gymnophthalma* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 143 (color of bill).
- [*Columba gymnophthalma* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—SHARPE, Hand-list, i, 1899, 69.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 132.
- Columba gymnophthalma* ROBINSON, Flying Trip to Tropics, 1895, 164 (Curaçao).
- Picazurus gymnophthalmus* DES MURS, in Chenu's Enc. d'Hist. Nat., Ois., vi, 1854(?), 39.
- [*Crossophthalmus*] *gymnophthalmos* BONAPARTE, Consp. Av., ii, 1857, 55.—REICHENBACH, Tauben, i, 1862, 66; ii, 1862, 172, pl. 2, fig. 23.
- Crossophthalmus gymnophthalmus* PELZELN, Orn. Bras., 1870, 274 (Brazilian localities; crit. in footnote), 450.
- [*Crossophthalmus*] *gymnophthalmus* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 276.
- [*Picazuros*] *gymnophthalmos* GRAY, Hand-list, ii, 1870, 234, no. 9266.
- Columba loricata* (not of Lichtenstein, 1823) WAGLER, Syst. Av., 1827, Columba, sp. 53, part.
- (?) *Patagioenas loricata* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 294.
- (?) *Lepidoenas loricata* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 69 ("Brazil"; "Paraguay").

#### Genus CENENAS Salvadori.

- Enènas* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 248, in text (subgenus).  
(Type, *Columba nigrirostris* Sclater.)

Medium-sized arboreal pigeons (length about 260–325 mm.) with very small bill, greatly restricted bare orbital space, long and strongly rounded tail (more than three-fourths as long as wing), relatively small feet, and very plain coloration (uniform brown above, the head, neck, and under parts purplish brown or drab).

Bill very small, the exposed culmen shorter than distance from frontal antia to anterior angle of eye, slender (*C. subvinacea*) or stout (*C. nigrirostris*); nasal operculi depressed, scarcely if at all tumid, rather narrow; frontal antia but little if any anterior to malar antiæ. Wing rather long and pointed, the longest primaries exceeding distal secondaries by at least one-third the length of wing; third, or second, third and fourth, primaries (from outside) longest, the first equal to or shorter than fifth; longer primaries rather narrow terminally, the two outer (*C. subvinacea*) or outermost only (*C. nigrirostris*) with inner web very faintly sinuated; distal secondaries with exposed portion more than twice as long as exposed portion of greater coverts (*C. subvinacea*) or less than one and a quarter times as long (*C. nigrirostris*). Tail more than three-fourths as long as wing (nearly four-fifths as long in *C. subvinacea*), strongly rounded (the graduation equalling about one-ninth the total length in *C. nigrirostris*, nearly one-fifth in *C. subvinacea*), the rectrices rather broad,

with broadly rounded tips, and moderately rigid. Tarsus decidedly shorter than middle toe (without claw), the upper third (more or less) feathered in front, the acrotarsium with a single series of large transverse scutella on the upper part (of unfeathered portion), the lower part with a double series of large hexagonal scales, the planta tarsi covered with small, rather indistinct hexagonal scales; toes slender, the middle one decidedly longer than tarsus (in ratio of 1.15 to 1.18 to 1), the lateral toes decidedly shorter, with claws falling short of base of middle claw, the outer toe slightly longer than the inner; hallux thicker than lateral toes, much longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage of head, neck, and under parts blended; bare orbital space very restricted, distinct only beneath eye, where narrow. Coloration plain brown above, the head, neck, and under parts lighter purplish brown or purplish drab; no white in plumage nor bluish gray on rump, axillars, or under wing-coverts.

*Range.*—Southeastern Mexico to the Guianas, Brazil, Bolivia, and Peru. (Seven or more forms.<sup>a</sup>)

KEY TO THE SPECIES AND SUBSPECIES OF *ŒNENAS*.<sup>b</sup>

a. Larger (wing 165 or more, averaging 170 or more).

b. Inner webs of remiges grayish brown, without cinnamomeous tinge; back, etc., grayish brown or olive-brown; under parts only faintly (sometimes not at all) vinaceous. (*Œnenas plumbea*.)

c. Back, etc., deep brownish gray; under parts lighter brownish gray, without vinaceous tinge; bill and feet larger; wing, 178; tail, 137.2; exposed culmen, 15.5; tarsus, 27.5; middle toe, 28.5.<sup>c</sup> (Southern Brazil; Paraguay.)

*Œnenas plumbea plumbea* (extralimital).<sup>d</sup>

<sup>a</sup> These include at least three species, but just how many can not be ascertained without study of much more ample material than I have been able to examine.

<sup>b</sup> The measurements given in this key are the *averages* of all the specimens of each form, irrespective of sex.

<sup>c</sup> Until this most puzzling group can be carefully studied from ample material it can not be stated with certainty how many definable forms there really are, nor how many specific types are represented. The arrangement here given can only be considered as an attempt to clear up, to some extent, the existing confusion, though conclusions based on inadequate material must, necessarily, be subject to future revision.

<sup>d</sup> *Columba plumbea* Vieillot, *Nouv. Dict. d'Hist. Nat.*, xxvi, 1818, 358 (Brazil); Salvadori, *Cat. Birds Brit. Mus.*, xxi, 1893, 323, part (in synonymy, and references pertaining to southern Brazilian localities).—*Columba plumbea plumbea* Hartert, *Novit. Zool.*, ix, Dec., 1902, 602, in text.—*Leptoptila plumbea* Reichenbach, *Av. Syst. Nat.*, 1852, p. xxv, fig. 1262.—*Chloroenas plumbea* Bonaparte, *Consp. Gen. Av.*, ii, 1857, 53 (Brazil).—*Chloroenas plumbea* Berlepsch, *Journ. für Orn.*, 1874, 241, part (Minas Geraes, Santa Ana dos Alegros, Paracutu, Rio Belmonte, etc., s. Brazil; synonymy; range; crit.).—*Lepidoenas plumbea* Schlegel, *Mus. Pays-Bas*, iv, no. 35 (Columbae), 1873, 70 (Brazil).

- cc. Back, etc., olivaceous grayish brown or chaetura drab; neck and under parts strongly tinged with vinaceous; bill and feet smaller.
- d. Back, etc., lighter olivaceous grayish brown (not darker than chaetura drab), the tail purplish grayish brown or bronzy grayish brown; under parts lighter.
- e. Darker.
- f. Head, neck, and under parts darker, more purplish, vinaceous; wing, 176.8; tail, 130.8; exposed culmen, 14.2; tarsus, 23.2; middle toe, 25.7. (Eastern Brazil, in Provinces of Bahia and Pernambuco, to British Guiana and eastern Peru.)

*Cænænas plumbea locutrix* (extralimital).<sup>a</sup>

- ff. Head, neck, and under parts lighter, more pinkish, vinaceous; wing, 180.4; tail, 139.4; exposed culmen, 15.3; tarsus, 22.6; middle toe, 25.6. (Northern Peru to Eastern Andes of Colombia.)

*Cænænas plumbea propinqua* (extralimital).<sup>b</sup>

- ee. Paler. (Western Brazil; Bolivia; southeastern Peru?).

*Cænænas plumbea pallescens* (extralimital).<sup>c</sup>

- dd. Back, etc., dark chaetura drab to dark fuscous, the tail nearly black; under parts darker; wing, 176.5; tail, 139.7; exposed culmen, 15.4; tarsus, 23.4; middle toe, 26.1. (Andes of northern Ecuador.)

*Cænænas plumbea chapmani* (extralimital).<sup>d</sup>

- bb. Inner webs of remiges more or less cinnamomeous or wood brown; head, neck, and under parts strongly vinaceous; back, etc., chestnut-brown; wing, 171.1; tail, 133.7; exposed culmen, 13.2; tarsus, 22.4; middle toe, 25.2. (Colombia to eastern Ecuador and Bolivia) . . . . . *Cænænas bogotensis* (extralimital).<sup>e</sup>

- aa. Smaller (wing less than 165, averaging very much less).

- b. Back, etc., decidedly brown or rufescent brown. (*Cænænas subvinacea*.)

- c. Back, etc., averaging more rufescent; size averaging larger; wing, 162.3; tail, 122.8; exposed culmen, 13.9; tarsus, 22; middle toe, 24.1. (Costa Rica and Panama) . . . . . *Cænænas subvinacea subvinacea* (p. 326).

<sup>a</sup> *Columba locutrix* Maximilian, Reis. Bras., ii, 1821, 118, 213 (Ilhéos, Prov. Bahia, e. Brazil; type now in coll. Am. Mus. N. H.); Temminck, Pl. Col., livr. 28, 1823, pl. 166 and text; Knip and Prévost, Fig., ii, 1838-43, 80, pl. 44; Allen, Bull. Am. Mus. N. H., ii, 1889, 290 (crit.).—*P[eristera] locutrix* Hartlaub, Syst. Verz., 1844, 99.—*Janthoenas locutrix* Reichenbach, Av. Syst. Nat., 1852, p. xxv, fig. 1271.—*Ch[loroenas] locutrix* Reichenbach, Vollst. Naturg., Columbariæ, i, 1861, 63 (Bahia); ii, 1862, 172, pl. 2, fig. 21.—*C[olumba] infuscata* Lichtenstein, Verz. Doubl. Berlin Mus., 1823, 66 (Bahia, e. Brazil; coll. Berlin Mus.).—*Macropygia infuscata* Swainson, Classif. Birds, ii, 1837, 349.—?*Chloroenas infuscata* Burmeister, Syst. Ueb. Th. Bras., iii, 1856, 292 (Novo Friburgo, s. Brazil).—(?)*Columba plumbea baeri* Hellmayr, Novit. Zool., xv, no. 1, June 25, 1908, 91 (Goyaz, e.-centr. Brazil; coll. Tring Mus.).

<sup>b</sup> *Columba plumbea propinqua* Cory, Pub. 182, Field Mus. N. H. (Orn. Ser., i, no. 8), Feb. 23, 1915, 205 (Moyabamba, n. e. Peru; coll. Field Mus. Nat. Hist.).

<sup>c</sup> *Columba plumbea pallescens* Sneath, Journ. für Orn., lviii, Heft 1, Jan., 1908, 22 (Bom Lugár, Rio Purús, w. Brazil; coll. Mus. Goeldi).—*[Columba] pallescens* Braubourne and Chubb, Birds South Am., i, Dec., 1912, 16.

I have not seen this form and therefore can not give its differential characters with more exactness.

<sup>d</sup> New subspecies. Type, no. 123812, coll. Am. Mus. Nat. Hist., adult male, Guala, Prov. Pichincha, n. Ecuador, June 23, 1913; W. B. Richardson, collector.

<sup>e</sup> *Columba plumbea* Vieil. "subsp. n. *bogotensis*" Berlepsch and Leverkühn, Ornith., vi, Heft 1, Jan. (?), 1890, 32 (Bogotá, Colombia; coll. Kiel Mus.).—*Columba plumbea bogotensis* Hartert, Novit. Zool., ix, Dec., 1902, 602 (Paramba, n. w. Ecuador; crit.).

- cc. Back, etc., duller (less rufescent) brown; averaging smaller.
- d. Larger; back, etc., more rufescent.
- e. Coloration slightly duller; wing and tail shorter; wing, 151.2; tail, 121.6; exposed culmen, 12.6; tarsus, 20.9; middle toe, 23.3. (Colombia and western Ecuador) . . . . . *Cœnenas subvinacea berlepschi* (extralimital).<sup>a</sup>
- cc. Coloration slightly brighter; wing and tail longer, bill shorter; wing, 160; tail, 127; exposed culmen, 11.5; tarsus, 20.5; middle toe, 24. (Western Venezuela) . . . . . *Cœnenas subvinacea zuliae* (extralimital).<sup>b</sup>
- dd. Smaller; back less rufescent; wing, 149; tail, 116.5; exposed culmen, 11.7; tarsus, 20.5; middle toe, 22.7. (Paria Peninsula, northeastern Venezuela.) . . . . . *Cœnenas subvinacea peninsularis* (extralimital).<sup>c</sup>
- bb. Back, etc., dark olive-brown or brownish-olive.
- c. Bill much thicker; hindneck more strongly vinaceous, in contrast with color of back; wing longer, tail shorter; wing, 158.8; tail, 111.7; exposed culmen, 13.6; tarsus, 20.8; middle toe, 23.7. (Southern Mexico to Panama.)  
*Cœnenas nigrirostris* (p. 328).
- cc. Bill much more slender; hindneck less strongly vinaceous in slight contrast with color of back; wing shorter, tail longer.
- d. Bill shorter and thicker; forehead less vinaceous; under parts of body paler; smaller; wing, 148.4; tail, 113.2; exposed culmen, 11.4; tarsus, 20.6; middle toe, 22.5. (Guianas; Venezuela; Curaçao?; eastern Ecuador?; northeastern Brazil?) . . . . . *Cœnenas purpureotincta* (p. 331).
- dd. Bill longer and more slender; forehead more vinaceous; under parts of body darker; larger; wing, 153; tail, 119; exposed culmen, 13; tarsus, 20; middle toe, 23.5. (Western Panamá.) . . . . *Cœnenas chiriquensis* (p. 332).

#### CŒNENAS SUBVINACEA SUBVINACEA (Lawrence).

##### RUDDY PIGEON.

*Adult male*.—Pileum between purple-drab and dark vinaceous-gray, passing into a more decidedly vinaceous or purplish hue on neck, this into bay or chocolate on upper back (sometimes whole back), scapulars, and lesser (sometimes also middle and greater) wing-coverts, the upper rump similar but usually slightly duller, the

<sup>a</sup> *Chlorœnas rufina* (not *Columba rufina* Temminck) Sclater, Proc. Zool. Soc. Lond., 1859, 147 (Pallatanga, w. Ecuador).—*Columba subvinacea* (not *Chlorœnas subvinacea* Lawrence) Sclater and Salvin, Proc. Zool. Soc. Lond., 1879, 543 (Remedios, Antioquia, Colombia); Berlepsch and Taczanowski, Proc. Zool. Soc. Lond., 1883, 574 (w. Ecuador); Taczanowski and Berlepsch, Proc. Zool. Soc. Lond., 1885, 123 (Guayaquil, Ecuador); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 326, part (Remedios, Colombia; Pallatanga, Monji, Balzar Mts., and Quito, Ecuador).—(??) *Chlorœnas vinacea* (not *Columba vinacea* Gmelin) Taczanowski, Proc. Zool. Soc. Lond., 1882, 48 (Huambo, n. e. Peru).—*Columba subvinacea berlepschi* Hartert, Novit. Zool., v, no. iv, Dec. 31, 1898, 504 (Paramba, n. w. Ecuador, 3,500 ft. alt.; coll. Tring Mus.); ix, 1902, 602 (Paramba, San Javier, and Pambilar, n. w. Ecuador, sea-level to 3,500 ft.).

<sup>b</sup> *Columba subvinacea zuliae* Cory, Pub. 182, Field Mus. N. H. (Orn. Ser., i, no. 8), Feb. 23, 1915, 295 (Orope, Zulia, v. Venezuela; coll. Field Mus. Nat. Hist.).

<sup>c</sup> *Columba subvinacea peninsularis* Chapman, Bull. Am. Mus. N. H., xxxiv, May 27, 1915, 366 (Cristobal Colon, Paria Peninsula, n. e. Venezuela; coll. Am. Mus. Nat. Hist.).

lower rump, upper tail-coverts, and tail burnt umber; secondaries similar in color to wing-coverts but slightly duller; primaries, primary coverts, and alulæ brownish dusky or dusky brown, the first usually narrowly edged, more or less distinctly, with light brownish; under parts vinaceous-drab, passing into vinaceous-buff or vinaceous-fawn on chin and upper throat; axillars and under wing-coverts brownish drab to deep cinnamon-drab, the under surface of remiges more decidedly cinnamon-drab passing into grayish dusky terminally; under surface of tail grayish brown (nearly benzo brown); bill, including cere and rictus, entirely black;<sup>a</sup> eyelids, legs, and feet deep lake red;<sup>a</sup> iris deep rose pink;<sup>a</sup> length (skins), 273-324 (306); wing, 151-169 (163.2); tail, 104-137 (124.8); culmen, 13-15.5 (14.2); tarsus, 19.5-23.5 (22.4); middle toe, 23-26 (24.6).<sup>b</sup>

*Adult female*.—Similar to the adult male but slightly duller in color, the chin and upper throat paler (sometimes buffy whitish), the under parts of the body less purplish or vinaceous (nearly army brown or deep fawn color); length (skins), 301-320 (307); wing, 160-163 (161.5); tail, 118-124.5 (120.9); culmen, 13.5-14 (13.7); tarsus, 21.5-22 (21.6); middle toe, 22.5-25 (23.7).<sup>c</sup>

*Young*.—Much duller in color than the adult female; upper parts browner, except hindneck, which, together with sides of neck, is brownish drab or grayish cinnamon-drab; wing-coverts and scapulars tipped or terminally margined with dull orange-cinnamon, the feathers of pileum, rump, and the upper tail-coverts similarly tipped with a rather deeper shade of the same, those of the under parts narrowly and indistinctly tipped with cinnamon.

Guatemala (Puerto Bárrios); Costa Rica (Guayabo; Bonilla; Coliblanco; Guácimo; Cachí; Turrialba; San Antonio; La Estrella

<sup>a</sup> Fresh colors of specimens killed by the author at Guayabo and Bonilla, Costa Rica.

<sup>b</sup> Thirteen specimens.

<sup>c</sup> Four specimens, from Costa Rica.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Costa Rica .....	161.8	123.3	14.1	22.1	24.4
Four adult males from western Panama .....	166.1	128.2	14.2	23.1	25.1
FEMALES.					
Four adult females from Costa Rica .....	161.5	120.9	13.7	21.6	23.7
One adult female from Ecuador (Bucay, Province of Guayas) = <i>E. s. berlepschi</i> .....	144	110.5	12	20	23

de Cartago; Azahár de Cartago; Naranjo de Cartago; Volcán de Irazú; San José; La Candelária; Sarchí de Grécia; Las Trojas; Barranca; Lagarto; Ujurrás de Terraba; Pozo del Pitál), and Panamá (Boquete; Volcán de Chiriquí; Calovévora; Punta de Sabana).

*Chloroenas subvinacea* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., ix, 1868, 135 (Dota, Costa Rica; coll. U. S. Nat. Mus.).—SALVIN, Ibis, 1869, 317 (crit.).—FRANTZIUS, Journ. für Orn., 1869, 371 (San Antonio, Costa Rica).—ROWLEY, Orn. Misc., iii, pt. xii, 1878, 75, pl. 91.—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.

*Columba subvinacea* SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Calovevora, w. Panama).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (La Candelaria, Costa Rica).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Las Trojas and Naranjo de Cartago, Costa Rica).—CHERRIE, Expl. Zool. Merid. C. R., 1893, 53 (Lagarto, s. w. Costa Rica); Expl. Zool. Rio Naranjo, 1893, 7 (Pozo del Pitál, s. w. Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 326, part (Barranca and San Jose, Costa Rica; Volcan de Chiriqui and Calovevora, Panama).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 23 (Boquete, 4,000 ft., w. Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 239, part (Dota Mts., San Jose, Barranca, San Antonio, Volcan de Irazu, La Candelaria, Las Trojas, Naranjo de Cartago, Azahar de Cartago, and Sarchi de Grecia, Costa Rica; Boquete, Volcan de Chiriqui, Calovevora, and Punta de Sabana, Panama).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 396 (Guayabo, Coliblanco, Bonilla, Las Trojas, Turrialba, Sarchi, La Estrella de Cartago, Azahar de Cartago, Guacimo, Cachi, and Ujurras de Terraba, Costa Rica).

[*Columba subvinacea* GRAY, Hand-list, ii, 1870, 235, no. 9278.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—SHARPE, Hand-list, i, 1899, 72, part.

### CENENAS NIGRIROSTRIS (Sclater).

#### SHORT-BILLED PIGEON.

*Adult male*.—Pileum purple-drab (usually somewhat darker and duller on occiput, lighter and more vinaceous on forehead), passing into deep livid brown or brighter purple-drab, very faintly glossed with purplish vinaceous, on nape and hindneck, and into lighter purple-drab or vinaceous-drab on sides of head and neck, the hindneck sometimes with a more or less distinct roundish subterminal spot of paler on both webs of each feather; rest of upper parts, including remiges and tail, deep brownish drab to brownish fuscous, the upper back (occasionally whole back and rump) sometimes much more brownish (natal brown or between this and olive-brown); under parts, including under tail-coverts, plain light vinaceous-drab or light brownish drab to pinkish cinnamon-drab or light purplish sorghum brown, the chin and upper throat usually somewhat paler; axillars and under wing-coverts light pinkish brown (nearly sorghum brown), the under surface of remiges nearly similar passing apically into dull brownish gray or dusky; bill and cere black, the rectus dull reddish;<sup>a</sup> eyelids lake red;<sup>a</sup> iris pink, vinaceous, or rose color;<sup>a</sup> legs and feet

<sup>a</sup> Fresh colors of specimens obtained by the author in Costa Rica.

lake red, the interspaces between scutella whitish;<sup>a</sup> length (skins), 267-312 (272); wing, 152-168 (160.8); tail, 105-122 (113.1); culmen, 12.5-14.5 (13.6); tarsus, 19-23 (21); middle toe, 22-25.5 (24).<sup>b</sup>

*Adult female*.—Similar to the adult male and apparently not always distinguishable, but smaller and usually slightly duller in coloration; length (skins), 264-293 (277); wing, 152-163 (156.9); tail, 104-113 (110.4); culmen, 12.5-15 (13.6); tarsus, 19.5-22 (20.7); middle toe, 22-25 (23.4).<sup>c</sup>

*Young*.—General color of head, neck, and under parts rusty brown (walnut brown on pileum, fading, through pecan brown or cacao brown on chest into dull orange-cinnamon or mikado brown on abdomen); otherwise much as in adults but wing-coverts narrowly margined terminally with rusty brown, and under tail-coverts rusty brown terminally.

<sup>a</sup> Fresh colors of specimens obtained by the author in Costa Rica.

<sup>b</sup> Thirty-four specimens.

<sup>c</sup> Fourteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Vera Cruz.....	161.2	118.7	13.8	21.7	24.7
One adult male from Guatemala.....	166.5	117	14	21	24
Four adult males from British Honduras.....	161.5	113	13.6	21	23.2
Two adult males from Honduras.....	161.7	116.5	14	20.5	23.7
Eight adult males from Nicaragua.....	160.1	110.4	13.6	21.2	24.2
Ten adult males from Costa Rica.....	161.3	114.5	13.7	20.6	24.3
Three adult males from western Panama.....	161	112.3	13.2	21.5	23.3
Three adult males from middle Panama (Canal Zone).....	157.5	106.8	12.8	20.7	23.8
FEMALES.					
One adult female from Vera Cruz.....	157	109	13.5	22	23.5
One adult female from Yucatan.....	159	112.5	15	21.5	22.5
One adult female from Guatemala.....	160	111	13.5	20.5	24
One adult female from British Honduras.....	155.5	107	13	22	23.5
One adult female from Honduras.....	154	113	12.5	20	23
Three adult females from Nicaragua.....	159.5	108	14.2	20.7	23.5
Four adult females from Costa Rica.....	156	113	13.5	20.2	23.2
Two adult females from middle Panama (Canal Zone).....	155	108.2	13.2	20.7	24

While it is true that there is a tendency among more southern examples of this species to a more brownish tone of coloration, the difference is far from being sufficiently constant to warrant their subspecific separation. The extremes of grayness and brownness are shown in specimens from Guayabo, Costa Rica, while the series from Nicaragua and Panama, respectively, show both styles of coloration.

Southeastern Mexico, in States of Vera Cruz (Buena Vista), Oaxaca (La Lana), and Yucatan (20 miles from Camp Mengel, Quintana Roo), and southward through Guatemala (Puerto Bárrios; Los Amates, Yzabál; Choctúm; Petén; Vera Paz), British Honduras (Belize; forest near Manatee Lagoon), Honduras (Rio Román; Rio Segóvia), Nicaragua (Colorado Junction; Rio Escondido; Rio Tuma; Rio Grande; Matagalpa; Uluce and Sabala, Matagalpa; Peña Blanca), and Costa Rica (Bonilla; Guayabo; Juan Viñas; Guayabál; Guápiles; Turrialba; Rio Reventazón; Rio Matina; Las Trojas; Naranjo de Cartago; Sarchí de Grécia; Talamanca; Sipúrio, Talamanca; Pigres; Pozo del Pital; El Pozo de Térraba; Paso Real de Térraba; Boruca) to Panamá (Boquete, Bugaba, and Divala, Chiriquí; Lion Hill and Rio Indio, Canal Zone).

*Columba nigrirostris* SCLATER, Proc. Zool. Soc. Lond., 1859, 390 (Oaxaca, s. Mexico; coll. P. L. Sclater).—SALVIN, Ibis, 1865, 195 (Guatemala).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 594 (Rio Segovia, Honduras; crit).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 322, part (s. Mexico; Choctum, Guatemala; near Belize, Brit. Honduras).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 239, part (La Lana, Oaxaca; tierra caliente de Vera Paz and Choctum, Guatemala; Belize, Brit. Honduras).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 79 (Puerto Barrios and Los Amates, Guatemala).

[*Columba*] *nigrirostris* GRAY, Hand-list, ii, 1870, 235, no. 9277.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—SHARPE, Hand-list, i, 1899, 72, part.

[*Columba*] *nigrirostris nigrirostris* CARRIKER, Ann. Carnegie Mus., vi, 1910, 395, 396, in text.

*Columba nigrirostris nigrirostris* PETERS, Auk, xxx, 1913, 372 (Camp Mengel, Quintana Roo).

[*Chloroenas*] *nigrirostris* REICHENBACH, Tauben, ii, 1862, 171.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 277 (Peten and Vera Paz, Guatemala).

*Chloroenas nigrirostris* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 78 (Guatemala).

*Columba vinacea* (not of Gmelin, 1789) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 333 (Isth. Panama).

*Columba nigrirostris* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 370 (Isth. Panama; crit.; note); 1867, 280 (Bluefields R., Nicaragua).—SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Bugaba, w. Panama; crit.).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Talamanca, Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 522 (Rio Escondido, Nicaragua; habits).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 322, part (Turrialba, Costa Rica; Bugaba and Lion Hill, Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 239 (Rio Escondido and Bluefields, Nicaragua; Turrialba, Talamanca, Rio Matina, Naranjo de Cartago, Las Trojas, Rio Reventazon, Pozo del Pital, Sipurio, Sarchi de Grecia, Juan Viñas, and Guayabal, Costa Rica; Divala, Bugaba, and Lion Hill, Panama).—BANGS, Auk, xxiv, 1907, 292 (Boruca, El Pozo, and Paso Real de Terraba, s. w. Costa Rica).—FERRY, Pub. 146, Field Mus. N. H., 1910, 261 (Guayabo, Costa Rica).

[*Columba*] *nigrirostris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—SHARPE, Hand-list, i, 1899, 72, part.—FORBES and ROBINSON, Bull. Liverpool Mus., ii, 1900, 134 (Panama).



- Chloroenas nigrirostris* LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 135 (Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).—SALVIN, Ibis, 1874, 455, in text (Guatemala).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.
- Columba nigrirostris brunneicauda* CARRIKER, Ann. Carnegie Mus., vi, Sept. 7, 1910, 395 (Guapiles, Costa Rica; coll. Carnegie Mus.).

**CENENAS PURPUREOTINCTA (Ridgway).**

**PURPLE-TINTED PIGEON.**

*Adult male*.—Pileum and hindneck deep purple-drab to dark vinaceous-drab, the sides of head and neck, together with foreneck and chest, similar but slightly lighter (purple-drab, sometimes tinged with deep or dark vinaceous-gray), passing on chin and upper throat into buffy pale vinaceous-drab, becoming slightly paler and more grayish posteriorly; back, scapulars, rump, upper tail-coverts, and wings plain dark olive-brown or clove brown (sometimes tinged with bister), the tail slightly darker and more bronzy or purplish brown, the primaries (especially distal portion of longer quills) narrowly edged with paler; axillars and under wing-coverts nearly similar in color to under parts, but more or less tinged with cinnamon; under surface (inner webs) of remiges dull wood brown passing into grayish brown distally; bill black; iris heliotrope purple;<sup>a</sup> eyelids burnt carmine;<sup>a</sup> legs and feet dark rose-purple or reddish rose-purple;<sup>a</sup> length (skins), 255–265 (258); wing, 146.5–149.5 (148.4); tail, 111–116 (113.2); exposed culmen, 11–11.5 (11.4); tarsus, 20–21.5 (20.6); middle toe, 21–23.5 (22.5).<sup>b</sup>

French Guiana (Cayenne);<sup>c</sup> Dutch Guiana (Carimang River); British Guiana (Demerara; Demerara River; Tumatumari, Potero River; Bartica Grove; Camacusa; Roraima; Ourumle) and Venezuela (Maipures; Rio Yuruán); island of Curaçao?;<sup>d</sup> eastern Ecuador;<sup>e</sup> upper Amazons;<sup>e</sup> northeastern Brazil (Rio Capim)?

(?) *C[olumba] cayennensis* BONNATERRE, Tabl. Enc. Méth., i, 1790, 234 (Cayenne; based on Holandre, Abrégé d'Hist. Nat., ii, 214).<sup>f</sup>

*Columba vinacea* (not of Gmelin, 1789)<sup>g</sup> TEMMINCK, Les Pigeons, i, fam. seconde, 1808–11, 87, pl. 41 (French Guiana); Hist. Nat. Fig. et Gallin., i, 1813, 303 (French Guiana).—STEPHENS, Shaw's Gen. Zool., xi, part i, 1819, 84 (Guiana).—SALVIN, Ibis, 1886, 173 (Roraima, Bartica Grove, and Camacusa, Brit. Guiana).—(?) GOELDI, Ibis, 1903, 499 (Rio Capim, n. e. Brazil).

<sup>a</sup> Four specimens; one of them (the type) not sexed, but the largest and brightest colored of all, and therefore almost certainly a male.

<sup>b</sup> According to George K. Cherrie (Hartert, Novit. Zool., ix, 1902, 117).

<sup>c</sup> According to Count von Berlepsch.

<sup>d</sup> Count von Berlepsch records "*Columba plumbea*" from Curaçao, which probably is this species.

<sup>e</sup> According to Hartert.

<sup>f</sup> This is undoubtedly one of the forms of this group, but which particular one it is impossible to decide from the description.

<sup>g</sup> = *Turtur vinaceus* (Gmelin) Gray.

- C[olumba] vinacea* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 477 (Guiana).—  
BONAPARTE, Compt. Rend., xxxix, 1854, 1109.
- P[eristera] vinacea* GRAY, Gen. Birds, ii, 1845, 476.—REICHENBACH, Syn. Av.  
Novit., Columbariae, 1851, fig. 3384 (error 3389).
- Tympanistria vinacea* REICHENBACH, Av. Syst. Nat., 1852, p. xxv.
- Chloroenas vinacea* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 292 (northern  
Brazil).—SCHLEGEL, Mus. Pays-Bas., iv, no. 35 (Columbae), 1873, 78, part  
("Amerique meridionale.")
- [*Chloroenas*] *vinacea* BONAPARTE, Cons. Av., ii, 1857, 53 (Guiana).
- Ch[loroenas] vinacea* REICHENBACH, Vollst. Naturg. Columbariae, i, 1861, 63, pl.  
257b, fig. 3384 (Guiana); ii, 1862, 172.
- Columba bicolor* (not of Scopoli, 1786 <sup>a</sup>) VIEILLOT, Nouv. Dict. d'Hist. Nat.,  
xxvi, 1818, 345 (French Guiana; new name for *C. vinacea* Temminck, pre-  
occupied?).
- Columba plumbea* (not of Vieillot, 1818) SALVIN, Ibis, 1886, 173 (British Guiana).—  
BERLEPSCH, Journ. für Orn., 1892, 103 (Curaçao).—PETERS, Journ. für Orn.,  
1892, 113, in text (Curaçao).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893,  
323, part (Rio Capim, n. e. Brazil?; Carimang River, Dutch Guiana; Cama-  
cusa, Roraima, Bartica Grove, and Ourumle, British Guiana).
- Columba purpureotincta* RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 38, Sept. 19,  
1888, 594, footnote (Demerara, British Guiana; coll. U. S. Nat. Mus.).—  
BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 117 (Maipures, Venezuela;  
e. Ecuador; upper Amazons; descr.; crit.).—BERLEPSCH, Novit. Zool., xv,  
1908, 295 (Cayenne).

### GENUS CHIRIQUENSIS Ridgway.

#### CHIRIQUÍ PIGEON.

Similar to *Æ. purpureotincta* but with longer bill, wing, and tail (the first relatively more slender), color of head and neck more vinaceous, and inner webs of remiges wholly grayish brown; similar also to *Æ. nigrirostris* but bill very much more slender, upper parts more purplish (less olivaceous) brown, inner webs of remiges without cinnamonaceous (woodbrown) tinge, and color of under parts darker.

*Adult (male?)*.—Forehead and anterior portion of crown between vinaceous-drab and brownish drab, passing into deep brownish drab on posterior part of crown, occiput, and hindneck, the latter transversely spotted (a pair of subterminal spots on each feather) with purplish vinaceous or light vinaceous-lilac;<sup>b</sup> rest of upper parts dark olive-brown or dark bistre, passing into more purplish brown (nearly light seal brown, somewhat tinged with bronzy) on rump, upper tail-coverts, and tail,<sup>c</sup> the primaries darker and more grayish brown; sides of head and neck, foreneck, and chest plain vinaceous-drab or deep brownish drab, passing into deep vinaceous-buff or avellaneous on chin and upper throat and into brownish drab on breast and more posterior under parts, the under tail-coverts dark vinaceous-drab,

<sup>a</sup> = *Myristicivora bicolor* (Scopoli) Bonaparte.

<sup>b</sup> These spots are probably not always present, as they are an inconstant feature in other forms of this genus.

<sup>c</sup> This purplish hue is more pronounced in freshly grown feathers, and a few such occur among the posterior scapulars and proximal greater wing-coverts.

tinged with brighter or clearer vinaceous-drab; axillars and under wing-coverts nearly concolor with breast, but slightly tinged with cinnamon; under surface (inner webs) of remiges grayish brown; bill black; legs and feet pale brownish (probably purplish red in life); length (skin), 272; wing, 153; tail, 119; exposed culmen, 13; tarsus, 20; middle toe, 23.5.<sup>a</sup>

Western Panamá (Chiriquí).

*Enenas chiriquensis* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, June 29, 1915, 139 (Chiriqui, Panama; coll. U. S. Nat. Mus.).

#### Genus ECTOPISTES Swainson.

*Ectopistes* SWAINSON, Zool. Journ., iii, 1827, 362. (Type, as fixed by Swainson, 1827, *Columba migratoria* Linnæus.)

*Trygon*<sup>b</sup> (not of Cuvier, 1817) BREHM, Handb. Naturg. Vög. Deutschl., 1831, 495. (Type, *Columba migratoria* Linnæus.)

Rather large arboreal pigeons (length about 300–460 mm.) with tail very long, graduated for more than half its length, the rectrices (twelve in number) narrowed terminally and obtusely pointed; wing long and pointed, the longest primaries exceeding distal secondaries by half the length of wing, the first and second primaries (from outside) longest; tarsus very slightly longer than middle toe (without claw), and sexes distinctly different in color of under parts.

Bill relatively small, the length of exposed culmen about equal to distance from its base to anterior angle of eye, or to length of lateral toes; greatest depth of bill equal to much less than one-third the length of exposed culmen, the maxillary unguis very slightly arched basally and the gonydeal angle not prominent; nasal operculi very tumid; frontal antia forming a minute double point, very slightly anterior to malar antia. Wing long and very pointed, the longest primaries exceeding distal secondaries by about half the length of wing, the first and second primaries (from outside) longest; outermost primary sinuated or slightly narrowed apically. Tail about as long as wing, graduated for more than half its length, the rectrices (twelve in number) becoming narrower terminally, especially the middle ones, which are obtusely pointed, the lateral ones becoming successively gradually broader at tip and less attenuated; the two middle pairs about equal in length. Tarsus slightly longer than middle toe (without claw), the extreme upper portion feathered in front, the acrotarsium with two longitudinal rows of large, partly transverse, partly hexagonal scutella, the planta tarsi covered with minute roundish or hexagonal, rather indistinct, scales; middle toe very slightly shorter than tarsus (the proportional length about 1 to 1.03); inner toe slightly longer than the outer, its claw reaching to beyond base of middle claw, that of the outer toe extending only to base of

<sup>a</sup> One specimen (the type).

<sup>b</sup> Τρυών, the turtle dove. (Richmond.)

middle claw; hallux rather slender, about as long (without claw) as basal phalanx and half of second phalanx of middle toe.

*Plumage and coloration.*—Plumage of head, neck, and under parts soft and blended; bare orbital space moderately extended beneath eye, narrow above. Adult male with head (except lower throat), hindneck, and rump bluish-gray, the under parts russet-vinaceous anteriorly passing through a lighter and more pinkish hue, into white posteriorly, the upper parts gray and grayish-brown, blotched with black on proximal wing-coverts, etc., the primaries edged with cinnamon; inner webs of lateral rectrices with a spot or bar of black preceded by another of cinnamon-rufous; sides of neck glossed with metallic bronzy purple; adult female with anterior under parts grayish-brown or drab, instead of vinaceous.

*Range.*—Deciduous forest region of eastern North America. (Monotypic; the single species now extinct.)

#### ECTOPISTES MIGRATORIUS (Linnæus).

##### PASSENGER PIGEON.

*Adult male.*—Head, including nape, plain bluish-gray (dark gull-gray to nearly slate-gray), paler on chin and upper throat; hindneck similar, but glossed, superficially, with golden or coppery bronze, the sides of neck brilliant golden-bronze changing to metallic purple-bronze; back slate-gray, more or less tinged with grayish-brown or olive-brown; scapulars and proximal secondaries grayish-brown (hair brown to light olive-brown), some of the former with a large oblong or elliptical black spot (mostly concealed) on outer web, the proximal posterior scapulars also with inner web more or less broadly edged with black; proximal wing-coverts similar in color to scapulars, but usually slightly (often distinctly) more grayish, passing on distal coverts into slate-gray, the proximal coverts sometimes with a few small elongated black spots or streaks; distal secondaries dull brownish black or dusky, usually narrowly edged terminally with paler; alulæ, primary coverts, and primaries dark grayish-brown or dusky, the last (except outermost) narrowly margined with dull whitish, the edgings on outer web growing much broader basally, and often vinaceous-tawny or orange-cinnamon, at least in part; lower back and upper rump clear bluish-gray (deep to dark gull-gray), passing into more brownish-gray on upper tail-coverts; middle pair of rectrices darker brownish-gray passing into dusky terminally; next pair with outer web light gray, inner web white, the next three pairs similar but with white of inner web passing into pale gray basally, the outermost with outer web white—all (except middle pair) with a sub-basal or post-median roundish black spot on inner web, preceded by a spot of cinnamon-rufous; lower throat, foreneck, chest, breast and sides plain russet-vinaceous or vinaceous-fawn color, passing into

white on abdomen, anal region, and under tail-coverts; axillars and proximal under wing-coverts clear light bluish-gray (gull-gray or light gull-gray), the distal under wing-coverts slate-gray; bill black; iris scarlet or scarlet-vermilion; bare orbital space livid flesh color; legs and feet lake-red, or pinkish-red;<sup>a</sup> length (skins), 361-459 (412); wing, 196.5-214.5 (204.9); tail, 173-211 (193.5); culmen, 15-18 (16.7); tarsus, 26-29 (27.4); middle toe, 26.5-29.5 (27.7).<sup>b</sup>

*Adult female*.—Distinctly duller in plumage than the adult male, the head more brownish-gray, the back, scapulars, and proximal secondaries more decidedly brownish, the scapulars and wing-coverts more numerous spots or more heavily spotted with black; the vinaceous-fawn color of the foreneck and rest of under parts replaced by light drab, passing into pale drab-gray on breast and sides, and metallic gloss of hindneck and sides of neck less brilliant; iris orange or orange-red; bare orbital space pale grayish-blue; legs and feet paler lake-red than in adult male; length (skins), 290-428 (352); wing, 175-210 (198.1); tail, 141.5-194.5 (176.6); culmen, 15-18.5 (16.9); tarsus, 25.5-28.5 (27.1); middle toe, 25-28.5 (26.6).<sup>c</sup>

<sup>a</sup> Fresh colors of specimens bought in Washington Market, Mar. 26, 1870.

<sup>b</sup> Twenty-three specimens.

<sup>c</sup> Seventeen specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from New Brunswick.....	206	193	16	28	27.5
One adult male from Maine.....	205.5	209.5	16.5	28.5	28.5
Two adult males from Massachusetts.....	206	199.7	16.7	28	26.5
Two adult males from New York.....	205.5	189	17.5	28.2	28.2
Two adult males from Pennsylvania.....	203.2	193.7	17.5	27.5	27
One adult male from Georgia.....	207	182	.....	28.5	28.5
Two adult males from Indiana.....	202.5	198.5	17.2	26.7	28
Five adult males from Wisconsin.....	209	187.5	16.8	28	27.9
Two adult males from Minnesota.....	201.5	199.5	16.2	28.2	27.5
Two adult males from Indian Territory.....	203.7	186.5	15	28.5	28.5
One adult male from Nebraska.....	201	202	17.5	26.5	27.5
One adult male from Montana? (Pack River).....	205	200	16.5	26.5	26.5
One adult male from "California".....	200	203	16.5	27.5	27.5
FEMALES.					
One adult female from northern Ontario (Moose Factory).....	193	172	17	26	25
One adult female from Quebec (Chambly).....	205	175	16	27.5	28.5
One adult female from New York.....	200	180.7	17	27.2	26.5
One adult female from New Jersey.....	210	194.5	16	27.5	25
One adult female from Pennsylvania.....	205.5	183	17.5	27	26.5
One adult female from Maryland.....	196	186	17	28.5	26.5
One adult female from District of Columbia.....	175	154.5	16.5	25.5	25.5
One adult female from North Carolina.....	195	168	16	27	27.5
One adult female from Kentucky.....	185	141.5	17.5	28.5	27
Two adult females from Indiana.....	205.1	177	17.2	28.2	27.7
One adult female from Michigan.....	197	181	18	27	26
Two adult females from Wisconsin.....	198.5	175	16	25.7	26
One adult female from Washington (Puget Sound).....	205	175	16	27.5	28.5

*Young (sexes alike).*—Somewhat like the adult female but scapulars, wing-coverts, and feathers of foreneck and chest tipped with dull whitish, and primaries broadly margined with cinnamon or avellaneus, the shorter quills with distal portion of outer webs almost wholly of this color; iris pinkish cream color or brownish with an outer ring of red; legs and feet pale pinkish brown to pale dull salmon-pink, the scutella more brownish.

Now extinct, the last living specimen having died in the Cincinnati Zoological Garden, September 1, 1914. Formerly perhaps the most numerous of all birds, inhabiting practically the whole forested area of eastern North America, breeding northward to middle western Mackenzie (Fort Norman), Keewatin (Severn River; Fort Churchill, prior to 1845), northern Ontario (Moose Factory), Quebec (Point de Monts; Chambly), northern Maine, New Brunswick, and Nova Scotia, southward to Kansas, northern Mississippi, Kentucky, and Pennsylvania; migrating southward to the Gulf coast (Florida to Texas), casually to Cuba (near Havana), eastern Mexico (Puebla; Jalapa and Orizaba, Vera Cruz), and Guatemala (near Guatemala City)?; westward, regularly, along the Missouri River to eastern Montana and to western Texas (Frio Canyon, Tom Green County, 1881), accidentally to Nevada (West Humboldt Mts., Sept. 10, 1867), Wyoming (Horseshoe Creek, 40 miles west of Laramie, Sept. 16, 1859), eastern Oregon (Pack River, June 17, 1861), western Washington (Puget Sound, June 29, 1859), and British Columbia. Accidental in British Islands (six records), France, Austria, Norway, Russia, and Bermudas.

[*Columba*] *macroura* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 164, part (as based on *Palumbus migratorius* Catesby, Nat. Hist. Carolina, i, 23, pl. 23).

*Ectopistes macrourus* BANGS, Proc. Biol. Soc. Wash., xix, Feb. 26, 1906, 44 (discussion of nomenclature on p. 43).

*Ectopistes macrura* COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, July 29, 1878, 628 (Pembina and Turtle Mt., North Dakota, May–July; Rocky Mts., lat. 49°, Aug. 23).

*E[ctopistes] macrura* JORDAN, Man. Vertebrates, 4th ed., 1884, 116.

[*Columba*] *canadensis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 284 (=female; based on *Turtur canadensis* Brisson, Orn., i, 118).—GMELIN, Syst. Nat., i, pt. 2, 1789, 785.—LATHAM, Index Orn., ii, 1790, 613.

*Columba canadensis* TEMMINCK, Cat. Syst., 1807, 141; Hist. Nat. Fig. et Gallin., i, 1813, 346.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 377.

*Ectopistes canadensis* COUES, Bull. Nutt. Orn. Club, v, April, 1880, 100, in text.

[*Columba*] *migratoria* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 285 (=adult male; Canada and South Carolina; based on *Palumbus migratorius* Catesby, Nat. Hist. Carolina, i, 23, pl. 23; etc.).—GMELIN, Syst. Nat., i, pt. 2, 1789, 789.—LATHAM, Index Orn., ii, 1790, 612.

*Columba migratoria* TEMMINCK and KNIP, Pigeons, i, fam. seconde, 1808–11, pls. 48, 49.—WILSON, Am. Orn., v, 1812, 102, pl. 44, fig. 1.—TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 346; Man. d'Orn., iv, 1840, 309.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 369.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 93.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 120.—AUDUBON,

Edinb. Journ. Sci., xii, 1831, 473; Orn. Biog., i, 1831, 319, pl. 62; v, 1839, 551.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 629; 2d ed., 1840, 761.—YARRELL, Hist. Brit. Birds, ii, 1843, 272 (Westhall, Fifeshire, Scotland, accidental).—CABANIS, Journ. für Orn., 1856, 112 (Cuba).—WILLIS, An. Rep. Smithson. Inst., 1858, 284 (Nova Scotia; "sometimes very abundant").

*Columba ... migratoria* FORSTER, Philos. Mag., lxii, 1772, 398 (Severn R., Keewatin).  
*C[olumba] migratoria* TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 486.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1825, 264 (Obs. Wilson's Am. Orn., 1826, 123).

*Ectopistes migratoria* SELBY, Nat. Libr., Pigeons, 1835, 177, pl. 19.—BONAPARTE, Geog. and Comp. List, 1838, 41.—AUDUBON, Synopsis, 1839, 194; Birds Am., oct. ed., v, 1842, 25, pl. 285.—JARDINE, Contr. Orn., 1848, 87 (Bermudas?).—HURDIS, Jardine's Contr. Orn., 1850, 37 (Bermudas, accidental).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 600; Cat. N. Am. Birds, 1859, no. 448.—GUNDLACH, Journ. für Orn., 1859, 348 (Havana, Cuba); 1861, 416 (Cuba); 1874, 300 (Cuba).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 218 (Fort Laramie, Wyoming; Milk R., Montana).—BLAKISTON, Ibis, 1862, 8 (int. Brit. America); 1863, 121 (Fort Carlton, Saskatchewan R.; Fort Norman, lat. 65° N., Mackenzie R.; flight).—VERRILL, Proc. Essex Inst., iii, 1862, 151 (Oxford Co., Maine, common summer res.).—LORD, Proc. Roy. Artil. Inst. Woolwich, iv, 1864, 122 (Brit. Columbia).—COOPER, Orn. Calif., 1870, 509 (Puget Sound).—RIDGWAY, Bull. Essex Inst., v, 1873, 178 (West Humboldt Mts., Nevada, 1 spec., Sept. 10, 1867); Orn. 40th Parallel, 1877, 596 (West Humboldt Mts.); Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am. Birds, 1881, no. 459.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 368.—COUES, Birds North-West, 1874, 387 (mouth of Big Sioux R.; above mouth of Little Yellowstone R.; Turtle Mt., Red R., etc., North Dakota; range; habits; synonymy).—GRINNELL (G. B.), in Ludlow's Rep. Recon., 1876, 83 (Missouri R., Montana, July).—SANCHEZ, Anal. Mus. Nac. Mexico, i, 1878, 104 (Valley of Mexico; Puebla; Jalapa; Orizaba).—MEARNS, Bull. Essex Inst., xii, 1881, 128 (Hudson Highlands, New York, resident).—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 174 (s. e. Texas; abundant in Sept. and Oct., 1881).—REID, Bull. U. S. Nat. Mus., no. 25, 1884, 224 (Bermudas, 2 specs., 1 on Oct. 24, 1863).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 245 (Moose Factory, n. Ontario, Aug. 16, 1860).

*E[ctopistes] migratoria* KEYSERLING and BLASIVS, Wirb. Eur., 1840, pp. lxii, 198.—RIDGWAY, Ann. Lyc. N. Y., x, 1874, 382 (Illinois).

*[Ectopistes] migratoria* BONAPARTE, Consp. Av., ii, 1857, 59.—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); Repert. Fisico-Nat. Cuba, i, 1866, 302 (Cuba).—CORY, List Birds West Ind., rev. ed., 1886, 24.

*E[ctopistes] migratorius* REICHENBACH, Volls. Naturg. Columbaria, i, 1861, 81, pl. 249, figs. 1377-1379.—GRAY, Gen. Birds, ii, 1844, 471.—MAXIMILIAN, Journ. für Orn., 1858, 423 (descr., habits, etc.).—COUES, Key N. Am. Birds, 2d ed., 1884, 566.—RIDGWAY, Man. N. Am. Birds, 1887 (and 2d ed., 1896), 212.

*Ectopistes migratorius* MARTENS, Journ. für Orn., 1859, 216 (Bermudas).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 291 (vic. New York City).—DEGLAND and GERBE, Orn. Europ., ii, 1867, 12.—COUES, Check List, 1873, no. 370; 2d ed., 1882, no. 543; Bull. Nutt. Orn. Club, v, 1880, 99 (crit. nomencl.).—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, iii, 1874, pl. 57, fig. 4.—d'HAMONVILLE, Ois. Europ., 1876, 42 (England; Norway; Russia).—DALGLEISH, Bull. Nutt. Orn. Club, v, 1880, 144 (6 British, 1 Norwegian, and 1

Austrian record).—THOMPSON (F. G.), Bull. Nutt. Orn. Club, vi, 1881, 122 (breeding in confinement).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 151 (Great Falls, New Brunswick, breeding).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 238 (Point de Monts, Quebec, rare visitant).—SAUNDERS, ed Yarell's Hist. Brit. Birds, iii, 1882, 26.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 315; 3rd ed., 1910, 148.—SETON, Auk, iii, 1886, 153 (Manitoba, common summer resid.).—CORY, Auk, iv, 1887, 113 (West Indian references and localities); Birds West Ind., 1889, 214; Cat. West Ind. Birds, 1892, 97 (Cuba).—LLOYD, Auk, iv, 1887, 187 (Frio Canyon, Tom Green Co., Texas; "immense roost" in winter of 1881).—BREWSTER, Auk, vi, 1889, 285-291 (habits and geog. range).—RIDGWAY, Orn. Illinois, i, 1889, 497.—CLARKE, Auk, vii, 1891, 322 (Fort Churchill, Kewatin, prior to 1845).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 522 (localities in Manitoba).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 132.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 369 (Fort Dufferin, Manitoba; District of Columbia; Lyons Falls, Adirondack Mts., and Big Otter Lake, New York; Grantville, Massachusetts; etc.).—GAULT, Auk, xii, 1895, 80 (breeding at Hickory, Aitkin Co., Minnesota, in 1894; last record for Glen Ellyn, Illinois, Sept. 4, 1892).—DEANE, Auk, xii, 1895, 298 (additional records for Illinois and Indiana); xiii, 1896, 81 (recent Illinois and Wisconsin records), 234 (habits in confinement); xiv, 1897, 316 (Oregon Co., s. Missouri, flock of 50 in 1896; headwater of Au Sable R., Michigan, a few nesting in 1896; e. Chippewa Co., Missouri, a few in 1896); xv, 1898, 184 (w. shore Lake Winnebago, Wisconsin, several flocks Aug. 14, 1897; near Lake Butte des Morts, Wisconsin, flock of 25 last of August, 1897; near Cook, Johnson Co., Nebraska, flock of 75-100 Aug. 17, 1897); xxv, 1908, 181-183 (habits, etc., in confinement).—DUNN, Auk, xii, 1895, 389 (Chicago, Illinois, 1 spec. Sept. 3, 1891; near Liverpool, Indiana, flock of 15 April 8, 1894, and 1 spec. March 14, 1894; Berrien Co., Michigan, flock of about 20, May 27, 1894).—CHAPMAN, Auk, xiii, 1896, 341 (Englewood, New Jersey, 1 spec. June 23, 1896).—HOLLISTER, Auk, xiii, 1896, 341 (Delavan Lake, s. Wisconsin, 1 spec. Sept. 8, 1896); Wilson Bull. no. 12, 1897, 4 (same occurrence).—BURNS, Wilson Bull., no. 12, 1897, 1 (Chester Co., Pennsylvania, none seen since previous to 1882); xii, 1910, 47-49 (status in e. Pennsylvania).—JOHNSON, Auk, xiv, 1897, 88 (Lewis Co., New York, flock of about 300, May 22, 1896).—JONES, Wilson Bull., no. 22, 1898, 61 (Lorain Co., Ohio, not recorded since about 1883).—ROADS, Auk, xvi, 1899, 310 (recent Pennsylvania records).—COBEAUX, Ottawa Nat., 1900, 27 (s. Saskatchewan, in migration).—BEYER, Proc. La. Soc. Nat. for 1897-99 (1900), 98 (Louisiana; formerly occasional visitant in severe winters).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 240 (Puebla, Jalapa, and Orizaba, Vera Cruz; near City of Guatemala?).—FLEMING, Auk, xx, 1903, 66 (recent records, chiefly Canadian).—WAYNE, Auk, xxiii, 1906, 61 (near Charleston, South Carolina, Nov. 21, 1885).—TAVERNER and SWALES, Wilson Bull., no. 60, 1907, 91 (Point Pelee, Ontario, extirpated about 1882).—McCONNELL, Wilson Bull., no. 65, 1908, 214 (great destruction by storm in n. Michigan; "thousands" near St. Clairsville, Belmont Co., Ohio, in Sept., 1898).—MACKAY, Auk, xxviii, 1911, 261 (status in e. Massachusetts in 1847 and 1848).—CRAIG, Auk, xxviii, 1911, 408-427 (expressions of emotion).—WRIGHT (A. H.), Auk, xxviii, 1911, 427-449 (early records).—HODGE, Auk, xxix, 1912, 169-175 (results of efforts to ascertain present existence of species).—PENNOCK, Auk, xxix, 1912, 238 (Herkimer Co., New York, breeding in 1878).—COOKE, Auk, xxix, 1912, 539 (near Q'u Appelle, Saskatchewan, July, 1859; near Lobstick R., Alberta, Aug. 22, 1859).—ALLEN (G. M.), Auk, xxx, 1913, 24 (Essex Co., Massachusetts, last seen in 1888).—HATHAWAY,



Auk, xxx, 1913, 553 (Rhode Island data; last seen in State Sept. 25, 1888).—SHUFELDT, Auk, xxxi, 1914, 358–362, pl. 34 (osteology).

[*Ectopistes*] *migratorius* GRAY, Hand-list, ii, 1870, 235, no. 9281.—COUES, Key N. Am. Birds, 1872, 226.—SHARPE, Hand-list, i, 1899, 76.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137 (Soldiers' Home, [District of] Columbia; Nebraska).—REICHENBACH, Syn. Av., Columbariae, 1847, figs. 1377–1379; Av. Syst. Nat., 1852, p. xxv; Tauben, i, 1862, 81, pl. 249, figs. 1377–1379; ii, 1862, 176.

[*Ectopistes migratorius*] WRIGHT (A. H.), Auk, xxviii, 1911, 346–366 (early records). *Columba (Ectopistes) migratoria* SWAINSON, Fauna Bor.-Am., ii, 1831, 363.

*Trygon migratoria* BREHM, Handb. Natürg. Vög. Deutschl., 1831, 495; Naumannia, 1855, 286; Vögel., 1855, 258.

*Turtur migratorius* SCHLEGEL, De Dierent., 1864, 305.

*Peristera migratoria* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 142 (Philadelphia; New Jersey; Rockport, Ohio; Wisconsin).

*Columba hystrio* MÜLLER, Syst. Nat. Suppl., 1776, 134 (new name for *C. migratoria* Linnæus).

*Columba ventralis* MÜLLER, Syst. Nat. Suppl., 1776, 134 (new name for *C. canadensis* Linnæus).

*Trygon gregaria* BREHM, Naumannia, 1855, 286; Vögel., 1855, 258.

#### Genus ZENAIDURA Bonaparte.

*Zenaidura* BONAPARTE, Comptes Rendus, xl, Jan., 1855, 96. (Type, by original designation, *Columba carolinensis* Linnæus.)

*Zenaidura* (emendation) COUES, Key N. Am. Birds, 1872, 226.

*Perissura* <sup>a</sup> CABANIS, Journ. für Orn., 1856, 111, 112. (New name to replace *Zenaidura* Bonaparte, on grounds of purism.)

Rather small arboreal pigeons (length about 235–340 mm.) with tail less than three-fourths as long as wing (in *Z. yucatanensis*) to as long as or longer than wing (in *Z. macroura*), strongly graduated, consisting of fourteen relatively narrow and tapering rectrices; tarsus not longer (sometimes slightly shorter) than middle toe (without claw); second or second and third primaries (from outside) longest, the first (outermost) longer than fifth, sometimes equal to third; a small black subauricular spot, black spots on proximal secondaries, and a black bar across middle portion of lateral rectrices.

Bill small and slender, the length of exposed culmen about equal to that of outer toe (without claw) and about four times the greatest depth of bill, the maxillary unguis very slightly arched, the gonydeal angle not prominent; frontal feathering forming an obtuse angle (antia) little in advance of nasal operculum, the malar antia extending slightly farther, the mental antia falling slightly short of anterior end of nasal operculi, the latter moderately broad and tumid. Wing rather long, pointed, the longest primaries exceeding distal secondaries by about half the length of wing; second or second and third primaries (from outside) longest, the first (outermost) longer than fifth, sometimes equal to third. Tail more than two-thirds (nearly three-fourths) as long as wing to a little longer than wing, graduated

<sup>a</sup> "Von *περισσός* übertviel, über das gewöhnliche Maass hinaus." (Cabanis.)

from about one-third to one-half its length, the fourteen rectrices becoming narrower distally, the middle ones, at least, obtusely pointed. Tarsus equal to or slightly longer than middle toe without claw (the proportion being 1 to 1 to 88 to 1), the upper portion (including tibio-tarsal joint) entirely bare, the acrotarsium covered by a single row of broad transverse scutella, the planta tarsi with small hexagonal scales; lateral toes decidedly shorter than middle toe, the claw of the inner reaching about to base of middle claw, the outer toe a little shorter; hallux (without claw) about as long as basal phalanx and half of second phalanx of middle toe.

*Plumage and coloration.*—Plumage of head, neck, and under parts soft and blended; bare orbital space moderate, broadest beneath eyes. Coloration plain, the proximal secondaries (sometimes adjacent wing-coverts and scapulars also) spotted with black; rectrices (except middle pair) with a black band across post-median portion, the apical portion paler gray than basal portion, sometimes white; a small black subauricular spot; adult males with head, neck, and anterior under parts more or less vinaceous and sides of neck glossed with metallic purple.

*Range.*—Temperate and tropical North America, including West Indies. (Three, possibly four, species.)

KEY TO THE SPECIES AND SUBSPECIES OF ZENAIDURA.

- a. Secondaries not tipped with white.
- b. Tarsus less than 24 mm.; under parts not darker nor more reddish than vinaceous-fawn color, fading into pinkish buff to buffy white on under tail-coverts; apical portion of lateral rectrices white. (*Zenaidura macroura*.)
- c. Smaller (wing averaging less than 141 in males, less than 133 in females; tail averaging less than 124 in males, less than 112 in females); coloration deeper (chest vinaceous-fawn color in adult males), the upper parts browner.
- d. Bill and feet smaller (culmen averaging 13.3 in male, 12.7 in female; tarsus averaging 19.9 in male, 19.6 in female; middle toe averaging 19.9 in male, 19.2 in female); occiput and hindneck less extensively bluish gray in male. (Cuba; Isle of Pines; Haiti; Jamaica.)

*Zenaidura macroura macroura* (p. 341.)

- dd. Bill and feet larger (culmen averaging 16.4 in male, 15.4 in female; tarsus averaging 22.6 in male, 21.4 in female; middle toe averaging 22.6 in male, 22.1 in female); occiput and hindneck more extensively bluish gray in male. (Clarion Island, Western Mexico.)

*Zenaidura macroura clarionensis* (p. 344.)

- cc. Larger (wing averaging more than 146 in males, more than 139 in females; tail averaging more than 138 in males, more than 120 in females); coloration paler (chest light vinaceous-fawn color in adult males), the upper parts less brownish.
- d. Color of forehead and superciliary region (in adult male) not conspicuously darker than that of chest.
- e. Coloration averaging slightly darker, with upper parts browner; averaging slightly smaller (wing averaging 147.2 in male, 139.6 in female). (Humid region of eastern North America.)

*Zenaidura macroura carolinensis* (p. 345.)

- ee. Coloration averaging slightly paler, with upper parts more grayish; averaging slightly larger (wing averaging 149.4 in male, 142.3 in female). (Arid region of western North America, northward in the interior to Mackenzie.).....*Zenaidura macroura marginella* (p. 347).
- dd. Color of forehead and superciliary region (in adult male) conspicuously darker than that of chest (forehead, etc., bright fawn color or sayal brown, chest light vinaceous-fawn color). (Tres Marias Islands, western Mexico.)  
*Zenaidura macroura tresmariae* (p. 351).
- bb. Tarsus 27 mm. or more; under parts, including under tail-coverts, bright mikado brown or deep orange-cinnamon; distal portion of lateral rectrices gray. (Socorro Island, western Mexico.).....*Zenaidura graysoni* (p. 352).
- aa. Secondaries broadly tipped with white. (Yucatan.)  
*Zenaidura yucatanensis* (p. 353).

### ZENAIDURA MACROURA MACROURA (Linnæus).

#### CUBAN MOURNING DOVE.

*Adult male*.—Forehead and superciliary region fawn color to deep avellaneous, usually paler on anterior portion of forehead, passing into dull slate-gray, neutral gray, or mouse gray on occiput (more or less extensively);<sup>a</sup> hindneck brownish gray or grayish brown (nearly hair brown), the lateral portions (sometimes also lower posterior portion) highly glossed with metallic purple (bronzy light rosolane purple) or purplish bronze; back, scapulars, upper tail-coverts, wing-coverts, and proximal secondaries grayish brown (deep drab to deep buffy brown), the rump similar but usually grayer, passing into slate-grayish laterally; proximal secondaries, usually also proximal greater coverts, with a greater or less number of rather large subquadrate and roundish black spots; distal secondaries, primaries, primary coverts, and alulæ neutral gray to deep neutral gray, the primaries narrowly edged with white, these edgings broader on outermost quills; middle pair of rectrices similar in color to back, etc., but usually rather grayer, sometimes darkening terminally; next pair grayer (sometimes nearly pure neutral gray or slate-gray), with a more or less distinct (usually oblique) dusky bar across middle portion of inner web; third pair similar but with the dusky (or black) bar more distinct, extending across more or less of outer web (the bar more or less  $\Lambda$ -shaped), and the apical portion of the feather paler gray; fourth and fifth pairs with the black bar broader, extending entirely across both webs, and with the gray of apical portion passing into grayish white terminally; sixth pair similar to fifth but apical portion mostly white; seventh (outermost) pair similar but with outer web entirely white; general color of underparts vinaceous-fawn color, deeper (sometimes nearly fawn color) on foreneck and chest, becoming much paler (deep pinkish buff to pale buff) on chin and upper throat, posteriorly passing, through light pinkish cinnamon on abdomen

<sup>a</sup> Sometimes this gray color invades the posterior portion of the crown and upper nape.

and pinkish buff on anal region to cartridge buff on longer under tail-coverts; sides of head similar in color to forehead and superciliary region but sometimes slightly paler, relieved by a small spot of black, glossed with blue, immediately beneath posterior end of auricular region; sides and flanks (underneath wings), axillars, and under wing-coverts clear bluish gray (between gull gray and light gull gray); bill black, the rictus lake red (in life), the tumid nasal valves somewhat glaucous; iris dark brown; base orbital space pale blue, tinged above eye with pale green; legs and feet lake red; length (skins), 259-298 (287); wing, 129.5-142 (135.7); tail, 112.5-133.5 (123); exposed culmen, 12.5-15 (13.3); tarsus, 18.5-21.5 (19.9); middle toe, 18.5-21.5 (19.9).<sup>a</sup>

*Adult male in winter.*—Similar to the summer plumage but gray of occiput and hindneck obscured or even replaced by a superficial wash of olive-brown, the color of chest, etc., less vinaceous, inclining more to fawn color.

*Adult female.*—Similar to the adult male but coloration duller; less vinaceous below, where passing into or tinged with light drab on foreneck and chest; black spots on proximal secondaries and wing-coverts larger and more numerous, the outermost scapulars sometimes with a few black spots or broad streaks; metallic gloss on sides of neck more restricted and less brilliant, and black subauricular spot smaller and without blue gloss; length (skins), 233-286 (251); wing, 128-133 (129.9); tail, 96-110.5 (104.1); exposed culmen, 12-13.5 (12.7); tarsus, 19-21 (19.6); middle toe, 17.5-20.5 (19.2).<sup>b</sup>

<sup>a</sup> Nineteen specimens.

<sup>b</sup> Twelve specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Eight adult males from Cuba.....	135.3	121.1	13.1	19.8	20.4
Nine adult males from Isle of Pines.....	135.1	123.5	13.5	20	19.4
Two adult males from Haiti.....	140.2	128	13.5	20.5	20.2
Ten adult males of <i>Z. m. clarionensis</i> .....	140.6	120.7	16.4	22.6	22.6
Twenty-four adult males of <i>Z. m. carolinensis</i> .....	147.2	142.3	13.6	20.6	20.5
Twenty-nine adult males of <i>Z. m. marginella</i> .....	149.4	138.4	13.7	20	20.2
One adult male of <i>Z. m. tresmariz</i> .....	144	126	14	19.5	20.5
One adult male of <i>Z. graysoni</i> .....	156	135	16	27.5	26
One adult male of <i>Z. yucatanensis</i> .....	152	108.5	15	22.5	20
FEMALES.					
Eight adult females from Cuba.....	130.1	102.8	12.7	19.7	19.1
Four adult females from Isle of Pines.....	129.5	106.5	12.6	19.4	19.4
Eight adult females of <i>Z. m. clarionensis</i> .....	132.9	111.6	15.4	21.4	22.1
Fifteen adult females of <i>Z. m. carolinensis</i> .....	139.6	120.4	13	19.6	19.7
Ten adult females of <i>Z. m. marginella</i> .....	143.2	127.3	13.8	19.2	19.3
Two adult females of <i>Z. graysoni</i> .....	148	125.7	16.2	27	24.2

*Young*.—Much duller in coloration than the adult female, the general color more grayish brown (paler and more buffy brown below), the feathers of foreneck and chest, as well as the scapulars (sometimes interscapulars also) and wing-coverts margined terminally (more or less distinctly) with paler; no black subauricular spot; remiges and rectrices much as in adult female, but the former more brownish and distinctly though narrowly edged terminally with paler.

Greater Antilles: Cuba (Banca; Holguín; Trinidad; Remédios; Nipe Bay; Nueva Sofia; Guamá; El Guamá; Mariél; Aguada de Vasajeros; Bayata; San Cristóbal; Guanajáy; Figuabas); Isle of Pines (Nueva Gerona; Bocarona; Hospital; Los Indios; Rio Santiago; Bibijagua); Haiti (Le Coup and Gautier, Haiti; La Vega and Rio Camoa, Santo Domingo); Jamaica (Spanishtown); Porto Rico? Also occurring, in winter, along the coast of Central America, from British Honduras (Toledo District, Oct. 17) to Panamá (Dívala, Nov. 11, 16; Verágua, date not recorded).

[*Columba macroura* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 164, part (based on *Long-tailed Dove*, *Columba macroura* Edwards, Nat. Hist. Birds, i, 15, pl. 15; and *Palumbus migratorius* Catesby, Nat. Hist. Carolina, i, 23, pl. 23, the latter = *Ectopistes migratorius*).

*Zenaidura macroura* RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 355, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 316, part.—CORY, Auk, iv, 1887, 112 (West Ind. references; descr.; range); Birds West Ind., 1889, 213; Cat. West Ind. Birds, 1892, 97, part (Cuba; Isle of Pines; Haiti; "Porto Rico").—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 291 (near Trinidad, s. Cuba, breeding; habits; crit.).—MENEGAUX, Rev. Franç. Orn., no. 2, 1909, 31 (Figuabas, e. Cuba).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (La Vega, Santo Domingo).

[*Zenaidura macroura* RIDGWAY, Man. N. Am. Birds, 1887, 213, part.

*Zenaidura macroura macroura* AMERICAN ORNITHOLOGISTS' UNION, Check List, 3d ed., 1910, 148 (extralimital).

[*Columba carolinensis* (not of Linnæus) LATHAM, Index Orn., i, 1790, 613, part.

*Columba carolinensis* D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 176 (large ed., p. 129).—BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 96 (Santo Domingo).—SUNDEVALL, Öfv. K. Vet.-Ak. Förh., 1869, 601 ("Porto Rico").

*Zenaidura carolinensis* SALLÉ, Proc. Zool. Soc. Lond., 1857, 235 (Santo Domingo).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 604, part (Cuba).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 383, part (West Indies).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 154 (Gautier, Haiti), Birds Haiti and San Dom., 1885, 129 (Le Coup, Haiti).—MAYNARD, Birds E. N. Am., 1881, 338, part (Haiti).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 374, part (San Cristobal, Cuba; Haiti).—CHRISTY, Ibis, 1897, 335 (Rio Camoa, near La Vega, Santo Domingo).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 242, part (Cuba; Haiti).

[*Zenaidura carolinensis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—CORY, List Birds West Ind., rev. ed., 1886, 23 (Cuba; Santo Domingo; "Porto Rico").—SHARPE, Hand-list, i, 1899, 76, part.

- Zenaidura carolinensis* COUES, Birds North-West, 1874, 389, part (in synonymy).  
*Perissura carolinensis* CABANIS, Journ. für Orn., 1856, 111 (Cuba; habits).—GUNDLACH, Journ. für Orn., 1874, 298 (Cuba; habits).  
 [*Perissura*] *carolinensis* GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); Repert. Fisico-Nat. Cuba, i, 1865, 301.  
 [*Columba*] *marginata* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 286 (America; founded on *Columba cauda longa* Edwards, Av., 15, pl. 15, and *Turtur americanus* BRISS, Orn., i, 102).—GMELIN, Syst. Nat., i, pt. 2, 1789, 791.—LATHAM, Index Orn., ii, 1790, 614.  
*Columba marginata* BONNATERRE, Tabl. Enc. Méth., Orn., i, 1790, 256.—VIELLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 386.  
*E[ctopistes] marginatus* GRAY, Gen. Birds, ii, 1844, 471.—HARTLAUB, Syst. Verz., 1844, 98.—REICHENBACH, Syn. Av., 1847, figs. 1380-1382; Av. Syst. Nat., 1852, p. xxv.  
*[Ectopistes] marginata* GRAY, Hand-list, ii, 1870, 236, no. 9282.  
*Zenaidura carolinensis marginata* BANGS, Proc. Biol. Soc. Wash., xix, Feb. 26, 1906, 44 (crit. nomencl. on p. 43).  
*Zenaidura macroura bella* PALMER and RILEY, Proc. Biol. Soc. Wash., xv, March 5, 1902, 33 (Mariel, Cuba; coll. U. S. Nat. Mus.).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 197 (Isle of Pines, resident).

### ZENAIIDURA MACROURA CLARIONENSIS (Townsend).

#### CLARION ISLAND MOURNING DOVE.

Very similar in coloration to *Z. m. macroura*, but bill and feet much larger; coloration more uniform, the upper parts browner, gray of sides and flanks more restricted, and adult male with bluish gray of hindneck and occiput more extended.

*Adult male*.—Length (skins), 248-308 (282); wing, 136-145.6 (140.6); tail, 96-130 (120.7); exposed culmen, 15-18.5 (16.4); tarsus, 21.5-23.5 (22.6); middle toe, 21.5-23.5 (22.6).<sup>a</sup>

*Adult female*.—Length (skins), 257-283 (272); wing, 131-137 (132.9); tail, 103-119.5 (111.6); exposed culmen, 14.5-16 (15.4); tarsus, 20-23 (21.4); middle toe, 21.5-22.5 (22.1).<sup>b</sup>

Clarion Island, Revillagigedo group, western Mexico.

*Zenaidura clarionensis* TOWNSEND, Proc. U. S. Nat. Mus., xiii, Sept. 9, 1890, 133 (Clarion Island, Revillagigedo group, w. Mexico; coll. U. S. Nat. Mus.).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 378.—ANTHONY, Auk, xv, 1898, 318.—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 87, 105.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 244.

[*Zenaidura*] *clarionensis* SHARPE, Hand-list, i, 1899, 76.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137.

<sup>a</sup> Ten specimens.

<sup>b</sup> Eight specimens.

## ZENAIURA MACROURA CAROLINENSIS (Linnæus).

## MOURNING DOVE.

Similar to *Z. m. macroura*, but decidedly larger; upper parts averaging less brownish, the under parts paler (less deeply vinaceous), especially posteriorly, the under tail-coverts often nearly white.

*Adult male*.—Length (skins), 271–341 (321); wing, 138–153 (147.2); tail, 120–162.5 (142.3); exposed culmen, 13–15 (13.6); tarsus, 19.5–22 (20.6); middle toe, 19–22.5 (20.5).<sup>a</sup>

*Adult female*.—Length (skins), 225–297 (273); wing, 135–146 (139.6); tail, 96.5–137 (120.4); exposed culmen, 12–14 (13); tarsus, 19–21 (19.6); middle toe, 18.5–21 (19.7).<sup>b</sup>

Eastern North America, chiefly in Sonoran and Lower Transition life-zones; breeding northward to New Brunswick (Hampton; Milkish; Glenwood, St. Johns Valley; Frederickton), Nova Scotia, southern Maine, Ontario (Hamilton; Point Pelee), Michigan (Mason Crawford, Alcona, and Oscoda counties), Wisconsin, and eastern Minnesota, westward to the edge of the Great Plains, and southward to the Gulf coast and Bahamas (New Providence, Abaco, Andros,

<sup>a</sup> Twenty-four specimens.

<sup>b</sup> Fifteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Five adult males from Bahamas.....	145.4	132.6	14.1	21	19.9
Two adult males from Florida.....	148.7	134.2	14	20	21
Three adult males from South Carolina.....	148.3	156.7	14	21	20.7
One adult male from Tennessee.....	151	147	13.5	20	21
Two adult males from Virginia.....	141.5	139.2	13.2	20.5	19.7
Three adult males from Maryland.....	148.7	146.8	13	20.3	21
Five adult males from District of Columbia.....	148	146	13.5	20.7	20.8
Two adult males from Pennsylvania.....	148	143.5	13.2	20	20.2
One adult male from Illinois.....	146	133	14	20	20.5
FEMALES.					
Two adult females from Bahamas.....	142.5	105.2	13	20.2	19.2
Two adult females from Florida.....	137.5	113.5	13	19.2	19.5
Two adult females from South Carolina.....	141	119.2	13.5	19.5	19.7
One adult female from Virginia.....	146	136.5	13	20.5	21
One adult female from Maryland.....	137	126.5	13	19.5	19.5
One adult female from New Jersey.....	135.5	116.5	.....	20	19.5
Two adult females from Indiana.....	138.5	123.5	12.5	19.7	.....
One adult female from Illinois.....	139	121.5	12	19	20
Two adult females from Minnesota.....	138.5	129	13.5	19.2	19.2
One adult female from Missouri.....	144	124	13	19.5	20

Great Bahama, Long, Little Exuma, and Eleuthera islands); occasional in the Bermudas, straggling to Quebec (Godbout) and accidental on coast of Labrador (Red Bay, 1 spec., Sept. 7, 1891). Resident, regularly, from Potomac and Ohio Valleys southward, occasionally farther northward, but partially migratory beyond United States, occurring occasionally during winter along the Gulf and Caribbean coasts of Mexico and Central America, in Tamaulipas (Galindo, Oct. 1), Vera Cruz (Miradór, Oct.; Orizaba; Jalapa), Chiapas (Gineta Mts., Jan.), and Panamá (Dívala, Nov. 26).

[*Columba carolinensis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 286 (Carolina; based on *Turtur carolinensis* Catesby, Car., i, 24, pl. 24).—GMELIN, Syst. Nat., i, pt. 2, 1789, 789.—LATHAM, Index Orn., ii, 1790, 613, part.

*Columba carolinensis* TEMMINCK, Cat. Syst., 1807, 141; in Temminck and Knip, Pigeons, i, fam. seconde, 1808-11, pl. 50; Fig. et Gallin., i, 1813, 355, 487.—WILSON, Am. Orn., v, 1812, 91, pl. 43, fig. 1.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 96.—BONAPARTE, Ann. Lyc. N. Y., ii, 1826, 119.—DESMAREST, Dict. Sci. Nat., xl, 1826, 358.—LESSON, Traité d'Orn., 1831, 474.—AUDUBON, Orn. Biog., i, 1831, 91, pl. 17; v, 1839, 555.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 626; 2d ed., 1840, 758.

[*Columba carolinensis* BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1825, 264; Obs. Wilson's Am. Orn., 1826 [124].—MAXIMILIAN, Journ. für Orn., 1858, 425 (Wabash R., Indiana; Cannon Ball R., N. Dakota).

*Ectopistes carolinensis* BONAPARTE, Geog. and Comp. List, 1838, 41.—AUDUBON, Synopsis, 1839, 195; Birds Am., oct. ed., v, 1842, 36, pl. 286.—MARTENS, Journ. für Orn., 1859, 216 (Bermudas).

[*Zenaidura carolinensis* BONAPARTE, Consp., Av., ii, 1857, 84.—SHARPE, Handlist, i, 1899, 76, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137, part (Cleveland, Ohio).

*Zenaidura carolinensis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 604, part (eastern localities); Cat. N. Am. Birds, 1859, no. 451, part.—REICHENBACH, Tauben, i, 1862, 19, pl. 249, figs. 1380-1382.—BOARDMAN, Proc. Bost. Soc. N. H., ix, 1862, 127 (Maine).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 291 (vic. New York City).—MCILWRAITH, Proc. Essex Inst., v, 1866, 91 (Hamilton, Ontario).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 383, part, pl. 58, fig. 2.—BREWSTER, Ann. Lyc. N. Y., xi, 1875, 145 (Ritchie Co., West Virginia; habits).—LAWRENCE, Bull. U. S. Nat. Mus., iv, 1876, 44 (Gineta Mts., Chiapas, Jan.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 460, part.—MAYNARD, Birds E. N. Am., 1881, 338, part.—COUES, Check List, 2d ed., 1882, no. 544, part.—CHAMBERLAIN, Bull. Nutt. Orn. Club, vii, 1882, 105 (Hampton, New Brunswick, June, 1880; Rothesay, New Brunswick, Sept. 30, 1881; Milkish, New Brunswick, Oct. 17, 1881).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 238 (Godbout, Quebec, Oct. 10, 1881, and June 6, 1882).—REID, Bull. U. S. Nat. Mus., no. 25, 1884, 225 (Bermudas, several occurrences).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 374, part (East Hampton, Massachusetts; New Haven, Connecticut; Waukegan, Illinois; District of Columbia; Aiken, South Carolina; Melbourne, Florida).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 242, part (Gineta Mts., Chiapas).—TAVERNER and SWALES, Wilson Bull., no. 60, 1907, 9 (Point Pelee, Ontario, sometimes wintering).



- Z[enaidura] carolinensis* RIDGWAY, Ann. Lyc. N. Y., x, 1874, 382 (Illinois).—COUES, Key N. Am. Birds, 2d ed., 1884, 568, part.
- Zenaidura carolinensis carolinensis* BANGS, Proc. Biol. Soc., Wash., xix, Feb. 26, 1906, 44 (crit. nomencl. on p. 43).
- Zenaidura macroura carolinensis* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxv, July, 1908, 368; Check List, 3rd ed., 1910, 148 part.—CHANEY, Auk, xxvii, 1910, 273 (Mason Co., Michigan, breeding).—TOWNSEND (C. W.), Auk, xxix, 1912, 19 (Glenwood, St. Johns Valley, New Brunswick; 1 pair breeding).
- [*Zenædura*] *carolinensis* COUES, Key N. Am. Birds, 1872, 226, part.
- Zenædura carolinensis* VERRILL, Proc. Essex Inst., iii, 1862, 157 (s. Maine; breeding?).—COUES, Check List, 1873, no. 371, part; Birds North-West, 1874, 389, part.—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 37 (lower Hudson Valley, New York; rare winter resident); Bull. Essex Inst., xii, 1881, 128 (Hudson Highlands, resident).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880 (Cat. N. Am. Birds), 195, part.
- Trygon carolinensis* BREHM, Vogelf., 1855, 258.
- Peristera carolinensis* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 142 (Carolina; Rockport, Ohio; Wisconsin).
- Turtur carolinensis* SCHLEGEL, De Dierent., 1864, 206.
- Ectpiestes [lapsus] carolinus* WILLIS, An. Rep. Smithson. Inst. for 1858 (1859), 284 (Nova Scotia).
- Chamaepelia carolinensis* GIEBEL, Thes. Orn., i, 1872, 633.
- Zenaidura macroura* (not *Columba macroura* Linnæus) RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 355; Orn. Illinois, i, 1889, 499.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 316, part.—CORY, Auk, viii, 1891, 350 (Abaco I., Bahamas); Cat. West Ind. Birds, 1892, 97, part (Abaco and Eleuthera islands, Bahamas).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 523 (Winnipeg, Portage la Prairie, and Qu' Appelle, Manitoba, breeding).—MACKAY, Auk, xiv, 1897, 228 (Nantucket, Massachusetts; 3 specs.).—MOORE, Auk, xvii, 1900, 177 (Fredericton, New Brunswick, Oct. 14, 1899).—NORTON, Proc. Portl. Soc. N. H., ii, 1901, 152 (Red Bay, Labrador, 1 spec., Sept. 7).—WOOD and FROTHINGHAM, Auk, xxii, 1905, 46 (Crawford, Alcona, and Oscoda counties, Michigan).—TOWNSEND (C. W.), Auk, xxiii, 1906, 336<sup>o</sup> (crop contents).—TAVERNER and ŠWALES, Wilson Bull., no. 60, 1907, 91 (Point Pelee, Ontario; sometimes wintering).—ROBERTS, in Wilcox's Hist. Becker Co., Minn., 1907, 170 (common).—ALLEN (G. M.), Auk, xxv, 1908, 234 (Barnstable, Massachusetts, Dec. 6, 1903).—CRAIG, Auk, xxviii, 1911, 398-407 (expressions of emotion).
- Z[enaidura] macroura* RIDGWAY, Man. N. Am. Birds, 1887, 213, part.
- Zenaidura macrura* BONHOTE, Ibis, 1903, 298 (New Providence, Andros, and Little Exuma islands, Bahamas; descr. nest and eggs).
- Columba fusca* MÜLLER, Syst. Nat. Suppl., 1776, 134 (new name for *C. carolinensis* Linnæus).
- [*Perissura*] *marginata* (not *Columba marginata* Linnæus) HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 278 (South Carolina; Georgia).

## ZENAIIDURA MACROURA MARGINELLA (Woodhouse).

## WESTERN MOURNING DOVE.

Similar to *Z. m. carolinensis* but averaging slightly paler, upper parts slightly grayer, and size slightly larger.

*Adult male*.—Length (skins), 264–337 (298); wing, 142–156.5 (149.4); tail, 121–158 (138.4); exposed culmen, 12.5–14.5 (13.7); tarsus, 19–21.5 (20); middle toe, 18.5–22 (20.2).<sup>a</sup>

*Adult female*.—Length (skins), 251–310 (281); wing, 132.5–152 (143.2); tail, 117–158 (127.3); exposed culmen, 13–15 (13.8); tarsus, 18–20.5 (19.2); middle toe, 18.5–20.5 (19.3).<sup>b</sup>

<sup>a</sup> Twenty-nine specimens.

<sup>b</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Mackenzie.....	146	138.5	14.5	20	20.5
Two adult males from North Dakota.....	144.5	128.7	13.5	20	20.2
Two adult males from Idaho.....	144.2	128.2	13.2	20	20
Three adult males from Utah.....	147.5	138.8	13.7	20	20.5
Two adult males from Nevada.....	144.2	135.7	13.5	20	20.2
One adult male from eastern Oregon.....	146	.....	14	19	21
Five adult males from California.....	148.3	141.3	13.5	19.9	20.3
One adult male from San Clemente I., California.....	146	133	14	19.5	20.5
One adult male from southern Lower California (different sub- species?).....	144	124	14	20	21
Four adult males from Arizona.....	147.4	145.7	14.2	20.4	20.5
Five adult males from New Mexico.....	146.3	137.2	13.4	20.2	20
Two adult males from western Texas.....	149.2	136	13.5	20	20.5
One adult male from Sonora.....	156.5	158	13	20.5	19
FEMALES.					
One adult female from Wyoming.....	146	133.5	14	19	20
One adult female from Utah.....	144	132	14.5	18.5	18.5
Three adult females from California.....	145.7	124.3	13.8	20.2	19.8
One adult female from southern Lower California (different subspecies?).....	124	117	.....	19	19
Two adult females from Arizona.....	138.5	121	13.5	18.2	19
Two adult females from New Mexico.....	138	117.2	13.2	18.7	19
One adult female from Chihuahua.....	152	158	15	20	19.5

The specimens from the Cape San Lucas district of Lower California seem to represent a distinct form, but unfortunately only three specimens have been examined, and these are in winter plumage. Compared with specimens of *Z. m. marginella* taken at the same season, these examples from southern Lower California are altogether of browner coloration, and I strongly suspect that they represent an easily distinguishable local form.

The existence of another very distinct form peculiar to the humid coast district of Oregon and Washington is indicated by three very poor specimens in the series examined. The adult male of this form is characterized by a very saturated coloration, the under parts as deeply colored as in *Z. m. macroura* and *Z. m. clarionensis*, and the color of the forehead, anterior portion of crown, and sides of crown and occiput (superciliary region) darker than in any other form of the species, being, in a winter specimen, deep fawn color approaching mikado brown. This form, which I separate, provisionally, as *Zenaidura macroura caurina* (provisional type, No. 22540, coll. U. S. Nat. Mus., Oregon; T. R. Peale, collector), most resembles in coloration of the head *Z. m. tresmaria*, but the under parts are more deeply colored and the chin, instead of being buffy white, in contrast with the adjacent color, is light pinkish cinnamon.

Arid region of western and interior North America, from eastern edge of the Great Plains to the Pacific Coast (except humid coast district of Oregon, Washington, and British Columbia);<sup>a</sup> northward, regularly, to Manitoba (Qu' Appelle), Saskatchewan, and interior of British Columbia, rarely to Mackenzie (Hay River, Great Slave Lake); southward through Mexico, in States of Sonora (Guaymas; Huerachi; Hermosillo; Ysleta; Opodepe; La Chumata), Chihuahua (Colonia Garcia), Nuevo León (Pasqueria Grande; Topo Chico; Hacienda de las Escobas; Hacienda de los Treviños), Tamaulipas (Aldama; Sota la Marina; Tampico; Tamesí), San Luís Potosí (Plains of San Luís Potosí), Guanajuato, Aguas Calientes, Zacatecas (Jeréz), Jalisco (Las Canoas; Zapotlán; Zacoalco; Bolaños; Guadalajara), Durango (Rio Sestín); Sinaloa (Mazatlán; Escuinapa), Colima (Plains of Colima), Mexico (Huipulco), Puebla (Huehuetlán; Atotonilco; San Miguél Molino), Vera Cruz (Orizaba; Córdova), and Oaxaca (Oaxaca City; Tehuán-tepec; Táleca; Le Parada; Villa Alta), and Territory of Tepic (Garapatos, near Amatlán de Cañas), and, at least during migration, Guatemala (El Rancho, Zapata; Dueñas; San Martín, Quezaltenango), Honduras, Nicaragua (Realejo; Chinandega; San Rafael del Norte; Sucuyá), and Costa Rica (San José; Volcán de Irazú; Volcán de Miravalles; San Mateo; Alajuela; San Lucas; Bebedero; Azahár de Cartago; Escazú; El Hogár; La Hondura; Buenos Aires), to western Panamá (Calobre; Volcán de Chiriquí). Lower California (Rosário; Santa Ana; Comondú; La Grulla).

*Ectopistes carolinensis* (not *Columba carolinensis* Linnæus) PEALE, U. S. Expl. Exped., Birds, 1848, 189 (Oregon and San Francisco Bay).—WOODHOUSE, in Rep. Sitgreaves's Expl. Zuffi and Col. R., 1853, 92 (Indian Territory; Texas; New Mexico).—NEWBERRY, Rep. Pacific R. R. Surv., iv, pt. iv, chap. i, 1857, 92 (California; Oregon).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, no. 2, 1859, 60 (California).

*Zenaidura carolinensis* SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Córdova, Vera Cruz); 1858, 305 (La Parada, Oaxaca); 1859, 391 (Talea, Oaxaca).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 604, part (western localities; crit.); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 21 (Tamaulipas; Ringgold Barracks, Texas; San Elizario; Colorado R., California); Cat. N. Am. Birds, 1859, no. 451, part.—KENNERLY, Rep. Pacific R. R. Surv., x, no. 3, 1859, 33 (Texas to Arizona).—SCLATER and SALVIN, Ibis, 1859, 222 (Dueñas, Guatemala; habits).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, book ii, pt. iii, 1860, 218 (Fort Steilacoom, etc., Washington).—TAYLOR, Ibis, 1860, 227 (Honduras).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 93 (Fort Whipple, Arizona, summer resid.); Check List, 2d ed., 1882, no. 544, part.—DRESSER, Ibis, 1866, 24 (s. Texas).—LAWRENCE, Ann. Lyc. N. Y., ix, 1863, 139 (Volcan de Irazu and San Jose, Costa Rica); ix, 1869, 207; Mem. Bost. Soc. N. H., ii, 1874, 304 (Mazatlan, Sinaloa); Bull. U. S. Nat. Mus., no. 4, 1876, 44 (Gineta Mts., Chiapas).—BROWN, Ibis, 1868,

<sup>a</sup> Specimens from the coast district, from Oregon northward, probably represent a different form, as already noted.

- 423 (Vancouver I.).—FRANTZIUS, Journ. für Orn., 1869, 372 (Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Calobre, Veragua, Panama); (?) Ibis, 1889, 377 (Cozumel I., Yucatan).—COOPER, Orn. Calif., 1870, 512.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 383, part.—HENSHAW, Ann. Lyc. N. Y., xi, 1874, 10 (Utah, breeding up to 8,000 ft.).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (San José, Costa Rica, Dec.—May).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 460, part.—BELDING, Proc. U. S. Nat. Mus., vi, 1884, 344 (Guaymas, Sonora).—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 389 (Sucuya, Nicaragua).—SALVIN, Cat. Birds Brit. Mus., xxi, 1893, 374, part (Brownsville, Corpus Christi, and Hidalgo, Texas; Hollister and San Diego Co., California; Ysleta, Sonora; Atotonilco and San Miguel Molino, Puebla; Pesqueria Grande, Topo Chico, Hacienda de las Escobas, and Hacienda de los Treviños, Nuevo Leon; Aguas Calientes; plains of San Luis Potosi; Aldama, Sota la Marina, Tampico, and Tamesi, Tamaulipas; Zapotlan, Zacoalco, and Bolaños, Jalisco; Jerez, Zacatecas; Huipilco, Mexico; Oaxaca City, Villa Alta, and Tehuantepec, Oaxaca; Dueñas, and San Martin, Quezaltenango, Guatemala; Cozumel I.; San Jose, Costa Rica; Calobre and Volcan de Chiriqui, Panama).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 242, part (Ysleta, Guaymas, and Huerachi, Sonora; Topo Chico, etc., Nuevo Leon; Aldama, etc., Tamaulipas; plains of San Luis Potosi; Bolaños, Guadalajara, etc., Jalisco; Aguas Calientes; Guanajuato; Valley of Mexico; Huehuetlan, Huipulco, etc., Puebla; Jalapa and Cordova, Vera Cruz; La Parada, Talea, Villa Alta, etc., Oaxaca; Cozumel I.; Dueñas, etc., Guatemala; Honduras; Sucuya, Nicaragua; San Mateo, Alajuela, San Lucas, Azahar de Cartago, Bebedero to Miravalles, etc., Costa Rica; Divala, etc., Panama).—GIFFORD, Condor, xi, 1909, 84, 85 (habits in captivity).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 396 (Escazu, Miravalles, El Hogar, and La Hondura, Costa Rica).
- [*Zenaidura carolinensis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132, part.—SHARPE, Hand-list, i, 1899, 76, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137, part (Brownsville, Texas; Panama).
- Z[enaidura] carolinensis* COUES, Key N. Am. Birds, 2d ed., 1884, 568, part.
- Zenaidura carolinensis carolinensis* THAYER and BANGS, Proc. Biol. Soc. Wash., xix, Feb. 26, 1906, 18 (Opodepe and La Chumata, north-centr. Sonora, breeding); Condor, ix, 1907, 136 (Rosario and Santa Ana, Lower California, Nov., March).
- Zenaidura macroura carolinensis* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxv, July, 1908, 368, part; Check List, 3rd ed., 1910, 148, part.—GRINNELL (J.), Biota San Bernardino Mts., 1908, 57 (San Bernardino Mts., California, up to 6,500 ft.).—SWARTH, Rep. Mam. and Birds Vancouver I., 1912, 26 (Albani, 1 spec., June 14).
- [*Zenaidura carolinensis* COUES, Key N. Am. Birds, 1872, 226, part.
- Zenaidura carolinensis* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 140 (Fort Hays, w. Kansas; nesting habits).—COUES, Check List, 1873, no. 371, part; Birds North-West, 1874, 389, part.—RIDGWAY, Orn. Fortieth Parallel, 1877, 596 (Sacramento, California; localities in Nevada and Utah); Proc. U. S. Nat. Mus., iii, 1880, 195.—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 158 (Fort Brown, Texas, resident).
- Ectopistes marginellus* WOODHOUSE, Proc. Ac. Nat. Sci. Phila., vi, no. 3, 1852, 104 (Cross Timbers, north fork of Canadian River, Oklahoma); in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 93 (Cross Timbers; descr.).
- [*Zenaidura marginella* BONAPARTE, Cons. Av., ii, 1857, 85 (California).

- Zenaidura macroura marginella* MEARNS, Auk, xxviii, Oct., 1911, 490, in text.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxix, 1912, 381.
- Zenaidura macroura* (not *Columba macroura* Linnæus) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 316, part.—(?) ANTHONY, Auk, iii, 1886, 164 (Washington Co., Oregon, common in summer).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 174 (Huehuetlan, Puebla).—BLAKE, Auk, iv, 1887, 329 (Santa Cruz I., California, breeding).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 128 (San Mateo and Faldas de Irazu, Costa Rica).—BRYANT (W. E.), Proc. Calif. Ac. Sci., ser. 2, 1889, 277 (Cape San Lucas district, Lower California, in winter; Comóndu, breeding; La Grulla, from coast to 8,200 ft., breeding; descr. nest and eggs).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 134 (interior of Brit. Columbia).—CHERRIE, Auk, vii, 1890, 333 (San Jose, Costa Rica, Dec., Jan.); Expl. Zool. Merid. C. R., 1893, 53 (Buenos Aires, s. w. Costa Rica).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 139, part.—(?) KERMODE, Prov. Mus. Victoria, 1909, 43 (Vancouver I., Okanogan, Chilliwack, Brit. Columbia; Metlakalta I. s. Alaska).
- Z[enaidura] macroura* RIDGWAY, Man. N. Am. Birds, 1887, 213, part.
- Zenaidura macroura macroura* MILLER (W. DE W.), Bull. Am. Mus. N. H., xxi, Nov. 24, 1905, 344 (Escuinapa, s. Sinaloa, Nov.); xxii, 1906, 163 (Rio Sestin, etc., n. w. Durango).
- (?) [*Columba*] *nævia* GMELIN, Syst. Nat., i, pt. 2, 1789, 777 (Mexico; based on *Hoiilotl seu Columba* Hernandez, Hist. Nov. Hisp., 26, cap. lvi; *Enas mexicana* Brisson, Orn., i, 100; *Pigeon sauvage du Mexique* Buffon, Hist. Nat. Ois., ii, 525).—LATHAM, Index Orn., ii, 1790, 601.
- (?) *Columba nævia* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 643 (synonymy; crit.).
- (?) *Columba nævia* VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 365.

### ZENAIDURA MACROURA TRESMARIÆ Ridgway.

#### TRES MARIAS MOURNING DOVE.

Similar to *Z. m. carolinensis*, but adult male with forehead, anterior and lateral portions of crown, and supra-auricular region (sides of occiput) bright fawn color, approaching sayal brown, conspicuously deeper than color of chest; chin buffy white, abruptly contrasted with adjacent light vinaceous-fawn color, and with back and distal wing-coverts darker. (Adult female not seen.)

*Adult male*.—Length (skin), 275; wing, 144; tail, 126; culmen, 14; tarsus, 19.5; middle toe, 20.5.<sup>a</sup>

Tres Marias Islands (Maria Madre Island), Tepic, western Mexico.

*Zenaidura carolinensis* SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 242, part (Tres Marias Islands).

*Zenaidura macroura* (not *Columba macroura* Linnæus) NELSON, North Am. Fauna, no. 14, 1899, 36 (Maria Madre, Tres Marias Islands).

*Zenaidura macroura tresmariaë* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 107 (Maria Madre Id., Tres Marias group; coll. U. S. Nat. Mus.).

<sup>a</sup> One specimen (the type; no. 156700, coll. U. S. Nat. Mus., Maria Madre Island, Tres Marias group, May 5, 1897; Nelson and Goldman).

## ZENAUDURA GRAYSONI Lawrence.

## SOCORRO MOURNING DOVE.

*Adult male*.—Forehead and anterior half of crown pecan brown, deepening into vinaceous-russet on sides of crown and occiput (superciliary and supra-auricular regions); posterior half of crown and occiput slate-gray, the hindneck similar but slightly browner (nearly neutral gray); rest of upper parts light bistre brown or drab-brown, the proximal larger wing-coverts and secondaries with a few large roundish spots of black; alula and primary coverts dark grayish brown, the primaries similar but darker, narrowly edged with paler, the edgings more distinct and dull whitish on the two outermost primaries; four middle rectrices deep grayish brown, the second pair with a blackish band across inner web and part of outer web; remaining rectrices becoming successively grayer, with the black post-median band more distinct (and extending quite across outer web, except on outermost rectrix), the gray of terminal portion decidedly lighter than that of basal portion, the outermost rectrix with distal portion of outer web dull white, the proximal portion light gray; suborbital, auricular, and malar regions and under parts plain bright mikado brown or deep orange-cinnamon, paler on chin and upper throat; sides of hindneck glossed with metallic purple; a small sub-auricular spot of glossy blue-black; outer portion of sides and flanks, axillars, and under wing-coverts plain slate-gray; bill black; legs and feet pale brownish (lake red in life?); length (skin), 306; wing, 156; tail, 135; exposed culmen, 16; tarsus, 27.5; middle toe, 26.<sup>a</sup>

*Adult female*.—Similar to the adult male but slightly duller in color, especially the posterior portion of head and neck, where the gray is less pure and less strongly contrasted, and metallic gloss on sides of neck less brilliant; length (skins), 283–306 (294.5); wing, 147–149 (148); tail, 120–131.5 (125.7); exposed culmen, 16–16.5 (16.2); tarsus, 27; middle toe, 24–24.5 (24.2).<sup>b</sup>

*Young*.—Much duller in coloration than the adult female, the occiput, etc., dull grayish brown instead of gray, the under parts duller, wing-coverts and scapulars narrowly (and rather indistinctly) margined terminally with lighter, more buffy, brown or cinnamon, and without black subauricular spot or metallic gloss on sides of neck.

Socorro Island, Revillagigedo group, western Mexico.

*Zenaidura graysoni* Baird, ms., LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, 1871, 17 (Socorro Island, Revillagigedo group, w. Mexico; coll. U. S. Nat. Mus.; =young); Mem. Bost. Soc. N. H., ii, 1874, 304 (habits).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 299.—SALVIN, Ibis, 1874, 312 (crit.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 382.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 135 (descr. adult female).—SALVA-

<sup>a</sup> One specimen.

<sup>b</sup> Two specimens.

DORI, Cat. Birds Brit. Mus., xxi, 1893, 378.—ANTHONY, Auk, xv, 1898, 316.—  
SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 137.

[*Zenaidura graysoni*] RIDGWAY, Man. N. Am. Birds, 1887, 213.

[*Zenaidura graysoni*] SHARPE, Hand-list, i, 1899, 76.—FORBES and ROBINSON,  
Bull. Liverp. Mus., ii, 1900, 137.

*Zenaidura graysoni* RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am.  
Birds, 1881, no. 461.

### ZENAIDURA YUCATANENSIS Lawrence.

#### YUCATAN MOURNING DOVE.

In coloration almost precisely like *Zenaida yucatanensis* but under tail-coverts light pinkish cinnamon instead of light russet-vinaceous, and with longer tail.<sup>a</sup>

*Adult male*.—Forehead, sides of head (including superciliary region), and neck (except hindneck), clear fawn color, paler and more buffy on chin, passing into vinaceous-fawn on foreneck, chest, and under parts generally, where slightly paler and more buffy (nearly light pinkish cinnamon); a conspicuous spot of black, glossed with metallic blue, immediately beneath but partly posterior to lower posterior end of auricular region; fawn color of forehead becoming somewhat darker on crown, where passing into brownish gray on occiput, nape, and hindneck, the last glossed, especially on lower and lateral portions, with metallic purple; back, scapulars, proximal wing-coverts and secondaries, and median portion of rump, plain deep drab or dull buffy brown, passing into a decidedly more grayish hue on distal wing-coverts, alulae, and primary coverts, the sides of rump, abruptly, neutral gray; proximal secondaries and larger wing-coverts with large semi-rounded spots of black, those on secondaries more elongated; distal secondaries dusky, very narrowly edged with paler and very broadly tipped with pale gray passing into white on edges; primaries dusky narrowly edged with paler, these edgings more distinct and white on larger quills; middle pair of rectrices deep drab, becoming grayer basally crossed by an indistinct irregular band of dusky about one-third the distance from tip; second pair dull neutral gray, crossed by a broad, irregular, band of black; third pair similar but with apical portion lighter gray; fourth, fifth, and sixth pairs similar, but with the black band increasing in width and the apical portion growing paler until that of the sixth is far the greater part white; seventh pair like sixth, but outer web entirely white except a narrow black space next to shaft where the band on inner web crosses the latter; sides and flanks (underneath wings), axillars, and under wing-coverts plain

<sup>a</sup> In form and coloration this bird (of which only the type is known) is so exactly intermediate between *Zenaidura macroura marginella* and *Zenaida yucatanensis* (though in coloration very much nearer the latter) that I am convinced that it is merely a hybrid of these two species.

light gray (between light neutral gray and gull gray); bill black; legs and feet light brownish (probably lake red in life); wing, 152; tail, 108.5; exposed culmen, 15; tarsus, 22.5; middle toe, 20.<sup>a</sup>

Yucatan (Mérida).

*Zenaidura yucatanensis* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., ix, 1869, 207 (Merida, n. Yucatan; coll. U. S. Nat. Mus.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 382.—SALVIN, Ibis, 1874, 312 (crit.).—SANCHEZ, Anal. Mus. Nac. Mex., i, 1878, 105.—RIDGWAY, Auk, i, 1884, 96 (crit.).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 373, footnote.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 242, footnote.

[*Zenaidura yucatanensis* GRAY, Hand-list, ii, 1870, 236, no. 9284.—SHARPE, Hand-list, i, 1899, 76.

*Z[enaidura] yucatanensis* RIDGWAY, Man. N. Am. Birds, 1887, 213.

*Chamaepelia yucatanensis* GIEBEL, Thes. Orn., i, 1872, 636.

#### Genus ZENAIDA Bonaparte.

*Zenaida* BONAPARTE, Geog. and Comp. List, 1838, 41. (Type, by tautonymy, *Z. amabilis* Bonaparte=*Columba zenaida* Bonaparte.)

*Zenæda* (emendation) COUES, Key N. Am. Birds, 1872, 226.

*Stenuroena* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 20. (Type, by monotypy, *Zenaida stenura* Bonaparte.)

*Platypteroena* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 20. (Type by monotypy, *Zenaida pentheria* Bonaparte=*Z. ruficauda* Bonaparte.)

Rather small arboreal or semiterrestrial pigeons, closely resembling *Zenaidura*, but with tail not more than two-thirds as long as wing, graduated for not more (usually less) than one-fourth its length.

Bill small and slender, the exposed culmen not longer (usually shorter) than lateral toes (without claws), its greatest depth equal to little more than one-fourth the length of exposed culmen, the maxillary unguis rather distinctly arched and with basal portion slightly but distinctly elevated, the gonydeal angle rather prominent; frontal feathering advancing as far as or slightly beyond malar antia, the mental antia extending about as far as anterior end of nasal operculum, the latter moderately large and distinctly tumid. Wing moderate or rather large, moderately pointed, the longest primaries exceeding distal secondaries by a little less than two-fifths the length of wing; first or second primary (from outside) longest, the first (outermost) always longer than fourth, its inner web sometimes distinctly sinuated or emarginated terminally. Tail about two-thirds as long as wing, graduated for not more (usually less) than one-fourth its length, composed of fourteen rectrices, which are moderately to very slightly narrowed terminally, their tips rounded. Tarsus distinctly (but slightly) longer to very slightly shorter than middle toe (without claw), its upper portion (together with tibio-tarsal joint) naked, the acrotarsium covered by a single series of large, transverse scutella, the planta tarsi with small hexagonal scales; lateral toes

<sup>a</sup> One specimen (the type; only example known).



decidedly shorter than middle toe, the claw of inner toe reaching to base of that of middle toe, the outer toe slightly shorter; hallux about as long as basal phalanx and half of second phalanx of middle toe.

*Plumage and coloration.*—Plumage and coloration almost precisely as in *Zenaidura*. Plumage of head, neck, and under parts soft and blended; bare orbital space moderately large, much broader beneath eye; rectrices (except middle pair) with a broad post-median bar of black, the apical portion cinnamon-rufous or pale gray, or nearly white, in contrast with the darker gray or brown of basal portion; a black subauricular spot, and black spots on proximal secondaries; head, neck, and under parts more or less vinaceous or cinnamonaceous, and sides of neck glossed with metallic purple or bronze, especially in adult males.

*Range.*—West Indies (including Florida Keys), Yucatan, and greater part of South America. (About nine species.)

[NOTE.—If *Zenaidura yucatanensis* Lawrence should prove to be really a distinct species, and not a hybrid of *Z. macroura* and *Zenaida yucatanensis* Salvadori, unquestionably *Zenaida* and *Zenaidura* can not be separated generically, since the former is in every way exactly intermediate between the two groups. In that case, *Zenaidura yucatanensis* would become *Zenaida yucatanensis*, and hence *Z. yucatanensis* Salvadori would require a new name, which I accordingly suggest should be *Zenaida zenaida salvadorii*.]

KEY TO THE SPECIES AND SUBSPECIES OF ZENAIIDA.

- a. Secondaries broadly tipped with white.
- b. General color brown above, more or less vinaceous below.
- c. Posterior under parts (including under tail-coverts) vinaceous-fawn color or vinaceous-brown, like anterior parts (the longer under tail-coverts sometimes partly gray).
- d. Head, neck, and under parts not darker than vinaceous-fawn color; upper parts much lighter brown. (*Zenaida zenaida*.)
- e. Hindneck not grayish.
- f. Color of head and neck duller (nearly fawn color). (Florida Keys, Bahamas, Cuba, Isle of Pines, Little Cayman, Cayman Brac, Jamaica, and Haiti.).....*Zenaida zenaida zenaida* (p. 357).
- ff. Color of head and neck brighter sayal brown or cinnamon. (Mona, Porto Rico, Desechio, Culebra, Vieque, Tortola, Virgin Gorda, and St. Croix.).....*Zenaida zenaida lucida* (p. 361).
- ee. Hindneck distinctly grayish. (Coast of Yucatan.)  
*Zenaida zenaida yucatanensis* (p. 362)
- dd. Head, neck, and under parts deep russet; upper parts much darker brown. (Grand Cayman Island.) .....*Zenaida spadicea* (p. 362).
- cc. Posterior under parts white, in conspicuous contrast with color of anterior portions. (Lesser Antilles and St. Croix.) .....*Zenaida aurita* (p. 363).
- bb. General color bluish gray. (Jamaica; extinct.).....*Zenaida plumbea* (p. 366).
- aa. Secondaries not tipped with white.

- b. Under tail-coverts pale buff or buffy white; distal portion of lateral rectrices white. (Colombia, including Pearl Island, Bay of Panama, to Chile, Argentina, Uruguay, southern Brazil, etc.).....*Zenaida auriculata* (p. 366).
- bb. Under tail-coverts deep vinaceous-fawn color to dull orange-cinnamon; distal portion of lateral rectrices dull vinaceous-cinnamon. (*Zenaida ruficauda*.)
- c. Larger (wing 151. tarsus 23); color of under tail-coverts more rufescent. (Central Colombia.).....*Zenaida ruficauda ruficauda* (extralimital).<sup>a</sup>
- cc. Smaller (wing less than 145; tarsus less than 22); color of under tail-coverts less rufescent.
- d. Larger (wing 130-143.5 in adult male); distal portion of lateral rectrices deeper vinaceous-cinnamon.
- e. Coloration deeper, more brownish above, more vinaceous below. (Interior districts of Colombia and Venezuela.)
- Zenaida ruficauda robinsoni* (extralimital).<sup>b</sup>
- ee. Coloration paler, less brownish above, less vinaceous below. (Arid coast district of Venezuela; islands of Margarita, Curaçao, Aruba, Bonaire, Grenada, and Carriacou.)....*Zenaida ruficauda vinaceo-rufa* (p. 370).
- dd. Smaller (wing 122.5-129.5 in adult male); distal portion of lateral rectrices paler vinaceous-cinnamon. (British Guiana and southward to lower Amazon Valley; Province of Pernambuco, eastern Brazil?).
- Zenaida ruficauda jessieæ* (extralimital).<sup>c</sup>

<sup>a</sup> *Z[enaida] ruficauda* Bonaparte, *Consp. Gen. Av.*, ii, 1857, 83 (Colombia; coll. Brit. Mus.; ex Gray, manuscript).—*Zenaida ruficauda* Salvadori, *Cat. Birds Brit. Mus.*, xxi, 1893, 387, part (Bogota and Medellin, Colombia).—(?) *Zenaida castanea* Bonaparte, *Compt. Rend.*, xliii, 1856, 946.—*Zenaida bogotensis* Lawrence, *Auk*, ii, Oct., 1885, 358 (Bogota, Colombia; coll. G. N. Lawrence).

I am not entirely satisfied that *Z. bogotensis* Lawrence is really the same as *Z. ruficauda* Bonaparte, the type of which is in the Paris Museum. It is possible that *Z. ruficauda* is the same as the form which is here named *Z. r. robinsoni*, in which case the form above characterized under the name *Z. r. ruficauda* would have to be named *Zenaida ruficauda bogotensis*. I have not seen any specimens of this group having the wing nearly as long as 162 mm. (6.30 inches), the measurement given by Salvadori for the type and another specimen of *Z. pentheria* Bonaparte.

<sup>b</sup> *Zenaida ruficauda* (not of Bonaparte) Salvadori, *Cat. Birds Brit. Mus.*, xxi, 1893, 387, part (Merida, Venezuela); Robinson, *Flying Trip to Tropics*, 1895, 154 (Honda, Colombia).—*Zenaida ruficauda vinaccorufa* Berlepsch and Hartert, *Novit. Zool.*, ix, April, 1902, 118 (Altagracia, Caicara, and Ciudad Bolivar, Venezuela).—*Zenaida ruficauda robinsoni* Ridgway, *Proc. Biol. Soc. Wash.*, xxviii, May 27, 1915, 107 (Honda, Colombia; coll. U. S. Nat. Mus.).

<sup>c</sup> *Zenaida jessieæ* Riker, MS. Ridgway, *Proc. U. S. Nat. Mus.*, x, sig. 33, Aug. 6, 1888, 527 (Diamantina, lower Amazon, Brazil; coll. U. S. Nat. Mus.); Salvadori, *Cat. Birds Brit. Mus.*, xxi, 1893, 389.—(?) *Zenaida vinaccorufa* (not of Ridgway?) Salvadori, *Cat. Birds Brit. Mus.*, xxi, 1893, 389, part (Quonga, Takutu, and Aunai, British Guiana).

Specimens from Quonga and Annai, British Guiana, have the distal portion of the lateral rectrices deeply colored, as in *Z. r. ruficauda* and *Z. r. vinaccorufa*, but are otherwise like typical *Z. r. jessieæ*, including absence of bluish gray on occiput. An adult male from Boa Vista, Rio San Francisco, Province of Pernambuco, eastern Brazil, is considerably grayer above, has the occiput distinctly bluish gray, and may, in reality, represent a different form.

## ZENAIDA ZENAIDA ZENAIDA (Bonaparte).

## ZENAIDA DOVE.

*Adult male*.—Pileum cinnamon-drab, paler and inclining more or less to fawn color on forehead and passing into deep fawn color laterally (on superciliary and supra-auricular regions), and into dull snuff brown on hindneck; rest of head and neck fawn color, fading into pale buff or buffy whitish on chin and extreme upper throat, and relieved by two small spots or streaks of glossy blue-black immediately above and beneath the posterior portion of the auricular region, the uppermost spot sometimes obsolete; sides of lower neck brilliantly glossed with metallic reddish purple and violet; general color of upper parts snuff brown to buffy brown or deep wood brown, the inner webs of inner row of proximal secondaries mostly black, forming a series of conspicuous large oblong spots, the proximal middle wing-coverts and outer webs of some of the other proximal secondaries also usually with a few much smaller roundish black spots; alulae, primary coverts, primaries, and distal secondaries dull grayish black or blackish gray, more or less distinctly edged with paler, the secondaries broadly tipped with white (most widely on outer webs), the innermost primaries tipped with grayish and marginal terminally with white, all the primaries very narrowly but usually very sharply edged with white; tail crossed by a subterminal band of black (this usually less distinct, sometimes obsolete, on middle pair of rectrices), the terminal portion pale gray on outermost rectrix, deeper gray on the others, the gray gradually deepening, and usually becoming more tinged with brown, toward the middle rectrices, which are brown terminally, the basal portion passing from deep gray (slate-gray) on outermost rectrix to brown on the middle ones; fawn color of foreneck passing into light russet-vinaceous or deep vinaceous-fawn color on chest, breast, abdomen, anal region, and under tail-coverts (the vinaceous hue varying considerably), the under tail-coverts sometimes passing into pale gray on terminal portion; sides and flanks (beneath wings), axillars, and under wing-coverts clear bluish gray (gull gray to deep gull gray); bill black; iris deep brown; bare orbital space pale grayish blue; legs and feet lake red; length (skins), 234–301 (264); wing, 144–164 (156.1); tail, 77–99 (88.2); exposed culmen, 13–16 (14.1); tarsus, 22.5–26 (24.5); middle toe, 21–24.5 (22.3).<sup>a</sup>

*Adult female*.—Similar to the adult male, but color of head, neck, and under parts duller (less vinaceous), the pileum dull olive-brownish

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<sup>a</sup>Forty specimens.

fading into buffy brown on forehead, the foreneck and chest nearly wood brown; metallic gloss on sides of neck less brilliant and of more restricted area, and supra-auricular black spot or streak usually absent; flanks more extensively gray, and gray tips to rectrices rather shorter; length (skins), 223–281 (241); wing, 141.5–159 (151.7); tail, 81–93 (86.8); exposed culmen, 12.5–15.5 (14.2); tarsus, 21–25 (23.8); middle toe, 20–23 (21.5).<sup>a</sup>

*Young*.—More brownish than the adult female, the general color of upper parts olive-brownish, that of under parts dull light russet or russet-brown; wing-coverts, scapulars, and proximal secondaries narrowly margined terminally with pale russet or cinnamon.

Florida Keys, Bahamas (Great Bahama, Abaco, Biminis, Berry, Eleuthera, New Providence, Andros, Cat, Concepción, Watling, Rum Cay, Long, Caicos, Great Inagua, Auguilla, Highburn Cay, Stranger Cay, and Moraine Cay islands); Cuba; Isle of Pines; Grand Cayman; Little Cayman; Cayman Brac; Haiti; Jamaica.

<sup>a</sup> Eighteen specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.	Middle toe.
MALES.					
Sixteen adult males from Bahamas.....	156.4	89.2	14.4	24.6	22.5
Eight adult males from Cuba.....	157.7	92.4	14.5	24.7	21.8
Two adult males from Isle of Pines.....	150	83	13	23.2	21.7
One adult male from Grand Cayman.....	156	83.5	15	25.5	24.5
One adult male from Little Cayman.....	149.5	87.5	15	24	24
Two adult males from Cayman Brac.....	151.7	87	15.7	25.2	23.2
Six adult males from Jamaica.....	159.8	91.3	14.4	24.5	22.2
Four adult males from Haiti.....	155.2	89.2	13.9	23.9	21.7
Forty adult males of <i>Z. z. zenaida</i> .....	156.1	88.2	14.1	24.5	22.3
Twenty-four adult males of <i>Z. z. lucida</i> .....	153.6	90.8	14.8	24.7	22.3
Three adult males of <i>Z. z. yucatanensis</i> .....	152.3	94.8	14.3	24.5	22.8
FEMALES.					
Seven adult females from Bahamas.....	156.2	87.9	14.9	24.2	21.8
Two adult females from Cuba.....	150	87.5	14.5	23.7	21.2
One adult female from Grand Cayman.....	146	83.5	15	24.5	21.5
One adult female from Cayman Brac.....	141.5	81.5	12.5	21	20
Five adult females from Jamaica.....	151.1	88.8	13.7	24	21.6
Two adult females from Haiti.....	146.7	82	13.7	23	21
Eighteen adult females of <i>Z. z. zenaida</i> .....	151.7	86.8	14.2	23.8	21.5
Eight adult females of <i>Z. z. lucida</i> .....	148.2	89.5	14.2	23.6	20.9
One adult female of <i>Z. z. yucatanensis</i> .....	146.5	90.5	14.7	24.5	21.7

- (??) *C[olumba] meridionalis* <sup>a</sup> LATHAM, Suppl. Index Orn., ii, 1801, p. lx (based on *Southern Pigeon* Latham, Synopsis Birds, Suppl., ii, 270; "New Holland"; alleged types, from Jamaica, now in coll. Liverpool Mus., fide Forbes and Robinson, Bull. Liverp. Mus., i, 1898, 36; ii, 1900, 137).
- Columba meridionalis* VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 346; Tabl. Enc. Méth., i, 1823, 376.—DESMAREST, Dict. Sci. Nat., xl, 1826, 371.—LESSON, Compl. Buffon, Ois., viii, 1837, 74; 2d ed., 1838, 289.—BONAPARTE, Consp. Av., ii, 1857, 91.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 641.—FORBES and ROBINSON, Bull. Liverp. Mus., i, 1898, 36 ("type" in coll. Liverpool Mus.; crit.).
- C[olumba] meridionalis* WAGLER, Syst. Av., 1827, *Columba*, sp. dub., 16.
- Phaps meridionalis* REICHENBACH, Tauben, i, 1861, 39.
- [*Phaps*] *meridionalis* GRAY, Hand-list, ii, 1870, 245, no. 9430.
- [*Zenaida*] *meridionalis* SHARPE, Hand-list, i, 1899, 76, part (Bahamas; Florida Keys; Antilles).—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137 (Jamaica; types of *Southern Pigeon* var. A. Latham, Gen. Hist. Birds, viii, 1822, 28).
- Zenaida meridionalis* LOWE, Ibis, 1911, 145 (Cayman Brac).
- C[olumba] zenaida* BONAPARTE, Journ. Ac. Nat. Sci. Phila., v, 1825, 30 (southern part of Florida).
- Columba zenaida* BONAPARTE, Zool. Journ., iii, 1827, 53 (Havana, Cuba); Ann. Lyc. N. Y., ii, 1826, 119; ii, 1828, 441; Am. Orn., iii, 1828, 23, pl. 17, fig. 2.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 625; 2d ed., 1840, 757.—AUDUBON, Orn. Biog., ii, 1834, 354, pl. 162; v, 1839, 558; Synopsis, 1839, 191; Birds Am., oct. ed., v, 1842, 9, pl. 281.—D'ORBIGNY, in La Sagra, Hist. Nat. Cuba, Ois., 1839, 177 (large ed., p. 130).
- Peristera zenaida* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 140 (Jamaica).
- [*Zenaida*] *zenaida* BONAPARTE, Consp. Av., ii, 1857, 82.
- Zenaida zenaida* RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 355; Auk, viii, 1891, 336 (New Providence I.), 337 (Cat I.; Watling I.), 338 (Rum Cay).—AMERICAN ORNITHOLOGISTS' UNION, Check List., 1886 (and 2d ed., 1895), no. 317; 3d ed., 1910, 149.—CORY, Auk, iv, 1887, 113 (synonymy, descr., geog. range); viii, 1891, 297 (Caicos Islands, Bahamas), 351 (Inagua, Bahamas), 352 (Anguilla); Birds West Ind., 1889, 214; Cat. West Ind. Birds, 1892, 97, 138 (Great Bahama, Abaco, Biminis, Berry, Eleuthera, New Providence, Andros, San Salvador or Cat, Concepcion, Watling, Rum Cay, North Caicos, Grand Caicos, East Caicos, and Great Inagua islands, Bahamas; Cuba; Isle of Pines; Grand Cayman; Little Cayman; Cayman Brac; Jamaica; Haiti).—NORTHROP, Auk, viii, 1891, 76 (Andros I.).—SCOTT, Auk, ix, 1892,

<sup>a</sup> This name has been adopted by Messrs. Forbes and Robinson for the species on the ground that specimens alleged to be Latham's types, preserved in the Liverpool Museum, prove to be the species known as *Zenaida zenaida* Bonaparte. The specimens in question, however, are not the types of Latham's *Columba meridionalis* of 1801, which was based on a specimen in Mr. Swainson's collection, but are the types of Latham's *Southern Pigeon* var. A, described in the General History of Birds, viii, 1822, 28, and consequently have nothing to do with the determination of *C. meridionalis*. Furthermore, the description of the latter does not at all correspond in some respects with the characters of *Z. zenaida* but agrees much better with those of *Z. aurita*, as the following will show:

"Size of a *Turtle*; length 10 inches; general color of the plumage deep reddish brown; a little paler on the breast; from thence all beneath is pale reddish white."

- 123 (Jamaica, common resid.).—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 292 (near Trinidad, s. Cuba; notes).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 143.—FIELD, Auk, x, 1894, 123 (Jamaica, common).—CHERRIE, Contr. Orn. San Dom., 1896, 24.—FORBES and ROBINSON, Bull. Liverp. Mus., i, 1898, 36 (crit.).—BANGS, Auk, xvii, 1900, 286 (Nassau, New Providence).—ALLEN (G. M.), Auk, xxii, 1905, 123 (Stranger Cay and Moraine Cay, Bahamas).—RILEY, Auk, xxii, 1905, 354 (New Providence, Eleuthera, Cat. Watling, and Long islands, Bahamas).—MENECAUX, Rev. Franç. d'Orn., no. 2, 1909, 31 (Figuabas, e. Cuba).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Santo Domingo).—TODD, Ann. Carnegie Mus., vii, 1911, 416 (Great Inagua, Watling, and Abaco islands, Bahamas; variations of plumage).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 450 (Great Inagua, Acklin, Watling, and Abaco islands, Bahamas).
- Z[enaida] zenaida* RIDGWAY, Man. N. Am. Birds, 1887, 213, part.
- Zenaida zenaida zenaida* BANGS and ZAPPEY, Am. Nat., xxxix, April, 1905, 197 (Isle of Pines).
- Zenaida amabilis* BONAPARTE, Geog. and Comp. List, 1838, 41 (based on Audubon, pl. 162); Compt. Rend., xl, 1855, 97 (Florida; Bahamas; Cuba; crit.); Consp. Gen. Av., ii, 1857, 82 (Cuba; Florida; Bahamas).—GOSSE, Birds Jamaica, 1847, 307; Naturalist's Soj. in Jamaica, 1851, 174.—REICHENBACH, Syn. Av., 1847, fig. 1412; Syn. Av. Novit., Columbariae, 1851, pl. 255, figs. 2867, 2868.—CABANIS, Journ. für Orn., 1856, 111 (Cuba; habits).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 602 (Florida ?); Cat. N. Am. Birds, 1859, no. 449.—BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 119 (Bahamas; habits).—ALBRECHT, Journ. für Orn., 1861, 55 (Bahamas); 1862, 204 (Jamaica).—SCLATER, Proc. Zool. Soc. Lond., 1861, 80 (Jamaica); Rev. List Birds Jamaica, 1910, 18.—GUNDLACH, Journ. für Orn., 1861, 416 (Cuba; crit.); 1874, 298 (Cuba; habits); Repert. Fisico-Nat. Cuba, i, 1866, 301.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 379, pl. 58, fig. 3.—CORY, Birds Bahama Is., 1880, 138; Birds Haiti and San Dom., 1885, 128 (Puerta Plata and Magua, Santo Domingo); Auk, vi, 1889, 32 (Cayman Brac).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 462.—COUES, Check List, 2d ed., 1882, no. 545.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 382 (San Cristobal and Monte Verde, Cuba; Jamaica).—BONHOTE, Ibis, 1899, 517 (New Providence, Bahamas).
- [Zenaida] amabilis* GUNDLACH, Journ. für Orn., 1861, 336 (Cuba).—GRAY, Handlist, ii, 1870, 241, no. 9350.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24.
- Z[enaida] amabilis* REICHENBACH, Vollst. Naturg., Columbariae, 1861, 21, pl. 255, figs. 2867, 2868, pl. 254, fig. 1412 (Florida Keys; Bahamas; Cuba).—NEWTON (A. and E.), Handb. Jamaica, 1881, 114.—COUES, Key N. Am. Birds, 2d ed., 1884, 569.
- [Zenaida] amabilis* COUES, Key N. Am. Birds, 1872, 226.
- Zenaida amabilis* COUES, Check List, 1873, no. 372.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880 (Cat. N. Am. Birds), 195.
- Zenaida richardsoni* CORY, Auk, iv, Jan., 1887, 7 (Little Cayman, south of Cuba; coll. C. B. Cory); iv, 1887, 114 (Little Cayman); Cat. West Ind. Birds, 1892, 138, in text.

## ZENAIDA ZENAIDA LUCIDA Noble.

## PORTO RICAN DOVE.

Similar to *Z. z. zenaida* but with color of head and neck brighter (saya brown or cinnamon, rather than fawn color).

*Adult male*.—Length (skins), 251–288 (264); wing, 140–159 (153.6); tail, 80–100 (90.8); exposed culmen, 13–16.5 (14.8); tarsus, 23–27 (24.7); middle toe, 20.5–23.5 (22.3).<sup>a</sup>

*Adult female*.—Length (skins), 243–280 (259); wing, 145–155.5 (148.2); tail, 84–95 (89.5); exposed culmen, 13.5–15 (14.2); tarsus, 22.5–25 (23.6); middle toe, 20.5–23.5 (20.9).<sup>b</sup>

Easternmost Greater Antilles (Mona; Desechio; Porto Rico; Culebra; Vieque; St. Thomas; St. Johns; Tortola; Virgin Gorda; St. Croix) and Sombrero, St. Eustatius, and Antigua, Lesser Antilles.

*Zenaida amabilis* (not of Bonaparte) NEWTON (A. and E.), Ibis, 1859, 253 (St. Croix; habits).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 378 (St. Thomas).—GUNDLACH, Journ. für Orn., 1874, 312 (Porto Rico); 1878, 161, 186 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 346 (Porto Rico).—LAWRENCE, Ann. Lyc. N. Y., viii, 1864, 98 (Sombrero).—SUNDEVALL, Gefv. K. Vet.-Ak. Förh., 1869, 601 (Porto Rico).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 382, part (Porto Rico; St. Thomas; Virgin Gorda).

*Zenaida zenaida* CORY, Auk, vii, 1890, 375 (Tortola; Virgin Gorda); viii, 1891, 47 (Antigua; St. Eustatius); Cat. West Ind. Birds, 1892, 97, 138, part (Mona; Porto Rico; Tortola; Virgin Gorda; St. Croix; St. Eustatius; Antigua).

*Columba zenaida* (not of Bonaparte) BRYANT, Proc. Bost. Soc. N. H., x, 1866, 256 (Porto Rico); Journ. für Orn., 1866, 191 (Porto Rico).

*Zenaida zenaida lucida* NOBLE, Proc. New England Zool. Club, v, Oct. 4, 1915, 101 (St. Croix; coll. Mus. Comp. Zool.).

<sup>a</sup> Twenty-four specimens.

<sup>b</sup> Eight specimens.

Locality.	Wing.	Tail.	Ex- posed cul- men.	Tarsus.	Middle toe.
MALES.					
Two adult males from Mona Island.....	153	85	15	23.5	23.2
Ten adult males from Porto Rico.....	153.2	92.8	14.9	24.6	22
One adult male from Desechio Island.....	155	87.5	15	23	.....
One adult male from Culebra Island.....	158.5	94	14.5	24.5	23
Three adult males from Vieque Island.....	155.2	94.5	15	24.7	22.8
One adult male from Tortola.....	159	87.5	14.5	26.5	23
Two adult males from Virgin Gorda.....	149.5	92.5	14	25.7	22.5
Four adult males from St. Croix.....	150.2	86.2	14.7	24.7	22
FEMALES.					
Five adult females from Porto Rico.....	147.2	88.7	14.4	23.2	21.5
One adult female from St. Thomas.....	149	92	13.5	23.5	23.5
One adult female from St. Johns.....	145	86	14	25	22.5
One adult female from St. Croix.....	155.5	95.5	14	24	22

## ZENAIIDA ZENAIIDA YUCATANENSIS (Salvadori).

## SALVADORI'S DOVE.

Similar to *Z. z. zenaida* but general coloration very slightly paler (?), and with hindneck distinctly grayish.

*Adult male*.—Length (skins), 264–281 (270); wing, 147–156 (152.3); tail, 92–94.5 (93.2); exposed culmen, 13–15 (14.3); tarsus, 24–25 (24.5); middle toe, 22.5–23.5 (22.8).<sup>a</sup>

*Adult female*.—Length (skin), 255; wing, 146.5; tail, 86.5; exposed culmen, 14.5; tarsus, 24; middle toe, 21.<sup>b</sup>

Coast and islands of Yucatan (Silám; Progreso; Rio Lagartos; Cozumél Island; Holbox Island; Mugerés Island).

*Zenaida amabilis* (not of Bonaparte) BOUCARD, Proc. Zool. Soc. Lond., 1883, 458 (Yucatan).—SALVIN, Proc. Zool. Soc. Lond., 1883, 458, footnote; Ibis, 1889, 377 (Holbox and Mugerés Islands, Yucatan; crit.), 91 (Holbox and Mugerés I.), 92 (crit.), 93 (distribution).

[*Zenaida*] *amabilis* RIDGWAY, Man. N. Am. Birds, 1887, 213, part (Yucatan).

[*Zenaida*] *amabilis* SALVIN, Ibis, 1890, 89 (Holbox and Mugerés I., Yucatan).

*Zenaida yucatanensis* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 384 (Rio Lagartos, n. Yucatan; coll. Brit. Mus.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 245 (Rio Lagartos, Progreso, Cozumel I., Holbox I., and Mugerés I., Yucatan).

[*Zenaida*] *yucatanensis* SHARPE, Hand-list, i, 1899, 77.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137.

## ZENAIIDA SPADICEA Cory.

## BAY DOVE.

Similar to *Z. z. zenaida*, but coloration very much darker.

*Adult male*.—Forehead walnut brown or roods brown, passing into deep burnt umber on crown and occiput; sides of head (including superciliary and supra-auricular regions) deep russet, passing into light cinnamon or deep cinnamon-buff on chin and upper throat and into purplish russet or deep pecan brown on chest and other under parts, including under tail-coverts; a subauricular spot of glossy blue-black or steel blue; lower sides of neck brightly glossed with metallic purple and violet (changing to violet-blue); general color of upper parts bister or warm-sepia brown, the inner webs of inner row of proximal secondaries black (except terminally), the proximal middle wing coverts with a few small black spots; distal greater wing-coverts more grayish brown; aluæ, primary coverts, primaries, and distal secondaries dull black or grayish black, the last broadly tipped with white, the primaries very narrowly edged with dull whitish and more distinctly margined terminally with the same; tail crossed by a subterminal band of black, this broader on lateral rectrices, narrower on middle pair (where sometimes obsolete), the terminal por-

<sup>a</sup> Three specimens; one of them said to be female but undoubtedly a male.

<sup>b</sup> One specimen.



tion (except on middle pair of rectrices) neutral gray, slightly paler than the gray of basal portion; sides and flanks (beneath wings), axillars, and under wing-coverts neutral gray; bill black; legs and feet light brownish (lake red in life); length (skins), 246–262 (254); wing, 145.5–151 (148.2); tail, 85–93.5 (89.2); exposed culmen, 13–13.5 (13.2); tarsus, 23.5–24 (23.8); middle toe, 21.5–23 (22.3).<sup>a</sup>

Grand Cayman, south of Cuba; Little Cayman?

*Zenaida spadicea* CORY, Auk, iii, Oct., 1886, 498,502 (Grand Cayman, south of Cuba; coll. C. B. Cory); iv, 1887, 114; Birds West Ind., 1889, 215; Cat. West Ind. Birds, 1892, 9, 97, 129.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 383, footnote.—NICOLL, Ibis, 1904, 587 (Grand Cayman; crit.).—LOWE, Ibis, 1909, 341 (Little Cayman; crit.); 1911, 145 (Grand Cayman; Little Cayman).

[*Zenaida*] *spadicea* SHARPE, Hand-list, i, 1899, 76.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137.

### ZENaida AURITA (Temminck and Knip).

#### MARTINIQUE DOVE.

*Adult male*.—Pileum and nape soft brown (walnut brown or roods brown) paler (fawn color) to light mikado brown or nearly avellaneus on forehead; sides of head and upper neck, together with foreneck, cinnamon (clearer in front), passing into white or buffy white on chin and upper throat; chest, breast, and anterior portion of sides dull russet-vinaceous to light grayish vinaceous, passing into pale grayish vinaceous posteriorly, the lower abdomen, anal region, and under tail-coverts white or creamy white; sides (beneath wings), axillars, and proximal under wing-coverts pale bluish gray (gull gray), the distal under wing-coverts darker (deep gull gray); a subauricular spot, or streak, of glossy blue-black or steel blue, and, usually at least, a much smaller one on upper edge of auricular region; sides of neck brilliantly glossed with metallic reddish purple and violet, changing to blue; general color of upper parts snuff brown, the proximal secondaries and larger coverts with roundish or oblong black spots, these usually margined posteriorly with white; alulæ, primary coverts, primaries, and distal secondaries dull grayish black or dusky, more or less distinctly, though very narrowly, edged with paler, the secondaries broadly tipped with white, the primaries margined terminally with dull whitish or pale grayish; tail crossed by a sub-terminal (postmedian) band of black, this narrower and less distinct (sometimes obsolete) on middle pair of rectrices, the terminal portion of the lateral rectrices passing from white, or grayish white, on the outermost to deep gray on next to middle pair, the basal portion of all deep gray with outer portion of outer web, more or less extensively, brown, except on outermost rectrix, which is usually edged with white; bill black; iris brown; legs and feet lake red (in life); length, 234–301 (267); wing, 141–165.5 (152.3); tail, 88.5–111 (95.2); exposed

<sup>a</sup> Three specimens.

culmen, 13-17 (14.8); tarsus, 24-27 (25.4); middle toe, 19.5-24.5 (22.4).<sup>a</sup>

*Adult female*.—Similar to the adult male and not always distinguishable, but usually (?) with the subauricular spot or streak smaller; length (skins), 232-298 (266); wing, 136.5-159 (148.1); tail, 81.5-99 (90.7); exposed culmen, 13-15.5 (14.2); tarsus, 23.5-27 (25.1); middle toe, 19.5-23.5 (21.8).<sup>b</sup>

*Young*.—Coloration decidedly duller than in adults; brown of head, chest, etc., much less vinaceous; brown of upper parts lighter, the wing-coverts, scapulars, and proximal secondaries narrowly and indistinctly margined terminally with paler, and black spots on wings less sharply defined and without white posterior margin.

Lesser Antilles (Anguilla; St. Bartholomew; Saba; St. Eustatius; St. Christopher; Barbuda; Antigua; Montserrat; Guadeloupe; Dominica; Martinique; Santa Lucia; St. Vincent; Balliceaux Island, near St. Vincent; Bequia; Canonán; Unión Island; Mustique; Carriacou; Grenada; Barbados); St. Croix and Virgin Gorda, eastern Greater Antilles.

[*Columba martinicana*] Var.  $\beta$ . GMELIN, Syst. Nat., i, pt. 2, 1789, 781 (based on *Columba martinicana* Brisson, Orn., i, 103, no. 14; *Pigeon roux de Cayenne* Buffon, Hist. Nat. Ois., ii, 526; Pl. Enl., no. 141).—LATHAM, Index Orn., ii, 1790, 595.

	<i>a</i> Twenty-seven specimens.		<i>b</i> Twenty specimens.		
Locality.	Wing.	Tail.	Ex- posed cul- men.	Tarsus.	Middle toe.
MALES.					
One adult male from Saba.....	154	96	16	26.5	24.5
Two adult males from St. Eustatius.....	145.5	93	14	24.7	23.5
One adult male from St. Christopher.....	165.5	111	14	25.5	24
Three adult males from Barbuda.....	156.3	95.3	14.8	26.7	22.7
Six adult males from Antigua.....	151.1	94.1	14.2	25.7	22.2
Six adult males from Dominica.....	151.7	94	14.9	25	21.7
One adult male from Martinique.....	145	88.5	15	24	21.5
Three adult males from Santa Lucia.....	158.7	98.7	16	24.8	22.3
One adult male from Bequia.....	146	96	15	27	24
Two adult males from Grenada.....	154	94.7	14.7	25	23.2
One adult male from Barbados.....	142	93	15.5	24.5	21
FEMALES.					
One adult female from Virgin Gorda.....		89	13	23.5	21.5
Four adult females from Barbuda.....	147.6	89.9	14.4	24.4	20.7
Four adult females from Antigua.....	152	90.5	14.1	25.9	22.1
One adult female from Guadeloupe.....	142	90	13.5	24	22.5
Four adult females from Dominica.....	152.5	95.7	14.5	26.5	22.7
One adult female from Santa Lucia.....	150	92.5	.....	24	20.5
One adult female from St. Vincent.....	145	88.5	14.5	25	21.5
Two adult females from Grenada.....	143.2	86.2	14.2	25.2	22.5
Two adult females from Barbados.....	141	88.2	14.5	24.2	21.5

- Columba aurita* TEMMINCK, Les Pigeons, i, fam. seconde, 1808-11, 60, pl. 25, not pl. 25 bis? (Martinique).—TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 247, part (Martinique).—STEPHENS, Shaw's Gen. Zool., xi, 1809, 51, part.
- Z[enaida] aurita* GRAY, Gen. Birds, ii, 1845, 475, excl. syn.
- C[olumba] aurita* TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 467 ("America australi").
- [*Zenaida aurita* REICHENBACH, Syn. Av., 1847, figs. 1413, 1414.—GRAY, Hand-list, ii, 1870, 241, no. 9357.—SHARPE, Hand-list, i, 1899, 76.—FORBES and ROBINSON, Bull. Liverpool Mus., ii, 1900, 137.
- Zenaida aurita* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 380 (Anguilla; Montserrat; Dominica; Barbados; Mustique, Grenadines; Grenada).—NICOLL, Ibis, 1904, 563 (Carriacou, Grenadines).—LOWE, Ibis, 1909, 306 (Barbados).
- Zenaida zenaida aurita* RILEY, Smithson. Misc. Coll., xlvii, Nov. 8, 1904 (281) (Barbuda; Antigua; crit.).—CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 260 (Barbados; St. Vincent; Grenadines; Grenada; habits; descr. nest and eggs).
- (?) *Columba leucoptera* (not of Linnæus) VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 351, part.
- C[olumba] castanea* WAGLER, Syst. Av., 1827, 256, *Columba*, sp. 77 (Martinique).
- P[eristera] castanea* GRAY, Gen. Birds, ii, 1845, 476.
- Z[enaida] castanea* RIDGWAY, Man. N. Am. Birds, 1887, 213.
- Zenaida castanea* CORY, Cat. West Ind. Birds, 1892, 10, 97, 138 (St. Croix; St. Eustatius; Barbuda; Antigua; Montserrat; Guadeloupe; Dominica; Martinique; Santa Lucia; St. Vincent; Bequia; Canonan; Union; Carriacou; Grenada; crit.).
- [*Zenaida martinicana* BONAPARTE, Consp. Gen. Av., ii, 1857, 82 (Martinique; coll. Paris Mus.).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.—CORY, List Birds West Ind., rev. ed., 1886, 24.
- Zenaida martinicana* BONAPARTE, Compt. Rend., xl, 1855, 97 (Martinique; crit.).—TAYLOR, Ibis, 1864, 171 (Dominica; "Porto Rico").—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 66 (Dominica), 196 (Balliceaux I., near St. Vincent), 241 (Barbuda); i, 1879, 275 (Grenada; habits), 360 (Martinique), 487 (Barbuda; Antigua; Guadeloupe; Dominica; Martinique; St. Vincent; Grenada).—SCLATER, Proc. Zool. Soc. Lond., 1879, 765 (Montserrat); 1889, 326 (Dominica); 1892, 499 (Anguilla); Cat. Vertebr. Anim., 8th ed., 1882, 455 (Union I., Grenadines).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).—GRISDALE, Ibis, 1882, 492 (Montserrat; habits).—CORY, Auk, iv, 1887, 114 (synonymy; descr.; range); viii, 1891, 48 (St. Croix; Guadeloupe); Birds West Ind., 1889, 214.—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 624 (Grenada; habits; descr. nest and eggs).—VERRILL (G. E.), Trans. Conn. Ac. Arts and Sci., viii, 1892, 323 (Dominica; habits).
- Z[enaida] martinicana* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 21, pl. 254, figs. 1413, 1414 (Martinique).
- Columba (Zenaida) martinicana* SUNDEVALL, Æiv. k. Vet.-Ak. Förh., 1869, 585 (St. Bartholomew).
- Chamaepelia martinicana* GIEBEL, Thes. Orn., i, 1872, 634.
- Zenaida bimaculata* GRAY, List Birds Brit. Mus., Columbæ, 1856, 47 (Barbados; coll. Brit. Mus.).
- Zen[aida] bimaculata* BONAPARTE, Compt. Rend., xl, 1855, 97 ("Bermuda"=Barbados).
- [*Zenaida bimaculata* GRAY, Hand-list, ii, 1870, 241, no. 9351.
- Zenaida amabilis* (not of Bonaparte) FEILDEN, Ibis, 1889, 489 (Barbados; habits).

## ZENAIIDA(?) PLUMBEA Gosse.

## PLUMBEOUS DOVE.

*Adult*.—General color bluish gray ("bluish lead color"), the secondaries black, tipped with white, and the lateral rectrices tipped with white.

Jamaica (extinct).<sup>a</sup>

*Zenaida? plumbea* GOSSE, Illustr. Birds Jamaica, 1849, pl. 85.—REICHENBACH.

Syn. Av. Novit., Columbariae, 1851, pl. 245, fig. 2590.

*Zenaida plumbea* BONAPARTE, Compt. Rend., xl, 1855, 24 (crit.).

*Z[enaida] plumbea* NEWTON (A. and E.), Handb. Jamaica, 1881, 114.

[*Metriopelia*] *plumbea* BONAPARTE, Consp. Av., ii, 1857, 76.

[*Metriopeleia*] *plumbea* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 18, pl. 245, fig. 2590; ii, 1862, 194.

[*Chamaepelia*] *plumbea* GIEBEL, Thes. Orn., i, 1872, 635.

## ZENAIIDA AURICULATA (Des Murs).

## TEMMINCK'S DOVE.

*Adult male*.—Forehead, anterior portion of crown, and sides of crown and occiput light cinnamon-drab to ecru-drab; sides of head similar, passing into dull white, vinaceous-white, or dull pale grayish vinaceous on chin and upper throat, and into purplish or grayish vinaceous-fawn color on foreneck and chest, this passing posteriorly, through a more pinkish hue, into pale vinaceous-buff on flanks and abdomen, the anal region and under tail-coverts pale cream-buff to buffy white; axillars and proximal wing-coverts pale bluish gray (gull gray), the distal under wing-coverts deeper gray; posterior portion of crown and occiput (sometimes part of nape also) gray (dark gull gray to neutral gray), passing into grayish brown on hindneck; a subauricular spot of glossy blue-black (or black glossed and with steel blue), and a streak of the same along upper margin of auricular region; side of lower neck brilliantly glossed with metallic reddish purple changing to golden bronze, the lower hindneck more faintly glossed; back, scapulars, wing-coverts, and proximal secondaries hair brown to grayish olive-brown, the distal wing-coverts, rump, upper tail-coverts, and middle rectrices more or less gray (the last, however, sometimes quite concolor with back), the upper rump sometimes decidedly gray; a few of the proximal larger wing-coverts and two innermost secondaries each with a rather large roundish or ovate spot of black on outer web; alulae, primary coverts, primaries, and distal secondaries grayish dusky (deep to dark neutral gray), the primaries

<sup>a</sup> This bird, which is known only from an unpublished colored drawing by a Mr. Robinson, seems to be one of the many West Indian species which have become extinct. It was apparently still existant in Gosse's time, and was known to the woodsmen of Jamaica as the "Blue Partridge."

(and sometimes distal portion of secondaries) very narrowly edged with much paler gray or whitish and more broadly but less sharply margined terminally with lighter brownish gray; rectrices (except middle pair) with more than basal half slate-gray or dark dull gray (tinged with brown toward middle ones), the terminal portion pure white on outermost rectrix, gradually becoming more and more gray toward pair next to middle ones, the terminal portion of which is light gray (sometimes with outer web partly white); separating the darker gray of proximal portion from the white or light gray of distal portion is a band of black, which becomes narrower, and less developed on outer webs, toward outer rectrices, the two outermost of which (on each side) having little if any black on outer webs, that of the outermost being almost wholly white; bill black; iris brown; legs and feet lake red; length (skins), 223-280 (255); wing, 127.5-158.5 (146.9); tail, 80.5-107 (90.7); exposed culmen, 14-17.5 (14.6); tarsus, 19-23.5 (22.3); middle toe, 19-24 (21.8).<sup>a</sup>

*Adult female*.—Similar to the adult male but coloration slightly duller, the head, neck and under parts less pinkish or vinaceous, occiput less bluish gray (often grayish brown, like back), and metallic reflection on sides of neck less brilliant or less extended; length (skins), 221-261 (246); wing, 131-151.5 (142.5); tail, 79-100 (87.8); exposed culmen, 14-16 (14.7); tarsus, 19.5-22.5 (21.3); middle toe, 19.5-23.5 (21).<sup>b</sup>

<sup>a</sup> Twenty-three specimens.

<sup>b</sup> Nineteen specimens.

Locality.	Wing.	Tail.	Ex- posed cul- men.	Tarsus.	Middle toe.
MALES.					
Ten adult males from central Ecuador.....	150.4	100.3	15.2	22.4	22.5
Five adult males from Peru.....	146.1	97.9	15.6	23	22.2
Two adult males from Chile.....	153.5	96.2	14.5	23	21.7
Two adult males from Bolivia.....	144.2	87.7	14	22.5	21.2
Three adult males from southern Brazil.....	132.8	79.3	14.3	20.3	19.3
One adult male from Uruguay.....	147.5	88	14.5	21	20
FEMALES.					
One adult female from Colombia (Castillo).....	139	85.5	.....	21.5	21
Nine adult females from central Ecuador.....	147.3	93.4	14.9	21.3	21.1
Two adult females from Peru.....	137	91.7	(15)	21.7	21.5
Five adult females from Bolivia.....	135.8	82.3	14.5	20.7	20.8
One adult female from southwestern Brazil (Chapada, Matto- grosso).....	138	79.5	14.5	21	20.5
One adult female from Uruguay.....	141	87	14.5	22.5	20.5

Besides differences of size there are slight variations of color which seem to distinguish specimens from separate geographic areas; but the series examined is too small as respects the cis-Andean region to justify an attempt at subdivision of the species.

From Pearl Islands, Bay of Panamá, southward through Colombia (Castillo), Ecuador (Quito; Cumboya, near Quito, 7,500 ft.; La Concepción, Quito; Cajabamba, Chimbo, 11,000 ft.; Huigra, Chimbo, 4,000 ft.; Ambato; Riobamba plain, Chimbo; Guayaquil; Sicá; Cuenca; Ibarra; Puntilla de Santa Elena), Peru (Arequipa; Islay; Calacali Bay; Catarindos Valley; Tambo Valley; Macate; Hacienda Llagueda; Menucocho; Carapata, Lake Titicaca), and Bolivia (Reyes; Santa Cruz de la Sierra; Puerto Suarez; Hachapampa; Aguairendo; Caiza; San Lorenzo) to Chile (Coquimbo; Province of Santiago; Rio Beneno; Rio Pilmaiquen), Brazil, south of Amazon River (Mexiana Island; Pará; Ceará; Chapada, Mattogrosso; Fernando Noronha Island), Argentina (Mendoza Bay; Conchitas; Chirilcay; Tucumán; Punta Lara; Quilne), Uruguay (Montevideo; Concepción), and Paraguay (Puerto Bertoni, upper Rio Paraná).

*Columba aurita* TEMMINCK, Hist. Nat. Fig. et Gallin., 1813, 247, 467, part.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 51, part.

[*Columba*] *aurita* LICHTENSTEIN, Verz. Doubl., 1823, 66 (Montevideo, Uruguay; no descr.; based on *Pigeon brun tacheté* Azara, Apunt. Parag., 322).—WAGLER, Syst. Av., 1827, *Columba*, sp. 70 (syn. emend.).—TSCHUDI, Wiegmann's Archiv für Naturg., x, pt. i, 1844, 306 (Peru).

*Columba aurita* DARWIN, Zool. Voy. 'Beagle,' iii, 1841, 115.—TSCHUDI, Fauna Peruana, Aves, 1844, 275.

*Zenaida aurita* FRASER, Proc. Zool. Soc. Lond., 1843, 115 (Chile).—TSCHUDI, Fauna Peruana, Aves, 1844, 45.—HARTLAUB, Index Azara's Apunt., 1847, 20.—MACFARLANE, Ibis, 1887, 202 (Coquimbo, Peru).

[*Zenaida*] *aurita* BONAPARTE, Compt. Rend., xi, 1855, 97 (crit.).

*Columba (Zenaida) aurita* BURMEISTER, Journ. für Orn., 1858, 160 (Mendoza Bay, Argentina).

*Columba maculata* (not of Gmelin, 1789) VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 367; Tabl. Enc. Méth., i, 1823, 376.—BURMEISTER, La Plata Reise, i, 1861, 306.

[*Zenaida*] *maculata* BONAPARTE, Consp. Gen. Av., ii, 1857, 82.—GRAY, Handlist, ii, 1870, 241, no. 9352.—SCLATER and SALVIN, Nom. Av. Motr., 1873, 132.

*Zenaida maculata* BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 302 (Brazil; Paraguay); La Plata Reise, ii, 1861, 497.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 591 (Mexiana I., Brazil); 1868, 143 (Conchitas, Argentina); 1874, 678 (Peru); 1879, 639 (Bolivia).—PELZELN, Orn. Bras., 1871, 276, 450.—LAYARD, Ibis, 1873, 395 (Para, Brazil).—HUDSON, Proc. Zool. Soc. Lond., 1874, 170 (Patagonia).—DURNFORD, Ibis, 1876, 163 (Chirilcay, Argentina).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 575 (Guayaquil, Ecuador).—BARROWS, Auk, i, 1884, 275 (Concepcion, Uruguay).—GIBSON, Ibis, 1885, 282 (Uruguay).—ALLEN, Bull. Mus. Comp. Zool., iii, 1876, 355 (Carapata, Lake Titicaca, Peru); Bull. Am. Mus. N. H., ii, 1889, 105 (Bolivia).—SCLATER and HUDSON, Argentine Orn., ii, 1889, 141.—SHARPE and RIDLEY, Journ. Linn. Soc., Zool., xx, 1890, 479 (Fernando Noronha I.).

[*Zenaida*] *maculata* REICHENBACH, Vollst. Naturg., Columbariae., i, 1861, 21, pl. 257, fig. 1429; ii, 1862, 164.

*Chamaepelia maculata* GIEBEL, Thes. Orn., i, 1872, 634.

*Peristera maculata* SCHLEGEL, Mus. Pays-Bas, Columbae, 1873, 141.

- Columba meridionalis* (not of Latham) KING, Zool. Journ., iv, 1828, 92 (Straits of Magellan).
- [*Chloroenas*] *meridionalis* BONAPARTE, Consp. Av., ii, 1857, 52.
- Chloroenas meridionalis* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 61.
- Phaps meridionalis* REICHENBACH, Vollst. Naturg., Columbariae, ii, 1862, 166.
- Peristera auriculata* DES MURS, in Gay's Hist. Nat. Chile, Orn., i, 1847, 381 (central Chile).—HARTLAUB, Naumannia, 1853, 221.
- Columba auriculata* DES MURS, in Gay's Hist. Nat. Chile, Orn., i, 1847, pl. 6.
- Zen[aida] auriculata* BONAPARTE, Compt. Rend., xl, 1855, 97 (Chile; crit.).
- [*Zenaida*] *auriculata* BONAPARTE, Consp. Av., ii, 1857, 82 (Chile; Patagonia).—GRAY, Hand-list, ii, 1870, 241, no. 9353.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 284 (Chile).
- Z[enaida] auriculata* REICHENBACH, Vollst. Naturg., Columbariae, 1861, 21, pl. 245b, figs. 3529, 3530 (Chile; Patagonia).
- Zenaida auriculata* PELZELN, Novara Reis., Vög., 1865, 109.—SCLATER, Proc. Zool. Soc. Lond., 1867, 330, 339 (Chile); 1870, 665 (Chile).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1867, 989 (Peru); 1868, 176 (Tambo, Peru), 570 (western Peru).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 555 (centr. Peru); 1880, 213 (n. Peru).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 384 (Pearl Island, Bay of Panama; Fernando Noronha I.; Mexiana I., Ceara, Para, and Mattogrosso, Brazil; Hachapampa, Bolivia; Tucuman, Conchitas, Punta Lara, and Quilne, Argentina; Sical, Ecuador; Arequipa, Cataridos Valley, and Islay, Peru; Prov. Santiago, Coquimbo, Rio Beneno, and Rio Pilmaiquen, Chile); Boll. Mus. Zool., etc., Torino, xii, 1897, 32 (Aguaiendo, Caiza, and San Lorenzo, s. Bolivia).—SCHALOW, Zool. Jahrb., Sup., iv, Heft 3, 1898, 671 (Santiago, Chile).—SALVADORI and FESTA, Boll. Zool., etc., Torino, xv, 1900, 35 (Cuenca, Ibarra, La Concepcion, and Quito, centr. Ecuador; Puntillo de Santa Elena, w. Ecuador; crit.).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 147 (Pearl Islands?; crit.).
- Chamaepelia auriculata* GIEBEL, Thes. Orn., i, 1872, 633.
- Zen[aida] hypoleuca* BONAPARTE, Compt. Rend., xl, 1855, 97 ("America centrali").
- Z[enaida] hypoleuca* BONAPARTE, Consp. Gen. Av., ii, 1857, 83 (ex Gray, manuscript; coll. Brit. Mus.).—REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 22, ii, 1862, 164.
- Zenaida hypoleuca* GRAY, List Birds Brit. Mus., Columbæ, 1856, 48 (Pearl Is.).—BONAPARTE, Icon. Fig., 1857, pl. 134.—SCLATER, Proc. Zool. Soc. Lond., 1858, 460 (Ecuador); 1860, 97 (Calacali Bay, Peru).
- [*Zenaida*] *hypoleuca* GRAY, Hand-list, ii, 1870, 241, no. 9355.
- (?) *Zenaida noronha* GRAY, List Birds Brit. Mus., Columbæ, 1856, 47 (Fernando Noronha I., Brazil; coll. Brit. Mus.).—PELZELN, Orn. Bras., 1871, 276, footnote.—RIDLEY, Zoologist, 1888, 44.
- (?) *Zen[aida] noronha* BONAPARTE, Compt. Rend., xliii, 1856, 946, 1949.
- (?) *Zenaida noronha* GRAY, Hand-list, ii, 1870, 241, no. 9354.
- (?) [*Chamaepelia*] *noronha* GIEBEL, Thes. Orn., i, 1872, 635.
- (?) *Zenaida innotata* HARTLAUB, Rev. et Mag. de Zool., iii, 1851, 74 (Chile).
- Zenaida virgata* BERTONI, Aves Nuevas del Paraguay, 1901, 24 (Puerto Bertoni, upper Rio Parana, Paraguay; see Arribálzaga, Anal. Mus. Nac. Buenos Aires, vii, 1902, 338, 383).

## ZENAIDA RUFICAUDA VINACEO-RUFA (Ridgway).

## CURAÇAO DOVE.

Similar to *Z. r. ruficauda*<sup>a</sup> but decidedly smaller and coloration paler.

*Adult male*.—Forehead (broadly), sides of crown and occiput, sides of head and neck, and under parts, between light grayish vinaceous and pale purple-drab, fading on chin and upper throat into dull white or pale vinaceous-buff, becoming somewhat more pinkish posteriorly, the under tail-coverts nearly vinaceous-fawn color; crown, occiput, and nape light bluish gray (between light neutral gray and gull gray), the hindneck more brownish gray or grayish brown; a subauricular spot or streak of glossy blue-black (or black glossed with steel blue) and a streak of the same along upper margin of auricular region; sides of lower neck brightly glossed with metallic coppery bronze or golden, the lower hindneck more faintly glossed with the same; back, scapulars, wing-coverts, and proximal secondaries, grayish brown (deep drab to grayish drab or light hair brown), the rump, upper tail-coverts, and middle rectrices similar but usually decidedly more grayish, especially the upper rump; distal wing-coverts and secondaries brownish gray, very narrowly edged with paler; proximal secondaries and greater wing-coverts with a few large roundish or oblong spots of black; alulæ, primary coverts, and primaries, and distal secondaries dull blackish gray or dusky, the last very narrowly edged with whitish and margined terminally with paler brownish gray or grayish brown; tail crossed by a subterminal band of black (indistinct, sometimes obsolete, on middle rectrices and wanting on outer web of outermost pair), the terminal third (approximatively) of four or five outer rectrices (on each side) light pecan brown or dull vinaceous-tawny, paler toward the outermost rectrix, the outer web of which is wholly pale dull light vinaceous-cinnamon, like distal portion of inner web; the distal portion of second and third, or second, third, and fourth rectrices (from middle) grayish brown or brownish gray, the proximal portion of all (except middle pair) darker brownish gray or grayish brown; bill black; iris deep brown; bare orbital space light blue or grayish blue; legs and feet lake red; length (skins), 210–260 (233); wing, 129.5–143.5 (134.1); tail, 80–99 (85.9); exposed culmen, 13.5–16 (15.3); tarsus, 20–22.5 (21.1); middle toe, 20–22.5 (21.1).<sup>b</sup>

*Adult female*.—Similar to the adult male but coloration of head, neck, and anterior under parts duller, the occiput, etc., less distinctly (sometimes not at all) grayish, the forehead, foreneck, etc., less vinaceous, black markings on sides of head less strongly or not at all glossed with blue, and metallic reflection on sides of neck less brilliant

<sup>a</sup> See p. 356.

<sup>b</sup> Twenty specimens.



or more restricted in area; length (skins), 211–234 (223); wing, 123–132 (128.1); tail, 77.5–88.5 (80.7); exposed culmen, 13–15 (13.9); tarsus, 19–21 (20.1); middle toe, 20–21 (20.3).<sup>a</sup>

*Young*.—Very different in coloration from adults, except remiges and rectrices; wing-coverts and scapulars margined terminally (more or less distinctly) with paler, the lesser and middle coverts sometimes with a small medio-terminal wedge-shaped streak of dull white; ground color of foreneck and chest dull light buffy brownish (sometimes intermixed with dusky), the feathers with paler terminal margins and narrow (sometimes wedge-shaped) mesial streaks; no metallic reflections on sides of neck.

Islands near coast of Venezuela (Margarita; Aruba; Bonaire; Curaçao; Grenada; Glovers Island, near Grenada; Carriacou); and arid coast district of Venezuela (Mérida; El Trompillo, Carababo; Tocuyo; San Felíz; San Germán de Upata).

*Zenaida ruficauda?* (not of Bonaparte) RIDGWAY, Proc. U. S. Nat. Mus., vii, 1884, 176 (Curaçao).

*Zenaida vinaceo-rufa* RIDGWAY, Proc. U. S. Nat. Mus., vii, sig. 11, Sept. 1, 1884, 176 (Curaçao Island, Dutch West Indies; coll. U. S. Nat. Mus.).—HARTERT,

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Bogota, Colombia (type of <i>Z. bogotensis</i> Lawrence= <i>Z. ruficauda</i> Bonaparte?).....	151	87.5	15	23	23
Three adult males from Tolima and Honda, Colombia ( <i>Z. r. robinsoni</i> ).....	133	88	15	21.7	21.3
Two adult males from interior of Venezuela ( <i>Z. r. robinsoni</i> )....	130	83.7	13.5	21.2	19.7
One adult male from British Guiana ( <i>Z. r. jessieæ?</i> ).....	125	83.5	.....	21	19
Three adult males from Diamantina, lower Amazon ( <i>Z. r. jessieæ</i> ).....	126.8	74.2	13.7	19.8	20.7
One adult male from Boa Vista, Pernambuco, Brazil ( <i>Z. r. jessieæ?</i> ).....	135.5	86.3	14.3	21	21.2
Six adult males from coast district of Venezuela ( <i>Z. r. vinaceo-rufa</i> ).....	135.2	87.7	14.9	21.4	21.1
Three adult males from Margarita I., Venezuela ( <i>Z. r. vinaceo-rufa</i> ).....	133	85.2	14.5	21.2	21.2
One adult male from Bonaire I. ( <i>Z. r. vinaceo-rufa</i> ).....	137	86.5	14.5	21	22
Two adult males from Aruba I. ( <i>Z. r. vinaceo-rufa</i> ).....	132.5	87	(16)	20.7	21.5
Three adult males from Curaçao I. ( <i>Z. r. vinaceo-rufa</i> ).....	130.8	81.2	14	20.7	20.2
Two adult males from Grenada ( <i>Z. r. vinaceo-rufa</i> ).....	135.7	(88)	14.2	21.5	22
FEMALES.					
Three adult females from coast district of Venezuela ( <i>Z. r. vinaceo-rufa</i> ).....	129	80	14.3	20.2	19.8
One adult female from British Guiana ( <i>Z. r. jessieæ?</i> ).....	123	73	13	19	18.5
Three adult females from Curaçao ( <i>Z. r. vinaceo-rufa</i> ).....	126.3	78.8	13.5	20	20.7
One adult female from Bonaire ( <i>Z. r. vinaceo-rufa</i> ).....	123	79	14	20.5	20.5
One adult female from Carriacou ( <i>Z. r. vinaceo-rufa</i> ).....	128	83	14.5	19	21
Two adult females from Grenada ( <i>Z. r. vinaceo-rufa</i> ).....	132	84.2	13.7	20.5	20

Ibis, 1893, 304 (Aruba I.; crit.), 324 (Aruba; Curaçao; Bonaire; crit.; habits), 334 (Bonaire; habits).—ROBINSON, Proc. U. S. Nat. Mus., xviii, 1896, 658 (Margarita I., Venezuela).—CORY, Pub. 137, Field Mus. N. H., 1909, 198 (Aruba), 205 (Curaçao), 210 (Bonaire), 240 (Margarita I.).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 389, part (Curaçao; Grenada; Grenadines; Venezuela?).

[*Zenaida vinaceo-rufa* SHARPE, Hand-list, i, 1899, 77 (Venezuela?; Curaçao; Grenada; Grenadines).—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 137.

*Zenaida vinaceo rufa* PETERS, Journ. für Orn., 1892, 113 (Curaçao).

*Zenaida vinaceorufa* BERLEPSCH, Journ. für Orn., 1892, 95 (Curaçao; crit.), 97 (description), 102 (distribution).—CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 261 (Grenada; Carriacou; crit.; habits; descr. nest and eggs).—CORY, Cat. West Ind. Birds, 1892, 97, 139 (Grenada; Grenadines; Curaçao).

(?) *Zenaida ruficauda vinaceorufa?* BERLEPSCH and HARTERT, Novit. Zool., ix, April, 1902, 118 (Altgracia and Caicara, Orinoco Valley, Venezuela; crit.).

*Zenaida ruficauda vinaceorufa* HARTERT, Novit. Zool., ix, 1902, 305 (Aruba; Curaçao; Bonaire).<sup>a</sup>

*Zenaida rubripes* LAWRENCE, Auk, ii, Oct., 1885, 357 (Grenada, Lesser Antilles; coll. U. S. Nat. Mus.); vi, 1889, 21 (Grenada).—CORY, Auk, iv, 1887, 115; Birds West Ind., 1889, 216.—WELLS, Proc. U. S. Nat. Mus., ix, 1886, 624; List Birds Grenada, 1886, 7.

[*Zenaida rubripes* CORY, List Birds West Ind., rev. ed., 1886, 24 (Grenada).

*Egyptila wellsi* (not of Cory) LAWRENCE, Proc. U. S. Nat. Mus., ix, 1886, 625 (Grenada).

#### Genus NESOPELIA Sundevall.

*Nesopelia* <sup>b</sup> SUNDEVALL, Met. Nat. Av. Disp. Tent., ii, 1873, 99. (Type *Zenaida galapagoensis* Gould.)

Similar to *Zenaida* but bill relatively larger and distinctly decurved; tail relatively much shorter (less than three-fifths as long as wing), much less graduated, and consisting of only twelve (instead of fourteen) rectrices, and wing-coverts conspicuously streaked or spotted with white and black.

Bill moderately large, the exposed culmen longer than lateral toes (without claws), slightly but distinctly decurved, with horny terminal portion relatively long (that of maxilla equal to or greater than distance from its base to base of nasal operculum); greatest depth of bill equal to width, decidedly less than one-third length of exposed culmen; frontal feathering advancing as far as or very slightly beyond malar antia, the mental antia reaching about as far as anterior end of nostrils. Wing moderate, pointed, the longest primaries exceeding distal secondaries by a little more than one-third the length of wing; first and second, or first, second and third, primaries (from outside) equal and longest, the outermost with inner web rather strongly incised subterminally. Tail less than three-fifths as long as wing, slightly but decidedly rounded, consisting of twelve moderately broad rectrices. Tarsus decidedly longer than middle toe (without claw), its upper

<sup>a</sup> May be *Z. r. robinsoni*.

<sup>b</sup> Νησος, insula [+ ἡλέια, a dove].

portion (together with tibio-tarsal joint) entirely naked, the acrotarsium with a single row of broad, transverse, slightly oblique, scutella, the planta tarsi covered with small hexagonal scales; lateral toes much shorter than middle toe, the claw of each falling decidedly short of base of middle claw, the inner toe slightly longer than the outer; hallux rather small, scarcely longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage rather firm, that of head, neck, and under parts not perfectly blended; bare orbital space rather large. Upper parts brown, the wing-coverts conspicuously spotted with black and streaked or spotted with white; tail crossed by a subterminal band of black; a pale auricular stripe, margined above and below by a black line; under parts vinaceous-brownish.

*Range.*—Confined to the Galapagos Islands, off Ecuador. (Monotypic.)

#### NESOPELIA GALAPAGOENSIS GALAPAGOENSIS (Gould).

##### GALÁPAGOS DOVE.

*Adult male.*—Pileum dull bister brown, somewhat paler and more vinaceous (nearly hays brown or natal brown) on forehead, the hind-neck more olivaceous brown; back, rump, upper tail-coverts, and middle rectrices olive-brown (the first usually rather browner), some of the more posterior feathers of the back (especially laterally) with spots of black; scapulars black laterally, with a median streak of white, or white and olive-brown, the more anterior ones with the median stripe broader, less white (sometimes wholly brown), and tipped with brown; outer webs of wing-coverts mostly black, the inner webs white next to shaft, light olive-brown or grayish brown toward edge, producing a conspicuous streaked and spotted appearance, the distal coverts (especially greater coverts) with outer webs mostly white, or white and pale gray, producing a rather conspicuous elongated patch on the closed wing; proximal secondaries with a large black spot on each web; alulae, primary coverts, primaries, and distal secondaries dull grayish black or dusky, very narrowly edged with paler, the primaries, however, narrowly but sharply edged with white and margined terminally with light brownish gray or grayish brown; tail crossed by a subterminal band of black, broader on lateral rectrices, narrower toward middle pair, on which the black band may be either very distinct or obsolete; lateral rectrices decidedly more grayish than middle ones, and with the gray of terminal portion slightly paler than that of basal portion; auricular region dull whitish or pale brownish, margined both above and below by a streak of black; lower sides of neck brightly glossed with metallic reddish purple and golden bronze; malar region and anterior under parts dull vinaceous-brown or sorghum brown, fading into avellaneus or pale vinaceous-buff

on chin, deepest on chest, passing into a paler and more grayish hue posteriorly, the under tail-coverts brownish gray, with larger coverts dusky beneath surface; axillars and under wing-coverts bluish gray (dark gull gray or neutral gray); bill black; iris brown; bare orbital skin cobalt blue or light violet-blue (in life); legs and feet red (dark coral red to lake red); length (skins), 188–232 (217); wing, 121.9–138 (130.4); tail, 55.6–79 (68.9); exposed culmen, 16–19 (17.5); tarsus, 20.8–26.5 (24.6); middle toe, 21–24.1 (22.5).<sup>a</sup>

*Adult female*.—Similar to the adult male, but color of anterior under parts less strongly purplish or vinaceous, metallic gloss on sides of neck more restricted and somewhat less brilliant, and size smaller; length (skins), 182–226 (199); wing, 115–123 (120.4); tail, 59–76 (66); exposed culmen, 15–17 (15.8); tarsus, 21–23.5 (22.3); middle toe, 18.5–21 (19.8).<sup>b</sup>

Galapagos Islands, except Wenman and Culpepper. (Abingdon, Albemarle, Barrington, Bindloe, Charles, Gardner near Charles, Chatham, Daphne, Duncan, Hood, Gardner near Hood, Indefatigable, James, Jervis, Narborough, Seymour, and Tower islands).

*Zenaida Galapagoensis* GOULD, Zool. Voy. "Beagle," iii, Birds, 1841, 45, pl. 46 ([Charles Island?] Galapagos group).—GRAY, List Birds Brit. Mus., Columbæ, 1856, 48 ("Chili?").—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Indefatigable and Bindloe islands, Galapagos).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 116 (Indefatigable, Duncan, James, and Hood islands, Galapagos).

*Z[enaida] galapagoensis* GRAY, Gen. Birds, ii, 1845, 475.

<sup>a</sup> Twenty-four specimens.

<sup>b</sup> Seventeen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from Duncan Island.....	131.5	74.2	16.5	24.2	21.7
Six adult males from Indefatigable Island.....	128.5	68.8	18	24.7	22.9
Four adult males from Hood Island.....	136.2	75.1	18	25.1	21.9
Two adult males from Tower Island.....	134.5	70	17	25.5	23.5
One adult male from James Island.....	133.5	72	17	25	22
Five adult males from Chatham Island.....	123.7	59.2	17.5	23.4	22.7
One adult male from Albemarle Island.....	125	68.5	17.5	26.5	24
Two adult males from Bindloe Island.....	134.5	68.7	17.2	25.2	22
One adult male from Abingdon Island.....	136	79	16.5	24	22.5
Two adult males from Wenman Island ( <i>N. g. exsul</i> ).....	140.5	78.7	19.5	26	24.2
FEMALES.					
Four adult females from Indefatigable Island.....	119.5	63.2	16.3	22.2	19.7
Four adult females from Hood Island.....	121.2	68	15.7	22.9	20.2
Four adult females from James Island.....	121.1	67.9	15.6	21.9	19.5
Three adult females from Bindloe Island.....	119.8	66.3	15.5	22	19.3
One adult female from Abingdon Island.....	118	63	16	23	21
One adult female from Daphne Island.....	121	65	15.5	22.5	19
Two adult females from Wenman Island ( <i>N. g. exsul</i> ).....	128.5	68.5	16.5	23.2	20.7

- [*Zenaida galapagoensis* REICHENBACH, Syn. Av., 1847, figs. 1415, 1416.—GRAY, Hand-list, ii, 1870, 241, no. 9356.
- [*Zenaida galapagensis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 132.
- Zenaida galapagensis* SALVIN, Trans. Zool. Soc. Lond., ix, 1876, 499 (Charles, Indefatigable, Bindloe, and James islands).
- Columba (Zenaida) galapagensis* SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 125 (James I.).
- Columbigallina galapagoensis* DES MURS and Prévost, Voy. "Venus," Ois., 1849, 270, pl. 8.
- Geophaps galapagöensis* REICHENBACH, Syn. Av. Novit., Columbariae, 1851, pl. 227, fig. 2484.
- Zenaida galapagoensis* HARTLAUB, Journ. für Orn., ii, 1854, 170.—BONAPARTE, Compt. Rend., xl, 1855, 98 (crit.); Coup d' Œil Ordre Fig., 1855, 42, 58; Consp. Av., ii, 1857, 83.
- Z[*enaida*] *galapagoensis* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 22, pl. 254, figs. 1415, 1416; pl. 227, fig. 2484.
- Columba galapagoensis* BONAPARTE, Compt. Rend., xliii, 1856, 946.
- Nesopelia galapagoensis* SUNDEVALL, Met. Nat. Av. disp. Tent., 1873, 99.
- Peristera galapagoensis* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 140.
- Nesopelia galapagensis* ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 112 (Abingdon I., Galapagos).
- Nesopelia galapagoensis* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 390 (Indefatigable and Bindloe islands; "Chile").—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1896, 614 (Albemarle, Duncan, Charles, Hood, Chatham, Indefatigable, James, Tower, and Bindloe islands; synonymy, descr., etc.).—GIFFORD, Proc. Calif. Ac. Sci., 4th ser., ii, pt. i, 1913, 6, part (Abingdon, Albemarle, Barrington, Bindloe, Charles, Chatham, Daphne, Duncan, Gardner near Charles, Gardner near Hood, Hood, Indefatigable, James, Jervis, Narborough, Seymour, and Tower islands; habits, etc.), 111, part (measurements).
- Nesopelia galapagoensis galapagoensis* ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 183 (Albemarle, Duncan, Charles, Hood, Chatham, Indefatigable, James, Tower, Bindloe, Jervis, Abingdon, and Gardner islands; crit.); ix, 1902, 411 (Barrington, Daphne, and Seymour islands; crit.; habits; descr. nest and eggs), 418 (Galapagos, except Wenman and Culpepper islands).—SNODGRASS and HELLER, Proc. Wash. Ac. Sci., v, 1904, 262 (Charles, Hood, Chatham, Barrington, Indefatigable, Duncan, Jervis, James, Albemarle, Narborough, Abingdon, Bindloe and Tower islands; habits; descr. nest and eggs).
- N[*esopelia*] *galapagoensis galapagoensis* ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 203 (Galapagos).
- [*Nesopelia galapagoensis* SHARPE, Hand-list, i, 1899, 77, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 138 (Indefatigable, Chatham, and Charles islands).
- [*Chamaepelia galapagoensis* GIEBEL, Thes. Orn., i, 1872, 634.

**NESOPELIA GALAPAGOENSIS EXSUL** Rothschild and Hartert.

**LARGER GALÁPAGOS DOVE.**

Similar to *N. g. galapagoensis*, but larger and slightly darker in color.

*Adult male*.—Length (skins), 218–233 (225.5); wing, 139–142 (140.5); tail, 75.5–82 (78.7); exposed culmen, 19.5; tarsus, 26; middle toe, 24–24.5 (24.2).<sup>a</sup>

*Adult female*.—Length (skins), 193–199 (196); wing, 126–131 (128.5); tail, 68–69 (68.5); exposed culmen, 16.5; tarsus, 23–23.5 (23.2); middle toe, 20–21.5 (20.7).<sup>a</sup>

Wenman and Culpepper Islands, Galapagos Archipelago.

*Nesopelia galapagoensis exsul* ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 184 (Culpepper and Wenman Islands, Galapagos Archipelago; coll. Tring Mus.); ix, 1902, 418 (Wenman and Culpepper Islands).—SNODGRASS and HELLER, Proc. Wash. Ac. Sci., v, 1904, 263 (Wenman and Culpepper Islands; crit.).  
*N[esopelia] galapagoensis exsul* ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 203.

[*Nesopelia*] *galapagoensis* subsp. *exsul* FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 138 (reprint of orig. descr.).

*Nesopelia galapagensis exsul* ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 108 (Culpepper Island, Galapagos).

[*Nesopelia*] *galapagoensis* SHARPE, Hand-list, i, 1899, 77, part.

*Nesopelia galapagoensis* GIFFORD, Proc. Calif. Ac. Sci., 4th ser., ii, pt. 1, 1913, 6, part (Culpepper and Wenman Islands), 111, part (measurements).

Genus MELOPELIA Bonaparte.

*Melopelia* BONAPARTE, Compt. Rend., xl, 1855, 98; Consp. Gen. Av., ii, 1857, 81.  
(Type, as fixed by Gray, 1855, *Columba meloda* Tschudi.)

*Melopeleia* (emendation) REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 22.

Medium-sized or rather small arboreal or semi-terrestrial pigeons (length about 235–315 mm.), similar to *Zenaida*, but with relatively longer and less strongly rounded tail, consisting of only twelve (instead of fourteen) rectrices, these broader terminally; much less (instead of much more) than basal half of tail overlaid by the coverts; with bare orbital space larger anteriorly, involving a considerable part of the lores; without black spots on wings, but with a conspicuous white patch involving distal coverts.

Bill moderately long, relatively slender, the exposed culmen longer than distance from its base to posterior angle of eye (about equal to outer toe, without claw), its greatest depth equal to much less than one-fourth the exposed culmen, the horny terminal portion relatively very short, that of maxilla but little more than half as long as the straight, constricted basal portion, very slightly arched basally, the gonydeal angle only slightly prominent; antia of frontal feathering decidedly posterior to malar antia, the mental antia about even with anterior end of nostrils; nasal operculum relatively small, but broad and distinctly tumid. Wing rather large, pointed, the longest primaries exceeding distal secondaries by slightly more than one-third the length of wing; second and third primaries (from outside) longest, the first longer than fourth, the longer primaries rather pointed at tips, none with inner webs sinuated. Tail two-thirds as long as wing, or slightly more, consisting of twelve rectrices, of which only the middle pair are appreciably narrower terminally, moderately rounded

<sup>a</sup> Two specimens, from Wenman Island. (Culpepper Island specimens not seen.)

(the graduation equal to less than half the length of exposed culmen), less than the basal half overlaid by the coverts. Tarsus about as long as middle toe without claw, or slightly shorter, rather stout, the upper portion together with lower end of tibia completely bare, the acrotarsium with an outer row of large transverse scutella, the inner side with a row of similar but more hexagonal scutella, the planta tarsi with small, and for the most part indistinct, hexagonal scales; lateral toes decidedly shorter than middle toe, both with their claws falling slightly short of base of middle claw; hallux relatively small and slender, its length (without claw) slightly exceeding length of basal phalanx of middle toe.

*Plumage and coloration.*—Plumage of head, neck, and chest blended; bare orbital space rather large, especially anteriorly, where continued in a narrow strip entirely across lores to the rictus. A black sub-auricular spot and paler apical area on lateral rectrices, as in *Zenaida* and *Zenaidura*, but wings without any black spots and distal wing-coverts with outer webs white, forming a conspicuous longitudinal patch on wing; upper parts plain grayish brown, under parts plain grayish, the head, neck, and chest more or less vinaceous-drab; lateral rectrices crossed by a post-median black band, the basal portion deep or dark gray, the apical portion pale gray or grayish white.

*Range.*—Southern border of United States to Costa Rica; Bahamas and Greater Antilles; Peru and northern Chile. (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF MELOPELIA.

- a. Smaller (wing 142–171.5; tail 84.5–121.5); whitish tip to lateral rectrices relatively much broader; anal region white. (*Melopelia asiatica*.)
- b. Smaller and more deeply colored, the neck and chest more buffy brownish; adult male averaging wing 156.3, tail 103.4, culmen 19.7, tarsus 24.7, adult female averaging wing 151.4, tail 98.1, culmen 19.3, tarsus 23.7. (Cuba; Jamaica; Haiti; Inagua; Old Providence I.; lower Rio Grande Valley in Texas and southward through lowlands of eastern Mexico, to western Costa Rica; occasional in southern Florida and Louisiana.).....*Melopelia asiatica asiatica* (p. 378).
- bb. Larger and paler, the neck, chest, etc., more grayish; adult male averaging wing 164.3, tail 114.7, culmen 22.5, tarsus 25.5, adult female averaging wing 158.9, tail 105.6, culmen 22, tarsus 24. (Southern New Mexico to Lower California and southward to States of Guerrero and Puebla, Mexico.  
*Melopelia asiatica mearnsi* (p. 382).
- aa. Larger (wing 175, tail 127 mm.); whitish tips to lateral rectrices relatively much shorter; anal region gray. (Coast district of Peru and northern Chili.)  
*Melopelia meloda* (extralimital).<sup>a</sup>

<sup>a</sup> *Columba meloda* Tschudi, Wiegmann's Archiv für Naturg., ix, pt. i, 1843, 385 (w. side of Andes in Peru); Fauna Peruana, Aves, 1844–46, 44, 276, pl. 29.—[*Melopelia meloda* Bonaparte, Consp. Gen. Av., ii, 1857, 81.—*Melopelia meloda* Sclater, Proc. Zool. Soc. Lond., 1867, 330, 339 (Chile); Taczanowski, Orn. du Pérou, iii, 1886, 241; Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 395.—*M[elopeleia] meloda* Reichenbach, Vollst. Naturg., Columbariae, i, 1861, 23, pl. 254 (clix), fig. 1418 (Tacna, Peru; Chile).—*Zenaida souleyetiana* Des Murs, in Gay's Hist. de Chile, i, 1847, 380, pl. 7.—*Melopelia souleyetiana* Bonaparte, Consp. Gen. Av., ii, 1857, 81, in text.

## MELOPELIA ASIATICA ASIATICA (Linnaeus).

## WHITE-WINGED DOVE.

*Adult male*.—Forehead fawn color, usually somewhat paler anteriorly, passing into a much darker hue (sometimes approaching dark purple-drab) on crown and occiput, which in fresh plumage shows a purplish or vinaceous "bloom"; hindneck similar in color to occiput but somewhat lighter; back, scapulars, proximal secondaries, and wing-coverts plain deep buffy brown, light sepia, or saccardos umber, the middle pair of rectrices (sometimes longer upper tail-coverts also) similar, sometimes more decidedly brown; distal wing-coverts mostly white, forming a conspicuous elongated patch from bend of wing to extremity of greater coverts, the latter with basal portion gray, as are also the coverts along inner margin of the white area; alulae, primary coverts, primaries, and distal secondaries dull black, the outer webs of secondaries broadly edged with white distally, the primaries very narrowly edged with white (except basally) and margined terminally with light or pale brownish gray; rump light slate-gray or dark gull gray, usually more or less tinged with buffy brown (sometimes more brown than gray), the upper tail-coverts either wholly brown or mixed brown and gray; rectrices (except middle pair) slate-gray very broadly tipped (for about one-fourth their length on innermost to about one-third on outermost) with very pale gray to grayish white, and crossed by a band of slate-black or blackish slate between the paler and darker areas; a sub-orbital spot of blue-black or black glossed with steel blue; sides of neck glossed with metallic reddish bronze to greenish bronze; sides of head and neck, throat, foreneck, chest, and upper breast (sometimes whole breast) wood brown (more or less deep), paler (sometimes dull whitish) on chin and upper throat, passing (sometimes rather abruptly) into pale gray (gull gray to pale neutral gray) on posterior under parts, including under tail-coverts, the anal region white, or nearly so; sides and flanks (beneath wings), axillars, and under wing-coverts deeper gray (gull-gray or pale neutral gray); under surface of tail slate-black broadly tipped with white or grayish white; bill black; iris orange to orange-red or coral red; bare orbital space pale grayish blue to campanula blue; legs and feet lake red; length (skins), 252–313 (275); wing, 144.5–166 (156.3); tail, 97–115 (103.4); exposed culmen, 18–22.5 (19.7); tarsus, 23.5–26 (24.7); middle toe, 23–26.5 (24.7).<sup>a</sup>

*Adult female*.—Similar to the adult male and sometimes not distinguishable but usually slightly duller in color, the purplish hue of occiput and hindneck less pronounced, or wanting, rump less bluish

<sup>a</sup> Forty specimens.



gray, and metallic gloss on sides of neck less distinct; length (skins), 235-288 (262); wing, 142-161 (151.4); tail, 84.5-106.5 (98.1); exposed culmen, 17.5-21.5 (19.3); tarsus, 22-25.5 (23.7); middle toe, 22-25 (23.6).<sup>a</sup>

*Young*.—Much grayer than adults, the hindneck and back mouse gray, the foreneck and chest drab-gray; scapulars and smaller wing-coverts narrowly and indistinctly margined with paler; feathers of foreneck and chest with narrow, indistinct, paler shaft-streaks; black subauricular spot small, and metallic gloss on sides of neck absent.

Eastern Cuba (Santiago de Cuba; Guantánamo; Holquín); Great Inagua, southern Bahamas; Haiti (San Cristóbal and Puerta Plata,

<sup>a</sup> Thirty-one specimens.

Locality.	Wing.	Tail.	Ex- posed cul- men.	Tarsus.	Middle toe.
MALES.					
One adult male from Bahamas (Inagua).....	152	103.5	19.5	25	24.5
Three adult males from Cuba.....	159.5	98.3	19	25.2	24.8
Seven adult males from Jamaica.....	154.9	103.1	19.8	24.6	24.6
Two adult males from Haiti.....	159.2	103.5	19	25.2	25
Two adult males from Old Providence Island, Caribbean Sea..	160.5	107.5	19	24	24.2
Nine adult males from Costa Rica.....	156.3	101.5	19.5	24.8	24.3
Three adult males from Nicaragua.....	158.7	105.5	21.5	24.5	24.5
One adult male from Guatemala.....	154	103	20	25	26
Nine adult males from Yucatan.....	156.4	103.6	19.7	24.3	24.9
One adult male from Campeche.....	149	101	19	22.5	23.5
One adult male from Tamaulipas.....	154	106	20	24	23.5
Three adult males from Texas (lower Rio Grande Valley).....	157.7	110.2	20.5	24.8	24.7
Thirty adult males of <i>M. a. mearnsi</i> .....	164.3	114.7	22.5	25.5	26.2
FEMALES.					
Four adult females from Cuba.....	150.5	95.5	17.9	23.4	22.7
Six adult females from Jamaica.....	152.7	96.8	19.4	23.8	23.5
One adult female from Old Providence Island, Caribbean Sea..	152	101	18	23.5	23
Five adult females from Costa Rica.....	153.2	97.1	19	23.5	24.1
Two adult females from Nicaragua.....	154.5	99.2	20.2	24.7	24.2
One adult female from Guatemala.....	153	102.5	20	24.5	24.5
Seven adult females from Yucatan.....	149.6	99.4	20.2	23.9	23.5
Two adult females from Oaxaca (Tehuantepec).....	150	103	20	23.5	24
One adult female from Tamaulipas.....	150	103	20	23.5	24
Two adult females from Texas (lower Rio Grande Valley).....	147	94.5	18.2	22.5	24
Nineteen adult females of <i>M. a. mearnsi</i> .....	158.9	105.6	22	24	24.4

So far as I am able to judge after a very careful comparison of specimens from Central America with those from the Greater Antilles, there is not even an average difference in either size or coloration between the two series. The individual variation is very considerable in both lots, but it seems to me impossible to satisfactorily distinguish the continental from the island birds, as a whole.

Santo Domingo); Jamaica (Kingston; near Spanishtown; Trelawney; Moneague; Port Antonio; Priestman's River); Old Providence Island, Caribbean Sea; and lower Rio Grande Valley in Texas (Brownsville; Fort Brown; Hidalgo; near Carrizo; 12 miles south of Del Rio; Rio Grande City) southward through Tamaulipas (Matamoros; Miér; Tampico), Vera Cruz (Córdova; <sup>a</sup> Jalapa)<sup>a</sup>, Oaxaca (Tehuántepec City; La Parada; <sup>a</sup> Juchitán; <sup>a</sup> Juchatengo; <sup>a</sup> Tapana)<sup>a</sup>, Campeche (Jaina), Yucatan (Chichen-Itza; Sisál; Tekanto; Mérida; Izamál; Cozumél Island; Mugerés Island); Camp Mengel, Quintana-Roo; Guatemala (Dueñas; San Gerónimo; near Tecpám; El Rancho, Zacapa; San José, Sololá; Volcán de Fuego above San Diego), Salvador (La Unión; La Libertád), Honduras (Omoa; San Pedro; Comayagua), Nicaragua (San Rafael del Norte; Chinandega; Ometepe; San Juan del Sur; Sucuyá) to western Costa Rica (Miravalles; Cerro de Santa Maria; Guanacaste; Bolsón; Bebedero; Tenório; La Palma de Nicoya; Bagaces; San Lucas; San Mateo; Santo Domingo de San Mateo; San José; Turrúcares; Pozo Azul de Pirris); Panamá? <sup>b</sup> Occasional in southern Florida (Kissimmee, Nov., 1896; Key West, Nov. 14, 1888), Louisiana (Grand Isle, May, 1894, and Aug., 1895; Venice, 1 pair, Nov. 20, 1910), and south-central Texas (San Antonio; Kerrville, Kerr County, Nov. 25, 1910; Boerne, Kendall County).

[*Columba*] *asiatica* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 163 ("East Indies"); based on *Turtur indicus fuscus* Edwards, Birds, 76, pl. 76; *Columba subfusca media* Browne, Jamaica, 468; ed. 12, i, 1766, 281.

*Melopelia asiatica* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxv, July, 1908, 368, part; Check List, 3d ed., 1910, 150, part.—CARRIKER, Ann. Carnegie Mus., vi, 1910, 397 (Santo Domingo de San Mateo, Bolson, Tenorio, Cerro Santa Maria, Miravalles, Pozo Azul de Pirris, Guanacaste, Turrucars, and Bebedero, Costa Rica).—LACEY, Auk, xxviii, 1911, 207 (Kerrville, Texas, 1 spec., Nov. 25, 1910; Boerne, Texas, 1 or 2 specs.).

*Melopelia asiatica asiatica* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxix, July, 1912, 381.

[*Melopelia*] *asiatica* *asiatica* PETERS, Auk, xxx, 1913, 372, footnote, in text.

[*Columba*] *leucoptera* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 164 (America; based on *Turtur indicus fuscus* Edwards, Birds, 76, pl. 76; *Columba subfusca media* Browne, Jamaica, 468); ed. 12, i, 1766, 281.—GMELIN, Syst. Nat., i, pt. 2, 1789, 773.—LATHAM, Index Orn., ii, 1790, 595 ("India et Carthagena americana").

*Columba leucoptera* McCALL, Ann. Lyc. N. Y., vi, 1853, 13 (Rio Grande, Texas).

*Zenaida leucoptera* GRAY, List Gallinæ Brit. Mus., 1844, 14 (West Indies).—SCLATER and SALVIN, Ibis, 1859, 223 (Dueñas, Guatemala; Omoa, Honduras).—TAYLOR, Ibis, 1860, 227 (Pacific coast and Comayagua, Honduras).

<sup>a</sup> Specimens from these localities not seen; they may, possibly, be referable to *M. a. mearnsi*.

<sup>b</sup> There is a specimen in the collection of the Carnegie Museum labeled Natá, Coclé, Panama (no. 20777; Heyde and Lux, collectors); but this is evidently referable to the larger and grayer form from western Mexico, and if really from Panama must have been a cage bird; indeed its appearance suggests its having been kept in confinement.

- (?) *Zenaida leucoptera* SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz); 1858, 305 (La Parada, Oaxaca).
- [*Zenaida*] *leucoptera* REICHENBACH, Syn. Av., [1847], fig. 1417.
- Turtur leucopterus* GOSSE, Birds Jamaica, 1847, 304; Naturalist's Soj. in Jamaica, 1851, 174.
- [*Melopelia*] *leucoptera* BONAPARTE, Consp. Gen. Av., ii, 1857, 81, part (Antilles; Jamaica; Texas).—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba).—GRAY, Hand-list, ii, 1870, 241, no. 9361, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24 (Cuba; Haiti; Jamaica).—SHARPE, Hand-list, i, 1899, 77, part.—FORBES and ROBINSON, Bull. Liverpool Mus., ii, 1900, 138, part (Jamaica; "Panama;" Matamoros, Tamaulipas).
- Melopelia leucoptera* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 603 (Tamaulipas); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 21 (Tamaulipas); Cat. N. Am. Birds, 1859, no. 450, part.—MOORE, Proc. Zool. Soc. Lond., 1859, 61 (Omoa, Honduras).—SCLATER, Proc. Zool. Soc. Lond., 1861, 80 (Jamaica); Rev. List Birds Jamaica, 1910, 19.—GUNDLACH, Journ. für Orn., 1862, 178 (Cuba; crit.); Repert. Fisico-Nat. Cuba, Orn., i, 1866, 301; Contr. Orn. Cubana, 1876, 137 (e. Cuba; habits; descr. eggs); ed. 1895, 165 (e. Cuba; habits).—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 139 (San Jose, Costa Rica); ix, 1869, 207 (Merida, Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 44 (Tehuantepec City, Oaxaca).—FRANTZIUS, Journ. für Orn., 1869, 372 (Costa Rica).—COOPER, Orn. Calif., 1870, 515, part (Rio Grande Valley).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 838 (coast of Honduras).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 152, part (Jamaica).—COUES, Check List, 1873, no., 373, part; 2d ed., 1882, no. 546, part; Birds North-West, 1874, 387, in text, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 376, part.—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 47 (near Brownsville and at Hidalgo, Texas; habits; nest and eggs).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 157 (Fort Brown, Texas; descr. nest and eggs).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880 (Cat. N. Am. Birds), 195, part; Nom. N. Am. Birds, 1881, no. 464, part; Auk, xiv, 1897, 88 (near Kissimmee, Florida, 1 spec., Nov., 1896).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 408 (La Palma de Nicoya, Costa Rica; voice); vi, 1883, 378 (San Juan del Sur, Nicaragua; voice), 389 (Sucuya, Nicaragua), 395 (Omotepe, Nicaragua).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 459 (Yucatan; habits).—CORY, Birds Haiti and San Dom., 1885, 131 (Puerta Plata, Santo Domingo); Auk, iv, 1887, 115 (West Indian localities and references), 180 (Old Providence I., Caribbean Sea); viii, 1891, 351 (Inagua, Bahamas); Birds West Ind., 1889, 216; Cat. West Ind. Birds, 1892, 97 (Great Inagua, Bahamas; Cuba; Jamaica; Haiti).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 319, part.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1889, 127 (San Mateo, Costa Rica).—SALVIN, Ibis, 1889, 377 (Mugeres and Cozumel islands, Yucatan).—SCOTT, Auk, vi, 1889, 246 (Key West, Florida, 1 spec., Nov. 14, 1888); ix, 1892, 123 (Jamaica; habits).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 145, part.—ATTWATER, Auk, ix, 1892, 233 (San Antonio, Texas).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 392, part (Jamaica; Hidalgo and Brownsville, Texas; Tampico, Tamaulipas; Juchatengo and Tehuantepec, Oaxaca; Izamal, Cozumal I., and Mugeres I., Yucatan; San Jose Solola, Volcan de Fuego above San Diego, Dueñas, and San Geronimo, Guatemala; La Libertad, Salvador; San Pedro, Honduras;

- Costa Rica).—FIELD, Auk, xi, 1894, 123 (Jamaica).—CHERRIE, Contr. Orn. San Dom., 1896, 24.—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 287 (Chichen-Itza, Yucatan; habits; voice).—BEYER, Proc. La. Soc. Nat. for 1897-99 (1900), 98 (Grand Isle, Louisiana, May, 1894, and Aug., 1895).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 245, part (Matamoros and Tampico, Tamaulipas; Juchitan, Juchatengo, Tapana, Tehuantepec, and La Parada, Oaxaca; Chichen-Itza, Merida, Izamal, Mugerés I., and Cozumel I., Yucatan; San Jose Solola, Volcan de Agua, Dueñas, and San Geronimo, Guatemala; Omoa, San Pedro, and Comayagua, Honduras; La Libertad, Salvador; Omotepe, Sucuya, and San Juan del Sur, Nicaragua; San Jose, San Mateo, La Palma de Nicoya, San Lucas, Bebedero, Bagaces, and Miravalles, Costa Rica; Jamaica).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 79 (El Rancho and near Tecpam, Guatemala).—BEYER, ALLISON, and KOPMAN, Auk, xxv, 1908, 440 (Grand Isle, Louisiana, May, 1904, and Aug., 1895).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Santo Domingo).—MCATEE, Auk, xxviii, 1911, 274 (Venice, Louisiana, 1 pair, Nov. 20, 1910).
- M[elopelia] leucoptera* NEWTON (A. and E.), Handb. Jamaica, 1881, 114.—COUES, Key N. Am. Birds, 2d ed., 1884, 569, part.—RIDGWAY, Man. N. Am. Birds, 1887, 214, part.
- M[elopeleia] leucoptera* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 22, pl. 254 (clix), fig. 1417, pl. 255, fig. 2869, part (Jamaica; Texas); ii, 1862, 164
- [*Melopeleia] leucoptera* COUES, Key to N. Am. Birds, 1872, 226, part.
- Melopeleia leucoptera* COUES, Check List, 1873, no. 373, part.
- Chamaepelia leucoptera* GIEBEL, Thes. Orn., i, 1872, 634, part.
- Columba aurita* (not of Temminck, 1808-11) TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 247, 467, part.
- Melopelia asiatica australis* PETERS, Auk, xxx, July, 1913, 372, footnote (Cerro de Santa Maria, Costa Rica; coll. E. A. and O. Bangs).
- Columba trudeaui* AUDUBON, Birds Am., oct. ed., vii, 1844, 352, pl. 496 (Texas).—CABOT, Proc. Bost. Soc. N. H., i, 1844, 183 (Yucatan).
- [*Zenaida trudeaui* REICHENBACH, Syn. Av. Novit. Columbariae, 1851, fig. 2869.
- Melopelia asiatica trudeaui* MEARNS, Auk, xxviii, Oct., 1911, 490, in text, part.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxix, 1912, 381, part.—PETERS, Auk, xxx, 1913, 372 (Camp Mengel, Quintana Roo; crit.).

### MELOPELIA ASIATICA MEARNSI Ridgway.

#### WESTERN WHITE-WINGED DOVE.

Similar to *M. a. asiatica* but averaging decidedly larger and coloration paler and grayer, the foreneck and chest light drab to hair brown instead of fawn color, the back, etc., hair brown to deep drab.

*Adult male*.—Length (skins), 274-313 (286); wing, 152-171.5 (164.3); tail, 101.5-121.5 (114.7); exposed culmen, 18.5-23.5 (22.5); tarsus, 23.5-26.5 (25.5); middle toe, 24-27.5 (26.2).<sup>b</sup>

<sup>a</sup> The precise locality was unknown to Audubon; but since both his description and colored plate agree better with the smaller, more deeply colored Eastern form, the type almost certainly came from the Lower Rio Grande Valley.

<sup>b</sup> Thirty specimens.

*Adult female*.—Length (skins), 250–295 (280); wing, 150–170 (158.9); tail, 95–116 (105.6); exposed culmen, 19.5–24 (22); tarsus, 22–26 (24); middle toe, 23–26 (24.4).<sup>a</sup>

Southwestern New Mexico (Guadalupe Canyon), southern Arizona (Phoenix; Santa Cruz River; Big Sandy Creek; Fuller's Ranch; Fort Bowie; Cienega; 5 miles south of Nogales), southern Lower California (Cape San Lucas; San José del Cabo; La Paz; Santa Ulalia, 8,000 ft.; Agua Verde; Victoria Mts.; San Fernando; Comondú; Soledad), and southward through Sonora (Hermosillo; Guaymas; Álamos), Sinaloa (Mazatlán), Jalisco (Bolaños; Zapatlán; Guadalajara), Zacatecas (Jeréz), Aguas Calientes, Nuevo León (Pesquería Grande; Hacienda de las Escobas; Panaguslin; Rio de Monteréy; Rio de Gilla), San Luis Potosí, Tepic (Tepic; San Blas) and Colima (Plains of Colima; Manzanillo) to Guerrero (Acapulco; Iguala; Tierra Colorada), Mexico (near City of Mexico) and Puebla (Atlixco; Atotonilco); Tres Marias Islands (Maria Madre Island). Accidental in southwestern Colorado (Wet Mountain Valley, Sept., 1899) and western Washington (Puyallup Valley, Nov. 7, 1907).

(??) [*Columba*] *hoilott* <sup>b</sup> GMELIN, Syst. Nat., i, pt. 2, 1789, 777 (Mexico; based on *Hoilott* Ray, Av., 63, no. 13; *Columba montana mexicana* Brisson, Orn., i,

<sup>a</sup> Nineteen specimens.

Locality.	Wing.	Tail.	Ex- posed cul- men.	Tarsus.	Middle toe.
MALES.					
One adult male from Guerrero.....	163	111	23.5	24.5	26
Two adult males from Colima.....	159	112	22	24.7	25.5
Two adult males from Sinaloa.....	166.5	113.2	21.2	24.7	25.7
Two adult males from Tres Marias Islands.....	166	119.5	19.2	25	26.7
Two adult males from Sonora.....	162.2	108.7	22	24.7	25.2
Ten adult males from Lower California.....	161.8	112.6	21.7	24.6	25.3
Seven adult males from Arizona.....	163.7	108.2	22.9	24.9	25.9
Three adult males from New Mexico.....	163.8	110.7	22.7	24.7	24.3
Forty adult males of <i>M. a. asiatica</i> .....	156.3	103.4	19.7	24.7	24.7
FEMALES.					
One adult female from Colima.....	161	109	20.5	23	25
One adult female from Sinaloa.....	162.5	116	19.5	25.5	25.5
Seven adult females from Lower California.....	160.1	110	22	24.2	24.3
Eight adult females from Arizona.....	155.5	100.1	22	23.7	24.2
Two adult females from New Mexico.....	165.7	105.5	23.7	24.2	24.7
Thirty-one adult females of <i>M. a. asiatica</i> .....	151.4	98.1	19.3	23.7	23.6

<sup>b</sup> Although this name has been frequently cited as possibly applying to the present species, there is really little if any reason for doing so. Brisson's description is as follows: "*Columbam Romanam* magnitudine ferè adæquat. Per universum corpus colore rufo in purpureum vergente tingitur, exceptis tectricibus alarum minoribus candidis. Rostrum & pedes coccinei." [Etc.]

There being, apparently, no other name exclusively applicable to this form, I take pleasure in dedicating it to Dr. Edgar A. Mearns, who first recognized it as different from the typical form but unfortunately used for it the name *trudeaui*, which proves to be a synonym of *asiatica*.

- 130; *White-shouldered Pigeon* Latham, Synopsis Birds, ii, pt. 2, 624, no. 27; etc.—LATHAM, Index Orn., ii, 1790, 601.—BONAPARTE, Consp. Av., ii, 1857, 59.
- (??) *Columba hoilott* BONNATERRE, Tabl. Enc. Méth., i, 1790, 243.—VIEILLON, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 353 (Mexico).—DESMAREST, Dict. Sci. Nat., xl, 1826, 373.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 640 (among doubtful species).
- (??) *Columba hoilott* WAGLER, Syst. Av., 1827, *Columba*, sp. releg. 4 [275].
- Zenaida meloda* (not *Columba meloda* Tschudi) LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 83 (Mexico).
- Columba leucoptera* (not of Linnæus) HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1852, 271 (Guaymas, Sonora).—BAIRD, in Rep. Stansbury's Surv. Great Salt Lake, 1852, 326 (New Mexico).
- Melopelia leucoptera* BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 305 (Cape San Lucas, Lower California).—SCLATER, Proc. Zool. Soc. Lond., 1864, 178 (near City of Mexico).—COUES, Ibis, 1865, 165, in text (Fort Whipple, Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 93 (Fort Whipple); Birds North-West, 1874, 387, part (synonymy in footnote); Bull. Nutt. Orn. Club, ii, 1877, 83 ("head of Cub Creek, Jefferson County," Colorado??); Check List, 2d ed., 1882, no. 546, part.—COOPER, Orn. Calif., 1870, 515, part (Cape San Lucas).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 152, part (Mexico; Cape San Lucas).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 305 (Mazatlan, Sinaloa; Colima; habits; voice; descr. nest).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 376, part, pl. 58, fig. 4.—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 32 (Tucson, Gila R., Yuma, etc., Arizona); Bull. Mus. Comp. Zool., xli, 1902, 79 (Cape Region of Lower Calif.).—SALVIN, Proc. Zool. Soc. Lond., 1883, 428 (Acapulco, Guerrero).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 544 (Cape San Lucas district).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 319, part.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 175 (Atlixco, Puebla).—SCOTT, Auk, iii, 1886, 421 (Pinal Co., Arizona, up to 3500 ft.).—COOKE, Birds Colorado, 1897, 73 (record of Coues', Bull. Nutt. Orn. Club, ii, 1877, 83 very doubtful); Bull. 44, Col. Agric. Exp. Sta., 1898, 160 (Colorado; "two small flocks"; no locality nor date); Bull. 56, 1900, 203 (Wet Mt. Valley, Colorado, 1 spec., Sept., 1899).—BRYANT (W. E.), Proc. Calif. Ac. Sci., ser. 2, 1889, 277 (Victoria Mts., San Fernando, Comondu, Soledad, etc., Lower California; descr. nest and eggs).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 145, part.—ANTHONY, Auk, xii, 1895, 137 (San Fernando, Lower California).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 392, part (Fullers, Arizona; La Paz and Cape San Lucas, Lower California; Alamos, Sonora; Pesqueria Grande, Hacienda de los Escobas, Panaguslin, Rio de Monterey, and Rio de la Gilla, Nuevo Leon; Tepic and San Blas, Tepic; Bolaños and Zapatlan, Jalisco; Jerez, Zacatecas; Aguas Calientes; Valles, San Louis Potosi; Acapulco and Tierra Colorada, Guerrero; Mazatlan, Sinaloa).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 789 (central Mexico; fresh colors of unfeathered parts; voice, etc.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 245, part (Alamos and Guaymas, Sonora; Pesqueria Grande, Hacienda de las Escobas, Panaguslin, Rio de Monterey, and Rio Gila, Nuevo Leon; Mazatlan, Sinaloa; Tepic and San Blas, Tepic; Bolaños, Guadalajara, and Zapatlan, Jalisco; Acapulco and Tierra Colorado, Guerrero; Tres Marias; Guanajuato; Aguas Calientes; San Luis Potosi; Atlixco and Atotonilco, Pueblo; Valley of Mexico).—BOWLES, Auk, xxv, 1908, 82; Condor, x, 1908, 129 (Puyallup Valley, Washington, 1 spec., Nov. 7, 1907).—VISHER, Auk, xxvii, 1910, 281 (Pima Co., Arizona, up to 4000 ft., resident).

- [*Melopelia*] *leucoptera* BONAPARTE, *Consp. Av.*, ii, 1857, 81, part (Mexico).—GRAY, *Hand-list*, ii, 1870, 241, no. 9361, part.—SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 133, part.—SHARPE, *Hand-list*, i, 1899, 77, part.
- M[*lelopeleia*] *leucoptera* REICHENBACH, *Vollst. Naturg., Columbariae*, i, 1861, 22, part (Mexico).
- Melopeleia leucoptera* COUES, *Proc. Ac. Nat. Sci. Phila.*, 1866, 93 (Fort Whipple, Arizona); *Check List*, 1873, no. 373, part.
- [*Melopeleia*] *leucoptera* COUES, *Key N. Am. Birds*, 1872, 226, part.
- Melopelia asiatica trudeaui* (not *Columba trudeaui* Audubon) MEARNS, *Auk*, xxviii, Oct., 1911, 490, in text, part.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, *Auk*, xxv, July, 1908, 368.
- Melopelia asiatica* (not *Columba asiatica* Linnæus) AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 3d ed., 1910, 150, part.—RATHBUN (S. F.), *Auk*, xxviii, 1911, 493 (Puyallup, 25 miles s. e. of Seattle, Washington, 1 spec., Nov. 11, 1907).
- Melopelia asiatica mcarnsi* RIDGWAY, *Proc. Biol. Soc. Wash.*, xxviii, May 27, 1915, 107 (five miles north of Nogales, Arizona; coll. U. S. Nat. Mus.).

#### Genus STREPTOPELIA Bonaparte.

*Streptopelia* BONAPARTE, *Consp. Gen. Av.*, ii, 1857, 63. (Type, *Columba risoria* Linnæus.)

Medium-sized or rather small arboreal or semiterrestrial Pigeons (length about 270–295 mm.), with small bill (exposed culmen shorter than lateral toes), tarsus shorter than middle toe without claw (the upper portion entirely bare), tail more than two-thirds as long as wing, slightly rounded, bicolored, and very plain coloration, relieved by a conspicuous nuchal band of black margined above by white.

Bill relatively small, the exposed culmen shorter than lateral toes (about as long as distance from its base to middle of eye), strongly constricted medially and basally (the unguis distinctly arched basally and gonydeal angle prominent), the horny terminal portion occupying about one-third its total length; antia of frontal feathering decidedly posterior to malar antia (the latter slightly anterior to middle of nasal operculum), the mental antia about midway between frontal antia and tip of bill; nasal operculum rather small, moderately tumid. Wing rather large, pointed, the longest primaries exceeding distal secondaries by a little more than one-third the length of wing; second and third primaries (from outside) longest, the first (outermost) a little longer than fourth, and with inner web slightly incised subapically. Tail more than two-thirds as long as wing, slightly rounded (its graduation less than length of exposed culmen), more than its basal half overlaid by the coverts; rectrices twelve, not tapering, their tips broadly rounded. Tarsus relatively rather short (about one and a half times as long as exposed culmen), moderately stout, the upper portion, including tibio-tarsal joint naked, the acrotarsium with a single row of large, rather indistinct,

transverse scutella, the planta tarsi with small hexagonal, rather indistinct, scales; lateral toes decidedly shorter than middle toe, their claws falling short of base of middle claw; hallux relatively short, but little longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage soft, with velvety surface, that of head, neck, and under parts blended; bare orbital space rather large, continued anteriorly in a narrow strip, across lores to rictus. Upper parts plain buffy brown, purplish brown, or brown and gray, relieved by a black bar across nape, margined above (sometimes below also) by a narrow line of white or gray; under parts more or less vinaceous, sometimes with posterior portions more or less white.

*Range.*—Africa, southeastern Europe, southern Asia, Japan, Indo-Malayan Archipelago, etc. (About fourteen species.)

### STREPTOPELIA RISORIA (Linnæus).

#### RINGED TURTLE DOVE.

*Adult male.*—Pileum and nape vinaceous-buff to tiller-buff; across the upper hindneck a narrow band of black, narrowly margined along upper edge by white; hindneck, back scapulars, wing-coverts, and proximal secondaries plain avellaneous to dull light cinnamon, the rump similar but duller, passing into light buffy drab or drab-gray on upper tail-coverts and middle rectrices; alulæ, primary coverts, primaries, and distal secondaries drab, light drab, or grayish drab, indistinctly edged with paler; under parts, including axillars and under wing-coverts, pale vinaceous-buff or dull pinkish buff, fading into buffy white on chin and under tail-coverts and on sides of head gradually deepening into color of pileum; lateral rectrices buffy white terminally, grayish drab basally, the whitish tip becoming gradually broader to the outermost rectrix, on which it occupies about half the inner web and the whole of outer web; bill blackish or dark horn color; iris orange; legs and feet pinkish red or light lake red; length (skin), 272; wing, 161–162.5 (161.7); tail, 112–115 (113.5); exposed culmen, 14.5–16.5 (15.5); tarsus, 20.5–22 (21.2); middle toe, 23–24 (23.5).<sup>a</sup>

*Adult female.*—Similar to the male in coloration, but slightly smaller; length (skin), 293; wing, 154; tail, 112; exposed culmen, 13; tarsus, 21.5; middle toe, 24.<sup>b</sup>

Native country unknown, but domesticated nearly throughout the world. Introduced into and naturalized in Cuba, Haiti, Jamaica, and St. Bartholomew. (Of the wild species, this bird most nearly

<sup>a</sup> Two specimens.

<sup>b</sup> One specimen, not sexed, but probably a female.



resembles *S. decaocta*,<sup>a</sup> which differs chiefly in its more grayish coloration.)

[*Columba*] *risoria* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 165 (India; based on *Turtur indicus* Aldrovandus, Orn., vol. 15, c. 9; Willughby, Orn., 134; Ray, Av. 61, no. 3; Albin, Av. 3, p. 42, pl. 45); ed. 12, i, 1766, 285.—GMELIN, Syst. Nat., i, pt. 2, 1789, 787.—LATHAM, Index Orn., ii, 1790, 607.

*Columba risoria* TEMMINCK, Cat. Syst., 1807, 140; Fig. et Gallin., i, 1813, 323, 481.—BONNATERRE, Tabl. Enc. Méth., Orn., 1790, 248, pl. 82, fig. 1.—TEMMINCK and KNIP, Pigeons, i, fam. seconde, 1808-11, pl. 44.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 377.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 71.—HORSFIELD, Trans. Linn. Soc., xiii, 1821, 183 (Java).—LESSON, Traité d'Orn., 1831, 473, part (Tonga Islands); Compl. Buffon, Ois., viii, 1837, 48, part; 2d ed., 1838, 282, part.—SUNDEVALL, Cfv. K. Vet.-Ak. Förh., 1869, 586 (St. Bartholomew; introduced).—GULLIVER, Proc. Zool. Soc. Lond., 1879, 489 (blood corpuscles).

*Peristera risoria* BOIE, Isis, 1828, 327.

*Turtur risorius* SELBY, Naturalists' Libr., Pigeons, 1835, 170, pl. 17.—REICHENBACH, Syn. Av., 1847, figs. 1365, 1366.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 302 (Jamaica; introduced).—SWINHOE, Proc. Zool. Soc. Lond., 1871, 397 (near Great Wall, China).—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 125.—STEJNEGER, Proc. U. S. Nat. Mus., 1887, 428, pl. 22, fig. 4 (outer rectrix).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 414, footnote.—SCHALOW, Journ. für Orn., 1901, 410 (Kashgar).

[*Turtur*] *risorus* NEWTON (A. and E.), Handb. Jamaica, 1881, 117.

*Turtur risoria* CORY, Auk, iv, 1887, 120 (Santo Domingo; St. Bartholomew; Cuba; Jamaica; introduced); Cat. West Ind. Birds, 1892, 124.

[*Streptopelia*] *risoria* BONAPARTE, Compt. Rend., xl, 1855, 18, 219, part; Coup d'Œil Ordre Fig., 1855, 31, 57, part; Consp. Av., ii, 1857, 65, part.—REICHENBACH, Tauben, i, 1861, 74, part, pl. 247, figs. 1365, 1366; ii, 1862, 175.—GRAY, Hand-list, ii, 1870, 239, no. 9328, part.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 277.

*Streptopelia risoria* LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 11 (Panama; introduced).

*Columba alba* (not of Gmelin, 1789 *b*) TEMMINCK and KNIP, Pigeons, i, fam. seconde, 1808-11, 102, pl. 46.—TEMMINCK, Fig. et Gallin., i, 1813, 333, 484.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 70.—DESMAREST, Dict. Sci. Nat., xl, 1826, 351.

*Columba risoria* var. *cicurat*.  $\alpha$  WAGLER, Syst. Av., 1827, Columba, sp. 93.

*Columba risoria* var.  $\beta$ . WAGLER, Syst. Av., 1827, Columba, species 93.

*Columba visoria domestica* TEMMINCK, Pl. Col., i, 1839, Tabl. Méth., p. 81.

*Columba nisoria* [lapsus] SCHALOW, Journ. für Orn., 1877, 196 (Isola Madre and Isola Bella, Lago Maggiore, Italy).

<sup>a</sup> *Columba decaocta* Frivaldsky, Balkányi Természett. Utazásról, 1838, 30, pl. viii.—*Turtur decaocta* Dresser, Ibis, 1903, 90.—*Turtur douraca* Hodgson, in Gray's Zool. Misc., 1844, 85 (Nepal, India; type now in coll. Brit. Mus.); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 430.—*Peristera ridens* Brehm (C. L.), Vogelf., 1855, 257.—*Turtur ridens* Brehm (C. L.), Naumannia, 1855, 286.—? *Peristera intercedens* Brehm (C. L.), Vogeli., 1855, 258 (n. Africa).—*Turtur intercedens* Brehm (C. L.), Naumannia, 1855, 268.—*Streptopelia intercedens* Reichenbach, Vollst. Naturg., Columbariae, ii, 1862, 175.—*Turtur stoliczkae* Hume, Stray Feath., ii, 1874, 519 (Kashgar, Turkestan).—*Columba risoria* (not of Linnæus) of many authors.—*Turtur risorius* and *Streptopelia risoria* of authors. (Southeastern Europe to Japan, India, and Ceylon.)

<sup>b</sup> = *Myristicivora bicolor* (Gmelin) Bonaparte.

## Genus SCARDAFELLA Bonaparte.

*Scardafella* BONAPARTE, Compt. Rend., xl, 1855, 24; Consp. Gen. Av., ii, 1857, 85. (Type, as fixed by Gray, 1855, *Columba squamosa* Temminck=*Scardafella ridgwayi* Richmond.)

*Micropelia* <sup>a</sup> HEINE, in Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 283. (New name for *Scardafella* Bonaparte, on grounds of purism.)

Very small arboreal or semi-terrestrial pigeons (length about 190–225 mm.) with tail as long as or longer than wing, with lateral and middle pairs of rectrices shorter than the intermediate ones (*S. inca*) or else (*S. ridgwayi*) with all except the shorter lateral pair approximately equal in length, the rectrices (twelve in number) all relatively narrow and more or less tapering terminally, the plumage with conspicuous crescentic bars of blackish.

Bill relatively small and slender, the exposed culmen much shorter than tarsus, the middle portion distinctly constricted vertically; frontal feathering with antia about even with or slightly anterior to malar antia, the mental antia extending slightly beyond anterior end of nostril; nasal operculum rather small, moderately tumid. Wing rather short, much rounded, the longest primaries exceeding distal secondaries by a little more than one-fourth the length of wing; second, second and third, or second, third and fourth, primaries (from outside) longest, the first (outermost) shorter than fifth (*S. inca*) or nearly equal to third (*S. ridgwayi*); outermost primary moderately bowed, the inner web slightly incised subapically. Tail very slightly shorter to decidedly longer than wing, consisting of twelve rectrices, of which the outermost pair are shortest (about four-fifths as long as the longest), the remainder subequal or, in *S. inca*, the middle pair much shorter (about midway in length between the longest and shortest, all the rectrices relatively narrow and more or less tapering toward their narrowly rounded tips. Tarsus longer than middle toe, its extreme upper end feathered in front, the acrotarsium with a single series of very broad transverse scutella, the planta tarsi with small, very indistinct, hexagonal scales, its inner side with small short feathers on upper portion (in *S. ridgwayi* extending downward for half the length of tarsus, or more); lateral toes decidedly shorter than middle toe, the inner with claw reaching to or slightly beyond base of middle claw, the outer slightly shorter; hallux shorter than lateral toes, its length, without claw, about equal to length of basal and half, or more, of second phalanx of middle toe.

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<sup>a</sup> Μικρός, small; πέλεια, a dove. (Richmond.)

*Plumage and coloration.*—Plumage of under parts blended (as to texture) but feathers distinctly outlined by blackish terminal margins; bare orbital space rather narrow, not continued across lores to rictus. Upper parts grayish brown, conspicuously squamated with black, the primaries blackish or blackish and chestnut; under parts whitish or pale grayish vinaceous, more or less barred or squamated with blackish; lateral retrices blackish, with apical portion white; under wing-coverts black or black and cinnamon-rufous.

*Range.*—Northern Mexico (including adjacent border of United States) to Nicaragua; Colombia to Venezuela and Brazil. (Two species.)

The purely American genus *Scardafella* presents a very close resemblance in form, size, and even coloration to the Indo-Malayan and Australian genus *Geopelia* Swainson; but the latter possesses fourteen (instead of twelve) retrices, the tail is strongly graduated (the outer pair of retrices only a little more than half as long as the middle pair), has the outermost primary abruptly attenuated terminally, and the feet relatively much stouter.<sup>a</sup>

KEY TO THE SPECIES AND SUBSPECIES OF SCARDAFELLA.

- a. Smaller (wing 85-96 mm.); outer webs of distal primaries extensively chestnut basally; outer webs of wing-coverts not distinctly (if at all) white; posterior under parts buffy. (Southwestern border of United States to Nicaragua.)  
*Scardafella inca* (p. 390).
- aa. Larger (wing 96-98 mm.); outer webs of distal primaries wholly black; outer webs of wing-coverts distinctly white; posterior under parts white. (*Scardafella ridgwayi*.)  
 b. Black tips to feathers much broader. (Coast district of Colombia and Venezuela.)  
*Scardafella ridgwayi ridgwayi* (extralimital).<sup>b</sup>  
 bb. Black tips to feathers much narrower. (Eastern Brazil, south of Amazon River.)  
*Scardafella ridgwayi brasiliensis* (extralimital).<sup>c</sup>

<sup>a</sup> Only the type species, *G. striata* (Linnæus), has been examined in this connection.

<sup>b</sup> *Columba striata* (not of Linnæus) Jacquin, Beitr., 1784, 34, part (Venezuela); Gmelin, Syst. Nat., i, pt. 2, 1789, 788, part (Venezuela).—*Columba squamosa* (not of Bonnaterre, 1790, nor Temminck, 1811) Taylor, Ibis, 1864, 94 (Ciudad Bolivar, Venezuela).—*Scardafella squamosa* Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 464, part (Valencia, Venezuela; Trinidad) and of other authors *ex* Venezuela and Trinidad.—*Scardafella ridgwayi* Richmond, Proc. U. S. Nat. Mus., xviii, no. 1090, Aug. 12, 1896, 660 (Margarita I., Venezuela; coll. U. S. Nat. Mus.); Berlepsch and Hartert, Novit. Zool., ix, 1902, 119 (Altagracia, etc., Orinoco Valley, Venezuela; crit.).—*S[cardafella] squammata* ridgwayi Hellmayr, Novit. Zool., xv, 1908, 93 (geog. range).

<sup>c</sup> *Columba squamosa* (not of Bonnaterre, 1790) Temminck and Knip, Pigeons, i, fam. seconde, 1808-11, 127, pl. 59 (Brazil); Fig. et Gallin., 1813, 336, 484.—*Chaempelia squamosa* Swainson, Zool. Journ., iii, 1827, 361.—*Columbina squamosa* Gray-List Gallinæ Brit. Mus., 1844, 13.—*Geopelia squamosa* Hartlaub, Syst. Verz., 1844, 98; Schlegel, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 133.—*C[hamæpelis]*

## SCARDAFELLA INCA (Lesson).

## INCA DOVE.

*Adult male*.—General color of upper parts grayish brown (grayish drab to light hair brown, passing into pale écru-drab on forehead, the wing-coverts paler grayish brown, sometimes approaching dull grayish white, especially on distal coverts; each feather of crown, occiput, hindneck, back, scapulars, wing-coverts, rump, and upper tail-coverts rather broadly margined terminally with sooty black, producing a conspicuous barred or scaled effect; alulae dull black with chestnut shafts; primary coverts chestnut, broadly margined terminally with black; primaries chestnut, with terminal portion dark grayish brown, this increasing in extent on outer webs of outermost quills; distal secondaries chestnut broadly edged and tipped with dusky, the more proximal ones mostly dusky, with pale edgings; middle pair of rectrices grayish brown, usually tipped or terminally margined with dusky; second pair similar but with tip more extensively dusky, the third with still more of dusky and, usually, with more or less admixture of white on terminal portion; remaining rectrices dull black or dusky passing into grayish brown basally and broadly tipped with white, the white increasing in extent toward the outermost, on which it occupies approximately the distal half of inner web and two-thirds, or more, of outer web; sides of head and neck, foreneck, and chest pinkish pale écru-drab to dull pale grayish vinaceous, passing into dull white on chin and upper throat and into very pale buff or cream-buff on posterior under parts, the feathers (except on chin and throat, rarely foreneck also) margined terminally with sooty black, the bars thus formed broadest on sides and flanks, narrowest (often very narrow, sometimes obsolete) on chest and foreneck; proximal under wing-coverts dusky grayish brown or sooty blackish, the remainder chestnut, occasionally margined terminally with black; bill blackish; iris dull orange to bright red; legs and feet pale flesh color to carmine-pink; length (skins), 193–222 (205); wing,

*squamosa* Gray, Gen. Birds, ii, 1845, 473.—*Oena squamosa* Reichenbach, Av. Syst. Nat., 1852, p. xxv.—[*Scardafella*] *squamosa* Bonaparte, Consp. Av., ii, 1857, 85 (Brazil).—*Scardafella squamosa* Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 464, part (Rio Grande do Sul, Bahia, Ceara, Pernambuco, and Jose Dias, Brazil).—*Columbula squamosa* Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 298.—[*Micropelia*] *squamosa* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 283 (Brazil).—*Columba squammata* Lesson, Traité d'Orn., 1831, 474 (Brazil).—*Scardafella squammata squammata* Hellmayr, Novit. Zool., xv, 1908, 92 (Goyaz, Brazil; crit.).—*Scardafella r[idgwayi] brasiliensis* Beebe, Zoologica, i, no. 1, Sept. 25, 1907, 21, figs. 5c, 6c (Brazil; coll. Am. Mus. N. H.).—[*Scardafella*] *brasiliensis* Brabourne and Chubb, Birds South Am., i, Dec., 1912, 17 (s. e. Brazil).

86-96 (90.7); tail, 85-103 (93.7); exposed culmen, 11-14 (12.5); tarsus, 15-16.5 (15.8); middle toe, 14-16 (15.1).<sup>a</sup>

*Adult female*.—Similar to the adult male and often not distinguishable, but usually (?) with the dusky bars on under parts somewhat narrower; length (skins), 190-221 (206); wing, 87.5-95.5 (90.1); tail, 85-102 (93.2); exposed culmen, 11.5-13.5 (12.4); tarsus, 15-16.5 (15.7); middle toe, 13.5-16 (15).<sup>b</sup>

*Young*.—Similar to adults but anterior under parts slightly paler and less vinaceous, dusky bars on under parts narrower and (usually) much less distinct, and wing-coverts and posterior scapular with a subterminal mottling of pale grayish buffy.

Southern Texas (Laredo; El Paso; Columbus; Hidalgo; casual or occasional at Corpus Christi, Austin, San Antonio, and Kerrville), southern Arizona (Tucson; Phoenix), and Lower California (La Paz), and southward through Mexico, in States of Sonora (Rio Mayo; Nacosari; Opodepe; La Chumata; Guaymas), Chihuahua (Tamasachic), Nuevo León (Rodriguez; Calderita; San Augustin; Vaqueria Topo Chico; Rio de la Gilla), Tamaulipas (Nuevo Laredo; Aldama; Tamesí; Hidalgo; Altamira), San Luis Potosí (Soledad), Puebla (Huexotitla; Altotonilco), Vera Cruz (Orizaba; Córdoba; Catemaco;

<sup>a</sup> Twenty specimens.

<sup>b</sup> Twenty-nine specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Texas.....	94	101	11	16	15
One adult male from New Mexico.....	86	90.5	11	15	14
Four adult males from Arizona.....	90.4	93.5	11.9	15.9	15.1
One adult male from Sinaloa.....	85	85	12	15	14.5
One adult male from southern Tamaulipas.....	91	89	13	15.5	15
Two adult males from Vera Cruz.....	90.5	94.2	13	16	15
One adult male from San Luis Potosí.....	94.5	89.2	12	16	15
Five adult males from Oaxaca.....	89.2	90.5	13	15.9	15.6
Five adult males from Guatemala.....	93.3	98.3	12.5	15.9	15
Three adult males from Honduras.....	89	91.8	12.5	15.8	14.7
Five adult males from Nicaragua.....	91.5	96.2	13.1	15.9	15.2
FEMALES.					
Five adult females from Arizona.....	89.5	91.4	12.3	15.6	14.5
One adult female from Sinaloa.....	88	94	11.5	16.5	14
One adult female from Nuevo León.....	94	99	12	16	15.5
Two adult females from Tamaulipas.....	91	93	12.5	15.7	15.7
One adult female from Vera Cruz.....	88.5	88	12	15	15.5
Two adult females from San Luis Potosí.....	92	100.5	12.2	15.7	15.5
Three adult females from Oaxaca.....	91.7	91.7	13.2	15.7	15.7
Two adult females from Guatemala.....	93.2	94.7	12.2	16	15.2
One adult female from Honduras.....	88.5	91.5	11.5	15.5	13.5
Two adult females from Nicaragua.....	89.5	92	13	15.5	14.2

While individual variation is considerable in a series from any locality, there is apparently none correlated with geographic range. All the characters attributed to *S. i. dialeucos* break down completely when the full series is compared.

La Antigua; Plan del Rio), Mexico (near City of Mexico; Chimalpa; Ixtapalapa; Coapa; Culhuacán), Aguascalientes, Jalisco (Hacienda El Molino; Bolaños; Tonila), Sinaloa (Mazatlán; Presidio de Mazatlán), Guerrero (Acapulco; Soledad), and Oaxaca (Putla; Tehuantepec City, and Territory of Tepic (Santiago), Guatemala (Dueñas; Choctúm; Petén; Gualán; San Gerónimo; El Rancho, Zacapa), Salvador (La Libertad), and Honduras (Chamelicón; San Pedro) to Nicaragua (Chinandega; Volcán de Chinandega; San Gerónimo; Sucuyá; San Juan del Sur; Matagalpa).

*Columba squamosa* (not of Temminck) LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 3; Journ. für Orn., 1863, 58 (reprint).

*Columba squamosa* WAGLER, Isis, 1831, 519 (Mexico).

[*Chamaepelia*] *squamosa* LICHTENSTEIN, Nom. Mus. Berol., 1854, 83.

*Scardafella squamosa* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 605 (Caderita, Nuevo Leon, Mex.); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 22 (Calderita, Nuevo Leon); Cat. N. Am. Birds, 1859, no. 452.

*Chamaepelia inca* LESSON, Descr. Mam. et Ois., 1847, 211 (Mexico).—GRAY, List Birds Brit. Mus., Columbæ, 1856, 51 (Mexico).

*Cham[æ]pelia* *inca* BONAPARTE, Compt. Rend., xl, 1855, 24 (crit.).

[*Scardafella*] *inca* BONAPARTE, Consp. Av., ii, 1857, 85 (Guatemala).—GRAY, Hand-list, ii, 1870, 240, no. 9340.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.—SHARPE, Hand-list, i, 1899, 81.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 141 (Laredo, Texas; Bolaños, Jalisco; Guatemala).

*Scardafella inca* BONAPARTE, Compt. Rend., xl, 1855, 24 (Mexico; Guatemala).—SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz); 1859, 391 (Oaxaca; descr. egg); 1864, 178 (near City of Mexico).—MOORE, Proc. Zool. Soc. Lond., 1859, 61 (San Pedro, Honduras; Peten, Guatemala).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1859, 223 (San Pedro, Honduras; Peten, Guatemala).—SALVIN and SCLATER, Ibis, 1860, 45 (Dueñas, Guatemala; habits).—TAYLOR, Ibis, 1860, 227 (Honduras; habits).—REICHENBACH, Tauben, i, 1862, 19, pl. 250, fig. 1393, pl. 253, fig. 1410.—ELLIOT, New and Unfig. N. Am. Birds, pt. 7, 1867 (vol. ii), pl. 37 and text.—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo, Texas).—BAIRD, in Cooper's Orn. Calif., 1870, 519 (Rio Grande Valley, Texas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 387, pl. 58, fig. 7; special ed., 1875, colored plate facing p. 387.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 305 (Mazatlan, Sinaloa); Bull. U. S. Nat. Mus., no. 4, 1876, 44 (Tehuantepec City, Oaxaca).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; xiv, 1891, 471 (Chamelicon, Honduras); Nom. N. Am. Birds, 1881, no. 466.—COUES, Check List, 2d ed., 1882, no. 549.—SALVIN, Proc. Zool. Soc. Lond., 1883, 428 (Acapulco, Guerrero).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 389 (Sucuya, Nicaragua).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 321; 3rd ed., 1910, 151.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 175 (Huexotitla, Puebla).—ATTWATER, Auk, ix, 1892, 233 (San Antonio, Texas).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 153.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 465 (La Paz, Lower California; Laredo, Hidalgo, and Corpus Christi, Texas); Nacosari, Rio Mayo, and Guaymas, Sonora; Rio de la Gilla, San Augustin, Vaqueria, and Topo Chico, Nuevo Leon; Tamasachic, Chihuahua; Santiago, Tepic; Bolaños and Tonila, Jalisco; Mazatlan, and Presidio de Mazatlan, Sinaloa; Acapulco and Soledad, Guerrero; Puebla; Tampico, Tamesi, Aldama, and Nuevo Laredo, Tamaulipas; Aguas Calientes; Plains of San Luis Potosi; Chimalpa, Ixtapalapa, Coapa, Culhuacan, Atotonilco, and near City of Mexico, Mexico; La Antigua and Plan del Rio, Vera Cruz; Putla and Tehuantepec City, Oaxaca; Choc-tum, Dueñas, and San Geronimo, Guatemala; La Libertad, Salvador; Chi-

nandegá and El Volcán de Chinandega, Nicaragua).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 789 (San Luis Potosí; Guadalajara, Jalisco; fresh colors of unfeathered parts).—LANTZ, Trans. Kansas Ac. Sci. for 1897-99 (1900), 219 (San José, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 248 (Mexican localities and references; San Geronimo, Choctum, Dueñas, and Peten, Guatemala; San Pedro and Chamelicon, Honduras; La Libertad, Salvador; Volcán de Chinandega and Sucuya, Nicaragua).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 80 (El Rancho and Gualan, Guatemala).—VISHER, Auk, xxvii, 1910, 281 (Tucson, Arizona, summer res.).—LACEY, Auk, xxviii, 1911, 207 (Kerrville, Kerr Co., Texas, rare; rather common at San Antonio).

*Scardafella inca* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 19, pl. 250, fig. 1393, pl. 253, fig. 1410.

*Scardafella inca* COUES, Key N. Am. Birds, 2d ed., 1884, 570.—RIDGWAY, Man. N. Am. Birds, 1887, 216.

*Scardafella inca inca* BANGS, Proc. Biol. Soc. Wash., xviii, June 9, 1905, 152, in text.—THAYER and BANGS, Proc. Biol. Soc. Wash., xix, 1906, 18 (Opodepe and La Chumata, Sonora).

*Scardafella squamosa* var. *inca* COUES, Key N. Am. Birds, 1872, 227.

*Scardafella squamosa* . . . var. *inca* COUES, Check List, 1873, no. 375.

*Geopelia inca* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 133.

*Micropelis inca* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 283 (Mexico).

*Scardafella inca dialucos* BANGS, Proc. Biol. Soc. Wash., xviii, June 9, 1905, 152 (boundary line between Honduras and Nicaragua, 180 miles from Pacific coast; coll. E. A. and O. Bangs).

#### Genus CHÆMEPELIA Swainson.

*Columbigallina* (not of Oken, 1817) BOIE, Isis, 1826, 977. (Type, *Columba passerina* Linnæus.)

*Columbogallina* (lapsus) LANTZ, Trans. Kansas Ac. Sci. for 1897-99 (1900), 219.

*Chæmepelia* SWAINSON, Zool. Journ., iii, Dec., 1827, 361. (Type, as fixed by Gray, 1841, *Columba passerina* Linnæus.)

*Chæmepelia* (emendation?) LESSON, Traité d' Orn., 1831, 474.

*Chamæpelis* (emendation) SWAINSON, Classif. Birds, ii, 1837, 380, in index.

*Chamaepelea* (lapsus) TSCHUDI, Fauna Peruana, Aves, 1845-6, 45.

*Chamæpelis* (emendation?) JARDINE, Jardine's Contr. Orn., 1849, 79.

*Chamaepeleia* (emendation) REICHENBACH, Avium Syst. Nat., 1850, p. xxiv.

*Chamapelia* (lapsus) SCLATER, Proc. Zool. Soc. Lond., 1857, 10.

*Chaempilia* (lapsus) LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1862, 301.

*Chamæopelia* (emendation) SCLATER, Proc. Zool. Soc. Lond., 1864, 178.

*Chamæpilea* (lapsus) BRYANT, Proc. Bost. Soc. N. H., x, 1866, 257.

*Chamaepeleia* (emendation) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 606; Cat. N. Am. Birds, 1859, 12, no. 453.—REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 15.

*Chamæpelcia* (emendation) COOPER, Proc. Calif. Ac. Sci., iv, 1870, 65.

*Chamæpelis* (lapsus) FIROR, Fam. Science and Fanciers' Journ., n. s., v, 1878, 86.

*Camæpelis* (lapsus) IHERING, Ann. Estad. Rio Grande do Sul, 1900, 146.

*Chæmepella* (lapsus) BANGS, Auk, xxiv, 1907, 292.

*Chamæpelis* (lapsus) ALLEN, Bull. Am. Mus. N. H., xxiv, 1907, 46, in index.

*Talpacotia* BONAPARTE, Compt. Rend., xi, 1855, 22; Consp. Gen. Av., ii, 1857, 79. (Type, by tautonymy, *Columba talpacoti* Temminck.)

*Pyrgitoenas* REICHENBACH, Vollst. Naturg. Columbariae, i, 1861, 13. (New name for *Chamæpelis* Swainson.)

*Leptopelia* <sup>a</sup> HEINE, in Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 283.

(Substitute for *Talpacotia* Bonaparte, rejected on grounds of purism.)

*Columbina* (not of Spix, 1825) GRAY, List Gen. Birds, 1840, 58.

Very small terrestrial pigeons (length about 136–180 mm.) with outermost primary broad, not attenuated at tip, but fourth (from outside) with a projecting lobe or point at about middle of inner web; tail less than two-thirds to three-fourths as long as wing, decidedly rounded, but with relatively broad rectrices; bill very small, the exposed culmen decidedly shorter than middle toe without claw, and with primaries partly cinnamon-rufous.

Bill relatively small, the exposed culmen decidedly shorter than middle toe without claw (in most species little if any longer than outer toe without claw), not decurved terminally, the distance from anterior end of nasal groove to tip always shorter than from same point to base of nasal operculum; point of frontal feathering about on line with malar antia, the mental antia about on line with anterior end of nasal operculum or slightly anterior to it. Wing moderate, with rounded tip, the longest primaries exceeding distal secondaries by one-fifth to one-fourth the length of wing; third, third and fourth, or fourth primaries (from outside) longest, the first (outermost) usually longer, sometimes shorter, than fifth; outermost primary broad (sometimes broadest subapically), more or less strongly bowed, not attenuated terminally; inner web of fourth primary (from outside) with a large projecting lobe or point in middle portion. Tail less than two-thirds to very nearly three-fourths as long as wing, decidedly to strongly rounded, the rectrices (twelve in number) relatively broad, with broadly rounded tips. Tarsus slightly longer than middle toe without claw, its upper frontal portion bare scarcely to the tibio-tarsal joint, the acrotarium with a single series of broad transverse scutella, the planta tarsi smooth or with very indistinct (practically obsolete) small hexagonal scales, sometimes (in *C. talpacoti* and *C. rufipennis*) with a line of short feathers along each side for upper half (more or less); lateral toes decidedly shorter than middle toe, the inner with claw reaching to base of middle claw, the outer slightly shorter; hallux decidedly more slender than lateral toes, about as long as basal and half of second phalanx of middle toe, or slightly more.

*Plumage and coloration.*—Plumage of head, neck and under parts blended in some species, that of head, neck and chest scale-like in others; bare orbital space restricted, broader beneath eye, not con-

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<sup>a</sup>Λεπτός, delicate; πέλεια, a dove (Richmond).



tinued across lores. Color grayish brown or more or less vinaceous (or else cinnamon-brownish), the wing-coverts with spots (more or less numerous) of black or violet-blackish; primaries for greater part cinnamon-rufous, at least on inner webs, the under wing-coverts and axillars also sometimes cinnamon-rufous but sometimes black; rectrices without distinct white tips. Sexes distinctly different in color, the females much duller than males.

*Range*.—The whole of tropical and subtropical America, including West Indies but excluding Galapagos Islands; north to southern border of United States. (Five species.)

KEY TO THE SPECIES AND SUBSPECIES OF CHÆMEPELIA.<sup>a</sup>

- a. Sides of tarsus completely bare of feathers; axillars and under wing-coverts chestnut-rufous. (*Chæmepelia*.)
- b. Neck and chest squamated. (*Chæmepelia passerina*.)
- c. Larger (wing averaging more than 85 mm.).
- d. Darker, with upper parts more brownish.
- e. Slightly darker, the back, etc., grayish brown; adult male with vinaceous of under parts averaging deeper. (South Atlantic and more eastern Gulf States, north to South Carolina, casually to New Jersey, etc.)  
*Chæmepelia passerina passerina* (p. 398).
- ee. Slightly paler, the back, etc., more brownish olive; adult male with vinaceous of under parts averaging slightly paler. (Guatemala to Costa Rica; occasional in Yucatan; Panama?)  
*Chæmepelia passerina neglecta* (p. 407).
- dd. Paler, with upper parts more grayish; adult males with vinaceous of under parts lighter, more pinkish. (Southern Texas, southern Arizona, southern Lower California, and southward to British Honduras and northern Guatemala).....*Chæmepelia passerina pallescens* (p. 402).
- cc. Smaller (wing averaging less than 85 mm.).
- d. Coloration darker, the upper parts inclining to olive-brown.
- e. Larger (wing averaging 83 mm.) (Socorro Island, western Mexico.)  
*Chæmepelia passerina socorroensis* (p. 406).
- ee. Smaller (wing averaging 76 mm.) (Central Colombia.)  
*Chæmepelia passerina parvula* (extralimital).<sup>b</sup>

<sup>a</sup> Thanks to the recent careful revision of this genus by Mr. W. E. Clyde Todd (Ann. Carnegie Mus., viii, 1913, 507-603), but little trouble has been encountered in its treatment here. Mr. Todd's paper is such a thoroughly excellent example of painstaking, conscientious, systematic work that I find myself unable to disagree with his conclusions except in a matter of mere detail (see p. 429).

Acknowledgments are due Mr. Todd for his courtesy in allowing me to use his measurements and thus saving me considerable time and trouble.

<sup>b</sup> *Chæmepelia passerina parvula* Todd, Ann. Carnegie Mus., viii, May 8, 1913, 544 (Honda, Colombia; coll. U. S. Nat. Mus.).

- dd.* Coloration paler, the upper parts more grayish.
- e.* Crown, occiput, and hindneck grayish brown (more or less suffused with vinaceous in adult male), nearly concolor with back. (Western Colombia.).....*Chæmepelia passerina nana* (extralimital).<sup>a</sup>
- ee.* Crown, occiput, and hindneck bluish gray in adult male, contrasting with color of back.
- f.* Crown, occiput, and hindneck without distinct squamations, the bluish gray tinge less pronounced.
- g.* Larger (wing averaging 84.5 mm.); coloration brighter. (Western Ecuador; western Peru?)
- Chæmepelia passerina quitensis* (extralimital).<sup>b</sup>
- gg.* Smaller (wing averaging 79 mm.); coloration darker or duller. (Guianas, Amazon Valley, and eastern Brazil north of Bahia.).....*Chæmepelia passerina griseola* (extralimital).<sup>c</sup>
- ff.* Crown, occiput, and nape with distinct squamations, the ground color more distinctly bluish gray in adult males.
- g.* Vinaceous areas of adult male inclining to lavender-grayish.
- h.* Under tail-coverts extensively white; bill yellow at base (in life). (Caribbean coast district of northern Colombia and Venezuela; Leeward Islands.).....*Chæmepelia passerina albivitta* (p. 408).
- hh.* Under tail-coverts with much less of white, the white more grayish; bill olive at base (in life). (Southern Lesser Antilles, from Grenada to St. Vincent and Barbados.)
- Chæmepelia passerina antillarum* (p. 411).
- gg.* Vinaceous areas of adult males not inclining to lavender-grayish.
- h.* Larger (wing averaging 80 mm. or more, tail averaging 56 mm. or more).
- i.* Bill with not more than terminal half black.
- j.* Basal half and more of bill red (lake red or carmine-pink in life). (Porto Rico and southward to Santa Lucia.)
- Chæmepelia passerina trochila* (p. 412).
- jj.* Basal half or more of bill orange or yellow in life.
- k.* Coloration darker. (Jamaica.)
- Chæmepelia passerina jamaicensis* (p. 421).
- kk.* Coloration paler. (Cayman Islands, south of Cuba.)
- Chæmepelia passerina insularis* (p. 417).
- ii.* Bill wholly black, or with a little red at extreme base only.
- j.* Coloration darker, the upper parts more brownish. (Cuba; Isle of Pines; Haiti).
- Chæmepelia passerina aflavida* (p. 415).

<sup>a</sup> *Chæmepelia passerina nana* Todd, Ann. Carnegie Mus., viii, May 8, 1913, 546 (Jimenez, Rio Dagua, w. Colombia; coll. Carnegie Mus.).

<sup>b</sup> *Chæmepelia passerina quitensis* Todd, Ann. Carnegie Mus., viii, May 8, 1913, 547 (Zambiza, 6 miles n. e. of Quito, Ecuador; coll. Carnegie Mus.).

<sup>c</sup> *Columbina griseola* Spix, Avium Sp. Nov. (Av. Bras.), ii, 1825, 58, pl. 75a, fig. 2 (Amazon River; coll. Munich Mus.).—*Chamæpelina griseola* Pelzeln, Orn. Bras., 1870, 277.—*Columbigallina passerina griseola* Hellmayr, Abh. K. Bayer. Ak. Wiss., ii, Kl., xxii, 1906, 697, part.—*Columbina passerina griseola* Allen, Auk, xxv, 1908, 306, in text.—*Chæmepelia passerina griseola* Todd, Ann. Carnegie Mus., viii, 1913, 548 (monogr.).

jj. Coloration paler, the upper parts more grayish. (Bahamas, except Great Inagua; Bermudas.)

*Chæmepelia passerina bahamensis* (p. 418).

hh. Smaller (wing averaging 78.5 mm., tail averaging 52 mm.). (Great Inagua Island, Bahamas; Mona Island, near Porto Rico.)

*Chæmepelia passerina exigua* (p. 420).

bb. Neck and chest immaculate. (*Chæmepelia minuta*.)

c. Coloration darker. (Greater part of South America.)

*Chæmepelia minuta minuta* (extralimital).<sup>a</sup>

cc. Coloration paler. (Southeastern Mexico to west-central Colombia.)

*Chæmepelia minuta elæodes* (p. 422).

aa. Sides of tarsus with a line of minute feathers; axillars and under wing-coverts (at least the proximal ones) black. (*Talpacotia*.)

b. Remiges blackish, without chestnut.

c. Upper parts vinaceous-gray. (Western Ecuador and northwestern Peru.)

*Chæmepelia buckleyi* (extralimital).<sup>b</sup>

cc. Upper parts vinaceous-chestnut. (Cisandean South America, from French Guiana to eastern Peru, Paraguay, and northern Argentina.)

*Chæmepelia talpacoti* (extralimital).<sup>c</sup>

<sup>a</sup> [*Columba*] *minuta* Linnæus, Syst. Nat., ed. 12, i, 1766, 285 ("Santo Domingo;" based on *Turtur parvus fuscus americanus* Brisson, Orn., i, 116, pl. 8, fig. 2).—*Goura minuta* Stephens, Shaw's Gen. Zool., xi, pt. i, 1819, 137.—*Chamæpelia minuta* Gray, List Galline Birds Brit. Mus., 1844, 15, excl. syn. part; Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 481, part (South Am. localities and references).—*Chæmepelia minuta minuta* Todd, Ann. Carnegie Mus., viii, 1913, 573 (monogr.).—[*Columbigallina*] *minuta* Dubois, Synopsis Avium, ii, 1902, 764, part.—*Columba grisea* Bonnatere, Tabl. Enc. Méth., i, 1792, 252 (Cayenne).—*Columbina grisea* Brabourne and Chubb, Birds S. Am., i, 1912, 18.—*Peristera chalcostigma* Reichenbach, Syn. Av., Columbariae, Novit. Suppl., 1851, pl. 245b, figs. 3533, 3534.—*Chamæpelia griseola* (not *Columbina griseola* Spix) Baird, Brewer, and Ridgway, Hist. N. Am. Birds, iii, 1874, 389 (excl. syn.), and various authors.—*Ch[amaepelia] amazilia* Bonaparte, Consp. Av., ii, 1857, 78 (Peru; coll. Paris Mus.).

<sup>b</sup> *Chamæpelia buckleyi* Sclater and Salvin, Proc. Zool. Soc. Lond., 1877, 21 (Santa Rita, w. Ecuador; coll. Salvin and Godman); Taczanowski, Orn. du Pérou, iii, 1886, 245, Tables, p. 102; Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 484, pl. 10, fig. 2.—*Chæmepelia buckleyi* Todd, Ann. Carnegie Mus., viii, 1913, 580 (monogr.).—*Columbigallina buckleyi* Dubois, Synopsis Av., ii, 1902, 764.—*Columbina buckleyi* Brabourne and Chubb, Birds S. Am., i, 1912, 18.

<sup>c</sup> *Columba talpacoti* Temminck, in Temminck and Knip, Pigeons, i, fam. trois., 1808-11, 22, pl. 12 (South America; coll. Paris Mus.).—*Goura talpacoti* Stephens, Shaw's Gen. Zool., xi, 1819, 136.—*Columbina talpacoti* Gould, in Darwin's Zool. Voy. "Beagle," iii, Birds, 1841, 116; Brabourne and Chubb, Birds S. Am., i, 1912, 18.—*Chamaepelia talpacoti* Hartlaub, Syst. Verz., 1844, 99.—*Chamæpelia talpacoti* Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 485.—*Chamaepeleia talpacoti* Reichenbach, Av. Syst. Nat., 1852, p. xxiv.—*Peristera talpacoti* Schlegel, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 136.—*Columbigallina talpacoti* Berlepsch, Journ. für Orn., 1887, 211.—[*Leptopelia*] *talpacoti* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 283.—*Chæmepelia talpacoti* Todd, Ann. Carnegie Mus., xiii, 1913, 582 (monogr.).—*Columbina cabocolo* Spix, Av. Bras., ii, 1825, 58, pl. 75a, fig. 1 (Brazil; coll. Munich Mus.).—[*Chæmepelia*] *cinnamomina* Swainson, Classif. Birds, ii, 1837, 349.—*Chamaepeleia cinnamomina*

bb. Remiges partly chestnut or rufous. (*Chæmepelia rufipennis*.)

c. Coloration darker. (British Guiana, Venezuela, and Colombia, northward to Guatemala, Yucatan and Vera Cruz.)

*Chæmepelia rufipennis rufipennis* (p. 424).

cc. Coloration paler. (Lowlands of southwestern Mexico, northward to southern Sinaloa.)

*Chæmepelia rufipennis eluta* (p. 429).

### CHÆMEPELIA PASSERINA PASSERINA (Linnæus).

#### FLORIDA GROUND DOVE.

*Adult male*.—Forehead, anterior portion of crown, sides of head and neck, and under parts light grayish vinaceous, more or less paler on chin and upper throat, deepening into pinkish light purple-drab on chest, and passing into brownish gray posteriorly, the under tail-coverts more or less distinctly paler on margins; feathers on sides of head and neck and lower throat narrowly margined with darker, those of foreneck and chest more broadly or more distinctly margined, and with a central broadly cuneate spot of dusky; posterior portion of crown, occiput, and hindneck bluish gray (more or less dark), the feathers narrowly margined with dusky; back, scapulars, proximal secondaries, anterior lesser wing-coverts, rump, and upper tail-coverts plain grayish brown (hair brown to deep drab); wing-coverts (except more anterior lesser coverts) similar in color to chest, etc., passing into a more grayish hue (nearly drab-gray) on greater coverts, the more proximal coverts with spots (the more posterior ones cuneate and oblique) of metallic blackish purple or violet; distal secondaries dull brownish black, narrowly edged distally with paler; alulæ and primary coverts dull black, the latter with basal half chestnut; primaries chestnut or chestnut-rufous, with terminal portion and outer webs (except basally) of longer quills dull black, the shorter (proximal) primaries tipped and edged with black; middle rectrices brownish gray or grayish brown, the rest dull black, the outermost ones more or less distinctly margined terminally (especially on outer web) with whitish; axillars and under wing-coverts bright chestnut or rufous-chestnut; bill coral red or orange-red, dusky at tip; iris orange-red; legs and feet flesh color or pink; length (skins), 160–181 (169); wing,

Reichenbach, Tauben, i, 1861, 15, pl. 253, fig. 3359, pl. 256, fig. 1424.—[*Talpacotia cinnamomea* Bonaparte, Consp. Av., ii, 1857, 78.—*Goura cinnamomea* Schlegel, De Dierent., 1864, 208.—[*Talpacotia godina* Bonaparte, Consp. Av., ii, 1857, 79 (Brazil; Bolivia; coll. Paris Mus.).—*Talpacotia godini* Bonaparte, Compt. Rend., xl, 1855, 220.—*Talpacotia godinae* Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 297.—*Chamæpelia godina* Pelzeln, Orn. Bras., 1870, 450.]

84-89 (86); tail, 59-65 (62); exposed culmen, 11-12 (11.5); tarsus, 15-17 (16).<sup>a</sup>

*Adult female*.—Entirely similar in pattern of coloration to the adult male but head, neck, and under parts drab-grayish instead of vinaceous, bluish gray of occiput, etc., replaced by grayish brown, and chestnut on outer webs of primaries more restricted, these appearing wholly dull blackish or dusky in the closed wing; length (skins), 155-179 (166); wing, 85-88 (86.5); tail, 55-63 (60); exposed culmen, 11.5-12 (11.7); tarsus, 15-17.5 (15.8).<sup>a</sup>

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
Ten adult males of <i>C. p. passerina</i> .....	86	62	11.5	16
Twenty adult males of <i>C. p. pallascens</i> .....	87	59.5	11.4	15.6
Ten adult males of <i>C. p. socorroensis</i> .....	83	56	11.5	16
Ten adult males of <i>C. p. neglecta</i> .....	87	56	11.5	16.1
Two adult males of <i>C. p. parvula</i> .....	76	54.5	10.2	15
Seven adult males of <i>C. p. nana</i> .....	78	56.6	11	16
Ten adult males of <i>C. p. quitensis</i> .....	84.6	58.8	11	16.3
Six adult males of <i>C. p. griseola</i> .....	79	55	10.7	16
Ten adult males of <i>C. p. albivitta</i> .....	80	53	11.2	16
Ten adult males of <i>C. p. antillarum</i> .....	80	56	12	16.8
Eighteen adult males of <i>C. p. trochila</i> .....	80	57.5	11.1	16
Ten adult males of <i>C. p. jamaicensis</i> .....	82	56	11	15.5
Six adult males of <i>C. p. insularis</i> .....	82	57	11.1	15.6
Ten adult males of <i>C. p. aflavida</i> .....	81	58	11.2	15.6
Ten adult males of <i>C. p. bahamensis</i> .....	81.5	56	10.8	15.6
Twelve adult males of <i>C. p. exigua</i> .....	78.6	52.5	10.9	15
FEMALES.				
Ten adult females of <i>C. p. passerina</i> .....	86.5	60	11.7	15.8
Ten adult females of <i>C. p. pallascens</i> .....	86.5	59	11.5	15.7
Nine adult females of <i>C. p. socorroensis</i> .....	82	56	11.5	16.2
Ten adult females of <i>C. p. neglecta</i> .....	86	57	11.7	15.6
One adult female of <i>C. p. parvula</i> .....	73	51	11	15
One adult female of <i>C. p. nana</i> .....	74	55	11	16
Ten adult females of <i>C. p. quitensis</i> .....	83.5	56.5	11	16.3
Four adult females of <i>C. p. griseola</i> .....	76	51.5	10.6	16
Ten adult females of <i>C. p. albivitta</i> .....	79	53.5	11.1	15.7
Ten adult females of <i>C. p. antillarum</i> .....	79	55	12	16.7
Sixteen adult females of <i>C. p. trochila</i> .....	80	56	11.3	15.7
Ten adult females of <i>C. p. jamaicensis</i> .....	82	56	11.3	15.5
Three adult females of <i>C. p. insularis</i> .....	81	57	11	15
Ten adult females of <i>C. p. aflavida</i> .....	83.5	57	11.6	15.4
Ten adult females of <i>C. p. bahamensis</i> .....	82	56.5	11	15.4
Nine adult females of <i>C. p. exigua</i> .....	78.6	53.1	10.7	15

*Young*.—Similar to the adult female, but feathers of back, scapulars, and wing-coverts narrowly margined terminally with paler, the middle wing-coverts with a median streak of rusty, the greater coverts edged with rusty, the dark wing-spots without metallic gloss, and squamations of chest, etc., much less distinct.

Florida, including Keys (Indian Key; Boca Grande Key; Marquesas Keys; Boca Grande Key; Big Pine Key; Vaca Key; Summerland Key; Key West; Cedar Key; Key Largo), South Carolina, and westward near the Gulf coast through Alabama (Hale, Autauga, and Montgomery counties) to Louisiana;<sup>a</sup> occasional or casual northward to North Carolina (Cape Hatteras; Buncombe County), Virginia (Lynchburg, Nov. 4, 1900), District of Columbia, Maryland (Broad Creek, Oct. 14, 1888), Pennsylvania (Lancaster County, in 1844), New Jersey (Camden), New York City (two records), and Tennessee (between Harrison and Kingston).

[*Columba passerina* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 165, part (based essentially on *Turtur minimus guttatus* Catesby, Nat. Hist. Carolina, i, 26, pl. 26; South Carolina; cites also *Turtur minimus guttatus* Sloane, Jamaica, ii, 305, pl. 261; *Turtur barbadensis minimus* Ray, Av., 184; *Columba sylvestris minima brasiliensis* Ray, Av., 62; *Picuiipinima* Marcgrave, Brazil, 204).<sup>b</sup>—GMELIN, Syst. Nat., i, pt. 2, 1789, 787, part.—LATHAM, Index Orn., i, 1790, 611, part.

*Columba passerina* BARTON, Frag. Nat. Hist. Pa., 1899, p. vi (near Philadelphia, accidental).—TEMMINCK, Cat. Syst., 1807, 144, part.—WILSON, Am. Orn., vi, 1812, 15, pl. 46, figs. 2, 3.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 401, part (Florida; Georgia; South Carolina); Gal. Ois., i, 1825, 333, part, pl. 196.—BONAPARTE, An. Lyc. N. Y., ii, pt. i, 1826 (1828), 120, part.—WILSON and BONAPARTE, Am. Orn., Jameson ed., ii, 1831, 304.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 1832, 635; 2d ed., 1840, 767.—AUDUBON, Orn. Biog., ii, 1834, 471, pl. 182; v, 1839, 558; Synopsis, 1839, 192; Birds Am., oct. ed., v, 1842, 19, pl. 283.—GERHARD, Naumannia, 1854, 193 (Florida); 1855, 383 (Georgia).

[*Columba passerina* FORSTER, Cat. An. N. Am., 1771, 11.—BONAPARTE, Journ. Ac. Nat. Sci., Phila., iv, pt. ii, 1825, 265 (crit.); Obs. Wilson, 1826, [124].

*Goura passerina* STEPHENS, Shaw's Gen. Zool., xi, pt. i, 1819, 133 (South Carolina, etc.); xiv, pt. i, 1826, 296.

*Chamepelia passerina* BONAPARTE, Geog. and Comp. List, 1838, 41.

*Chamepelia passerina* HEERMANN, Cat. Ool. Coll. Acad. Nat. Sci. Phila., 1853, 23 (Georgia).—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 296, footnote (North America).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, pp. xliv, 606, part (Washington, D. C.; Liberty Co., Georgia; Cape Florida, Indian Key, and Amelia I., Florida; crit.); Cat. N. Am. Birds, 1859, no. 453, part.—NEWTON, Ibis, 1859, 254, in text (crit.).—TURNBULL, Birds E. Penn. and N. J., 1869, 43 (Camden, New Jersey, 1 spec.).—LIBHART, in Mombert's Authent. Hist. Lancaster Co., Pa., 1869, 512 (Lancaster Co., Pennsylvania,

<sup>a</sup> Louisiana specimens not examined.

<sup>b</sup> The reference to Marcgrave, however, as pointed out by Todd (Ann. Carnegie Mus., viii, 1913, 521) pertains clearly to *Scardafella ridgwayi brasiliensis*, and therefore, so far as *Chamepelia* is concerned, Linnaeus' species includes only the North American, Jamaican, and Barbados forms; and the specific name, *passerina*, was explicitly restricted to the North American form by Bonaparte in 1855, as shown by Todd (t. c. p. 533).

- 1 spec., 1844).—COOPER, Orn. Calif., 1870, 516, part (Florida; habits; range).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 342 (e. Florida), 392 (faunal range).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 389, part, pl. 58, fig. 6.—COUES, Birds North-West, 1874, 390, footnote (part); Check List, 2d ed., 1882, no. 547.—MAYNARD, Birds E. N. Am., 1879, 340; ed. 1881 and 2d, 1895, 245 (Sea Islands, South Carolina to Key West).—BROWN (N. C.), Bull. Nutt. Orn. Club, iv, 1879, 12 (near Montgomery, Alabama).—KRIDER, Field Notes, 1879, 55 (Key West, Florida; New Jersey, Nov.).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am. Birds, 1881, no. 465.—BAILEY (H. B.), Bull. Nutt. Orn. Club, viii, 1883, 41 (Georgia, breeding).—CAIRNS, Orn. and Ool., xii, 1887, 6 (Buncombe Co., North Carolina, accidental).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473 part (Beaufort Co., South Carolina; Tarpon Springs, St. Augustine, Titusville, and Cedar Keys, Florida).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 250, part (Florida; crit.).—NICOLL, Ibis, 1904, 590 (Charlotte Harbor, Florida.)
- C[hamæpelicia] passerina* BONAPARTE, Compt. Rend., xl, 1855, 20 (crit.).—COUES, Key N. Am. Birds, 2d ed., 1884, 569.
- Ch[amæpelicia] passerina* BONAPARTE, Compt. Rend., xl, 1855, 21 (crit. on type locality).
- [*Chamaepelicia*] *passerina* BONAPARTE, Consp. Av., ii, 1857, 77, part (Florida; Georgia; Carolina; Louisiana).
- [*Chamæpelicia*] *passerina* FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 141, part, Florida).
- Chamæpelicia passerina* GRAY, List Birds Brit. Mus., Columbæ, 1856, 49, part ("North America").
- [*Chamæpelicia*] *passerina* GRAY, Hand-list, ii, 1870, 239, no. 9336, part ("North America").
- [*Chamæpelicia*] *passerina* COUES, Key N. Am. Birds, 1872, 227, part.
- Chamæpelicia passerina* COUES, Check List, 1873, no. 374.—GRINNELL (G. B.), Bull. Nutt. Orn. Club, iii, 1878, 147 (New York City, accidental).
- Chamæpelicia passerina* COUES and PRENTISS, An. Rep. Smithson. Inst. for 1861 (1862), 414 (District of Columbia, accidental).—ELLIOT, Stand. Nat. Hist., iv, 1885, 247, in text, part.
- Chamæpelicia passerina* FIROR, Familiar Science and Fancier's Journ., n. s., v, 1878, 86 (Virginia, accidental; Georgia and Florida; descr.; habits).
- Chamæpelicia passerina passerina* TODD, Ann. Carnegie Mus., viii, May 8, 1913, 524 (monogr.).
- Columbigallina passerina* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 320, part.—BAKER, Proc. Ac. Nat. Sci. Phila., 1889, 268 (Micco, Florida; food).—A[VERY], Am. Field, xxxiv, 1890, 584 (Hale Co., Alabama; not breeding?).—RIDGWAY, Rep. U. S. Nat. Mus. for 1889 (1891), 358 (Broad Creek, Maryland, Oct. 14, 1888).—BENDIRE, Life Hist. N. Am. Birds, i, 1892, 148.—WAYNE, Auk, ix, 1892, 72 (late breeding in South Carolina).—HARTERT, Ibis, 1893, 304, in text (crit.).—SHUFELDT (P. W.), Auk, xviii, 1901, 192 (Lynchburg, Virginia, Nov. 4, 1900).
- C[olumbigallina] passerina* RIDGWAY, Man. N. Am. Birds, 1887, 215, part; 2d ed., 1896, 585.
- P[yrgitocnas] passerina* REICHENBACH, Vollst. Naturg., Columbariæ, i, 1861, 13, part, pl. 266, figs. 2875–2878, pl. 256, figs. 1419–1420 (Cape Hatteras; South Carolina; Georgia; Florida; Alabama; Mississippi; Louisiana; "Kentucky").
- Chamaepelicia purpurca* MAYNARD, Am. Exchange and Mart, Jan. 15, 1887, 33; Feb. 5, 1887, 69 ("continent of North America").—PALMER (W.), Osprey, v, 1901, 148, in text (reprint of orig. descr.).
- C[olumbigallina] passerina purpurea* BERLEPSCH, Journ. für Orn., xl, 1892, 97, footnote (crit.).—HARTERT, Ibis, 1893, 304, in text (crit.).

*Columbigallina passerina terrestris* CHAPMAN, Bull. Am. Mus. N. H., iv, no. 1, Dec. 29, 1892, 293, in text ("eastern North America"); Handb. Birds E. N. Am., 1895, 190 (descr.; habits); ed. 1912, 285.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xi, 1894, 47; xix, 1902, 333 (crit.); xx, 1903, 360 (crit.); Check List, 2d ed., 1895, no. 320.—STONE, Birds E. Penn. and N. J., 1894, 84 (Camden, New Jersey, and Lancaster Co., Pennsylvania, accidental).—WAYNE, Auk, xii, 1895, 364 (Aucilla R., n. w. Florida).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1895, 476 (between Harrison and Kingston, Tennessee, 1 spec.).—SCOTT, Bird Studies, 1898, 76 (descr.; habits).—BEYER, Proc. La. Soc. Nat. for 1897-99 (1900), 98 (Louisiana, resident).—FOWLER, Auk, xxiii, 1906, 399 (Key West, Boca Grande Key, Marquesas Keys, Big Pine Key, Vaca Key, and Summerland Key, Florida; habits).—BEYER, ALLISON and KOPMAN, Auk, xxv, 1908, 440 (Louisiana, rare).—EATON, Birds New York, 1910, 389 (New York City, two records).

*C[olumbigallina] passerina terrestris* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 215, 591.

[*Chamaepelia*] *terrestris* SHARPE, Hand-list, i, 1899, 81.

*Chamaepelia terrestris* LOWE, Ibis, 1907, 114, 116, 117, in text (crit.); 1908, 110 (crit., etc.).

*Chamaepelia passerina terrestris* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxvi, July, 1909, 297; Check List, 3d ed., 1910, 150.—PHILIPP, Auk, xxvii, 1910, 317 (St. James I., South Carolina, 1 pair).—WAYNE, Contr. Charleston Mus., i, 1910, 66 (South Carolina; habits).—GOLSAN and HOLT, Auk, xxxi, 1914, 220 (Autaga and Montgomery counties, Alabama, breeding).

#### CHAMEPELIA PASSERINA PALLESCENS Baird.

##### MEXICAN GROUND DOVE.

Similar to *C. p. passerina* but averaging decidedly paler, the upper parts more grayish brown (nearly drab-gray), the adult male with head, neck, and anterior under parts decidedly lighter and less reddish vinaceous (inclining more to light grayish vinaceous) and with bluish gray of occiput, etc., lighter; basal portion of bill red, instead of yellow or orange, in life.

*Adult male*.—Length (skins), 155-178 (166); wing, 83-91(87); tail, 57-63 (59.5); exposed culmen, 11-12 (11.5); tarsus, 15-16 (15.6).<sup>a</sup>

*Adult female*.—Length (skins), 153-172 (162); wing, 84-90(86.5); tail, 57-62 (59); exposed culmen, 11-12 (11.5); tarsus, 15-16 (15.7).<sup>b</sup>

<sup>a</sup> Twenty specimens.

<sup>b</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
Five adult males from southern Texas (Brownsville).....	90	60.6	11.7	15.7
Five adult males from southern Arizona (Tucson).....	86.2	57.4	11.5	15.7
Five adult males from southern Lower California (Cape San Lucas)....	85.4	60.6	11.5	15.5
Two adult males from Vera Cruz.....	86.5	59.5	11.2	15.5
One adult male from Chiapas.....	87	58	11.5	15.5
One adult male from Campeche.....	85	60	11	15.5
FEMALES.				
Three adult females from Southern Texas (Brownsville).....	87.7	58.7	11.3	16
Two adult females from southern Arizona (Tucson).....	85	60	12	15.5
Two adult females from Cape San Lucas.....	85	60	11.5	16
One adult female from Vera Cruz.....	89	60	11.5	15
Two adult females from Chiapas.....	86.5	57	11.2	15.5



Southern Texas (Brownsville; Fort Brown; Hidalgo; Lomita Ranch; Saúz Ranch, Cameron County; Carrizo; Laredo; Seguíñ; Rio Grande City; Fort Clark; Eagle Pass; Houston; New Braunfels; San Antonio; Medina R.; Corpus Christi, breeding), southern Arizona (Tucson; Phoenix; Camp Lowell; Fort Yuma; Fort Mojave; Florence; Riverside; Calabasas; Fort Verde; Santa Cruz R., west of Patagona Mts.; 25 miles west of Ehrenberg; Tumacacori; Big Sandy Creek; Pima Indian Agency; San Pedro R.; Huachuca Mts.), and Lower California (Cape San Lucas; San José del Cabo; La Paz; San Ignacio; Triunfo; Santa Ana; Santa Anita; Sierra de la Laguna; Comondú; Margarita Island), and southward through Mexico in States of Sonora (Hermosillo; Álamos; Guaymas; Bacoachi; Santa Rosa; Opodepe), Chihuahua, Nuevo León (Linares; Monterey; Montemorelos; Allende; Cerro de la Silla), Tamaulipas (Victoria; Sierra Madre above Victoria; Matamoros; San Fernando; Camargo; Juamave; Aldama; Tamesí; Sota la Marina; Tampico; Rio Pilón), Durango (Chapala), Jalisco (La Barca; Zapotlán; Barranca Veltrán), Sinaloa (Mazatlán; Culiacán; Escuinapa), Guerrero (Iguala; Dos Arroyos; Chilpancingo), Morelos (Cuernavaca), Mexico (Espatlán; Chimalapa; Axotla; Ixtapalapa; Coapa; Mexicalcingo; Culhuacán), Puebla (Chietla; Acatlán), Vera Cruz (Miradór; Córdova; Orizaba; Jalapa; Coátepec; Salina Cruz; San Andres Tuxtla), Oaxaca (Tehuantepec; mts. near Santo Domingo), Tabasco (Rio Macuspana), Chiapas (Comitán; Tuxtla Gutierrez), Campeche (Campeche), and Yucatan (Temáx; Ticúl; Tekanto; Peto; Chichen-Itza; Cozumél Island; Holbox Island; Mugerres Island) and Territory of Tepic (San Blas; Maria Madre and Maria Magdalena islands, Tres Marias), to British Honduras (Manatee District; Manatee Lagoon; Orange Walk) and northern Guatemala (Gualán; Lake Amatitlán). Occasional or casual in California (Monterey; San Francisco, May, 1870; San Gabriel, Los Angeles County, several; Banning, Riverside County; San Pasquál, San Diego County; Pescadero, San Mateo County).

*Columba passerina* (not of Linnæus) ROEMER, Texas, 1849, 461 (New Braunfels, Texas).—STEPHENS, Incidents of Trav. in Yucatan, 1868, 475 (Yucatan).

*Chamaepelia passerina* McCALL, Proc. Ac. Nat. Sci. Phila., 1851, 220 (Rio Grande, bet. Matamoros and Camargo, Tamaulipas).—SCLATER, Proc. Zool. Soc. Lond., 1857, 205 (San Andres Tuxtla, Vera Cruz); 1859, 369 (Jalapa, Vera Cruz), 391 (Oaxaca).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 606, part (Matamoros, Tamaulipas; La Paz, Lower California; crit.); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 22 (Matamoros); Cat. N. Am. Birds, 1859, no. 453, part.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 93 (Fort Yuma, Arizona; La Paz, Lower California; crit.); Am. Nat., viii, 1873, 323 (Tucson, Arizona; late nesting); Birds North-West, 1874, 390, footnote, part.—COOPER, Orn. Calif., 1870, 516, part (Fort Yuma; Fort Mojave).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 389, part (Monterey, California; w. U. S. and Mexican references; crit.), 522 (San Francisco, California, 1 spec., May, 1870; San Gabriel, Los Angeles Co., California, several).—HENSLOW,

- Rep. Expl. W. 100th Merid., v. Zool., 1875, 433 (Camp Lowell, Arizona; s. w. U. S. references; habits).—SANCHEZ, Anal. Mus. Nac. Mexico, i, 1878, 105 (Matamoros; Yucatan).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 158 (Fort Brown, Texas, resident).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 48 (Brownsville and Hidalgo, Texas; descr. eggs); v, 1879, 424 (Lomita Ranch, Texas).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195, part; Nom. N. Am. Birds, 1881, no. 465, part.—HOLTERHOFF, Am. Nat., xv, 1881, 216 (Tucson, Arizona, breeding).—SUMICHRAST, La Naturaleza, v, 1881, 231 (Mexico).—NEHLING, Bull. Nutt. Orn. Club, vii, 1882, 175 (Houston, Texas).—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 32 (Tucson, Arizona; crit.).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 344 (Guaymas, Sonora).—STEPHENS, Auk, ii, 1885, 229 (Caborca, Sonora).—BENNETT, Orn. and Ool., xii, 1887, 69 (Laredo, Texas).—ROVIROSA, La Naturaleza, vii, 1887, 380 (Rio Macuspana, Tabasco).—SALVIN, Ibis, 1889, 377 and 1890, 89 (Holbox, Mugeris, and Cozumel islands, Yucatan).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Camp Lowell and Tucson, Arizona; Brownsville, Cameron Co., Hidalgo, and Corpus Christi, Texas, "California"; San Jose del Cabo, La Paz, and Cape San Lucas, Lower California; Matamoros, Tampico, Tamesi, Soto la Marina, Aldama, and Sierra Madre above Victoria, Tamaulipas; San Blas, Tepic, Zapotlan, Jalisco; Chapala, Durango; Chilpancingo, Guerrero; Chietla, Puebla; Epatlan, Chimalapa, Axotla, Coapa, Mexicalcingo, Ixtapalapa, and Culhuacan, Mexico; Coatepec, Vera Cruz, Salina Cruz, and Jalapa, Vera Cruz; Montemorelos, Nuevo Leon; Santa Rosa, Sonora; Tehuantepec, Oaxaca; Tres Marias islands; Holbox, Mugeris, and Cozumel islands, and Peto, Yucatan; Orange Walk, British Honduras).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 250, part (Texas to Lower California; Mexican localities and references).
- Chamæpelia passerina* GRAY, List Birds Brit. Mus., Columbæ, 1856, 49, part (Mexico).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 44 (Tehuantepec City, Oaxaca).
- [*Chamæpelia*] *passerina* BONAPARTE, Consp. Av., ii, 1857, 77, part (descr. from Mazatlan specimen!).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133 part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 141, part (Brownsville, Texas).
- Chamæopelia passerina* SCLATER, Proc. Zool. Soc. Lond., 1864, 178 (near Mexico City).
- [*Chamæpeleia*] *passerina* COUES, Key N. Am. Birds, 1872, 227, part (Cape San Lucas).
- Peristera passerina* SCHLEGEL, Mus. Pays-Bas, iv, no. 35, 1873, 135, part (Cape San Lucas; Texas).
- Pyrgitoënas passerina* REICHENBACH, Tauben, 1862, 162, part (Mexican references),
- Columbigallina passerina* RIDGWAY, Proc. U. S. Nat. Mus., viii, 1885, 581, 583 (Cozumel Is., Yucatan).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 320, part.—SCOTT, Auk, iii, 1886, 421 (Tucson, Florence, and Riverside, Arizona).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 657 (Medina R., Texas).—COOKE, Bird Migr. Miss. Val., 1888, 110 (Eagle Pass, Texas).—ATTWATER, Auk, ix, 1892, 233 (San Antonio, Texas).
- [*olumbigallina*] *passerina* RIDGWAY, Man. N. Am. Birds, 1887, 215, part.
- Chamæpelia* var. *pallescens* BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301 (Cape San Lucas).
- Chamæpelia passerina?* var. *pallescens* BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 305 (Cape San Lucas, Lower California; coll. U. S. Nat. Mus.).

- Chamæpelia passerina* var. *pallescens* BAIRD, in Cooper's Orn. Calif., 1870, 517 (Cape San Lucas).
- [*Chamæpelia*] *p[asserina] pallescens*? COUES, Key N. Am. Birds, 2d ed., 1884, 569.
- Chamæpelia passerina pallescens* COUES, Check List, 2d ed., 1882, no. 548.—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 544 (Cape district, Lower California).—THAYER and BANGS, Condor, ix, 1907, 136 (Santa Ana, Lower California).—SMITH, Condor, xi, 1909, 63 (Cuernavaca, Morelos).
- [*Chamæpelia*] *pallescens* SHARPE, Hand-list, i, 1899, 81.
- Chamæpeleia passerina* . . . var. *pallescens* COUES, Check List, 1873, no. 374 a.
- Chamæpelia pallescens* LAWRENCE, Proc. Bost. Soc. N. H., xiv, 1872, 275, part (Tres Marias islands; Cape San Lucas).—SANCHEZ, Anal. Mus. Nac. Mex., i, 1878, 105 (Mazatlan; Tres Marias).
- [*Chamæpelia*] *pallescens* LOWE, Ibis, 1907, 114, 115, 116, 117, in text (crit.); 1908, 111 (crit., etc.), 545, in text (color of bill in fresh specimens).
- Chamæpelia pallescens* LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 305 (Mazatlan; Tres Marias; habits).
- Chamæpelia passerina pallescens* HOWELL, Bull. Biol. Surv. no. 29, 1907, 31 (Texas; food).—DEARBORN, Field Mus. Orn. Series, i, 1907, 80 (Gualan and Lake Atitlan, Guatemala).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxvi, 1909, 297; Check List, 3d ed., 1910, 150.—VISHER, Auk, xxvii, 1910, 281 (Pima Co., Arizona, summer resident).—PHILLIPS, Auk, xxviii, 1911, 75 (Matamoros and San Fernando, Tamaulipas).—WILLARD, Condor, xiv, 1912, 53 (near Tucson, Arizona).—WILLETT, Pacific Coast Avifauna, no. 7, 1912, 44 (San Gabriel, Los Angeles Co., Banning, Riverside Co., and San Pasqual, San Diego Co., California).—TODD, Ann. Carnegie Mus., viii, 1913, 534 (monogr.).
- [*Chamæpelia*] *p[asserina] pallescens* TODD, Ann. Carnegie Mus., vii, 1911, 416 in text.
- Columbigallina passerina pallescens* FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 175 (Acatlan and Chietla, Puebla).—RIDGWAY, Man. N. Am. Birds, 1887, 594.—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 637 (Bexar Co., Texas).—NORRIS, Orn. and Ool., xiv, 1889, 59 (Santa Cruz Valley, near Tucson, Arizona).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 8 (no. 320a); Check List, 2d ed., 1895, no. 320a, part; Auk, xvi, 1899, 108; xx, 1903, 360 (crit.).—BRYANT (W. E.), Proc. Calif. Acad. Sci., ser. 2, 1889, 278 (Cape district, Comondu, and Santa Margarita I., Lower California); Zoë, ii, 1891, 188 (San Jose del Cabo, Lower California; habits).—MAYNARD, Eggs N. Am. Birds, 1890, 54 (geog. range; descr. eggs).—TOWNSEND (C.), Proc. U. S. Nat. Mus., xiii, 1890, 137 (Cape San Lucas).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 204 (Tekanto and Ticul, Yucatan), 212 (Orizaba, Vera Cruz).—KEELER, Zoë, i, 1890, 299 (Colorado R., California).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1892, 112 (Corpus Christi, Texas, breeding), 114 (Tucson, Arizona).—BENDIRE, Life Hist. N. Am. Birds, i, 1892, 150, part (Rillito Creek, near Tucson, Arizona).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 287 (Chichen-Itza, Yucatan); x, 1898, 36 (Jalapa, Vera Cruz); Color Key N. Am. Birds, 1903, 126.—NELSON, N. Am. Fauna, no. 14, 1899, 37 (Maria Madre and Maria Magdalena islands, Tres Marias group; crit.).—PRICE, Bull. Cooper Orn. Club, i, 1899, 91 (near Yuma, Arizona).—BRENINGER, Condor, iii, 1901, 45 (Pima Indian Agency, Arizona).—BAILEY (Florence M.), Handb. Birds W. U. S., 1902, 143.—GRINNELL, Pacific Coast Avifauna, no. 3, 1902, 31 (Monterey, Fort Yuma, San Francisco, San Gabriel, and Pescadero, California).—BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 79 (Sierra de la Laguna, La Paz, San Jose del Cabo, etc., Lower California; references; habits).—STEPHENS, Condor, v, 1903, 77 (Big Sandy Creek and

Bill Williams R., and Ehrenberg, Arizona).—OSGOOD, Condor, v, 1903, 129 (Sulphur Spring, near Wilcox, Cochise Co., Arizona).—SWARTH, Pacific Coast Avifauna, no. 4, 1904, 5 (Huachuca Mts. and San Pedro R., Arizona); Condor, vii, 1905, 25 (Papago Indian Reservation, Arizona; habits).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 343 (Escuinapa, Sonora).—BEEBE, Two Bird Lovers in Mexico, 1905, 185, 386 (Barranca Veltran, Jalisco).—COLE, Bull. Mus. Comp. Zool., 1, 1906, 117 (Chichen-Itza and San Ignacio, Yucatan).—BAILEY (H. H.), Auk, xxiii, 1906, 385 (near San Blas, Tepic).—HOWELL, Bull. Biol. Surv., no. 25, 1906, 22 (Texas; food).—THAYER and BANGS, Proc. Biol. Soc. Wash., xix, 1906, 18 (Opodepe, Sonora).—LAMB, Condor, xii, 1910, 76 (Las Marietas I., Mexico).

[*Columbigallina passerina pallescens* RIDGWAY, Man. N. Am. Birds, 1887, 586; 2d ed., 1896, 591.

*Columbigallina passerina pallescens* LANTZ, Trans. Kansas Ac. Sci. for 1897-99 (1900), 219 (La Paz, Lower California).

[*Columbigallina passerina*] var. *pallescens* DUBOIS, Synopsis Avium, ii, 1902, 763, part.

*Columbigallina passerina pallascens* KAEDING, Condor, vii, 1905, 111 (San Jose del Cabo, Lower California).

### CHÆMEPELIA PASSERINA SOCORROENSIS (Ridgway.)

#### SOCORRO GROUND DOVE.

Similar to *C. p. passerina* and *C. p. neglecta*, but wing shorter and coloration decidedly darker and more brownish, especially the adult female.

*Adult male*.—Length (skins), 147-164 (156); wing, 81-85 (83); tail, 52-58 (56); exposed culmen, 11-12 (11.5); tarsus, 15-16.5 (16).<sup>a</sup>

*Adult female*.—Length (skins), 155-163 (159); wing, 81-84 (82); tail, 53-59 (56); exposed culmen, 11-12 (11.5); tarsus, 16-17 (16.2).<sup>a</sup>

Socorro Island, Revillagigedo group, western Mexico; accidental or casual on Tres Marias Islands (Maria Madre Island)<sup>b</sup> and on mainland near Mazatlan, Sinaloa.<sup>b</sup>

*Chamæpelina pallescens* (not *C. passerina* var. *pallescens* Baird) LAWRENCE, Proc. Bost. Soc. N. H., xiv, 1872, 275, part (Socorro I.).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1872, 300, part (Socorro I.).

*Chamæpelina pallescens* LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 305, part (Socorro I.).

[*Columbigallina passerina socorroensis* RIDGWAY, Man. N. Am. Birds, Sept. 27, 1887, 586 (Socorro Island, Revillagigedo group, w. Mexico; coll. U. S. Nat. Mus.); 2d ed., 1896, 591.

*Columbigallina passerina socorroensis* RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614.—TOWNSEND (C. H.), Proc. U. S. Nat. Mus., xiii, 1890, 135 (Socorro I.).—ANTHONY, Auk, xv, 1898, 316 (Socorro I.).—KAEDING, Condor, vii, 1905, 111 (Socorro I.).

[*Chamæpelina socorroensis* SHARPE, Hand-list, i, 1899, 81.

*Chamæpelina socorroensis* SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 252.—LOWE, Ibis, 1908, 112.

<sup>a</sup> Ten specimens.

<sup>b</sup> It is quite possible that both these specimens are wrongly labeled as to locality, and are in reality from Socorro Island. Grayson collected at all three places and may have made an error in labeling.

[*Columbigallina passerina*] var. *socorroensis* DUBOIS, Synopsis Avium, ii, 1902, 764.  
*Chamæpelía passerina socorroensis* TODD, Ann. Carnegie Mus., viii, 1913, 543 (monogr.).  
*Chamæpelía passerina* (not *Columba passerina* Linnæus) SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Socorro I.).

**CHAMÆPELÍA PASSERINA NEGLECTA** Carriker.

**CENTRAL AMERICAN GROUND DOVE.**

Similar to *C. p. passerina* but color of upper parts browner, base of bill red instead of yellow or orange, and adult male with vinaceous of head and neck averaging deeper, and wing-coverts more extensively vinaceous; similar also to *C. p. pallescens* but coloration decidedly darker.

*Adult male*.—Length (skins) 146–172 (161); wing, 85–89 (87); tail, 53–60 (56); exposed culmen, 11–12 (11.5); tarsus, 16–16.5 (16.1).<sup>a</sup>

*Adult female*.—Length (skins), 154–173 (163); wing, 84–89 (86); tail, 52–60 (57); exposed culmen, 11–12 (11.7); tarsus, 15–16.5 (15.6).<sup>a</sup>

Central America: Guatemala (Dueñas; San Gerónimo; Toyabáj, Quitché; Panajachál, 5,000 feet; Santa Maria, near Quezaltenango), and southward through Honduras (mouth of Rio Román) and Nicaragua (Sucuyá; Ometepe; San Rafael del Norte; San Juan del Sur; San Carlos; Matagalpa) to western Costa Rica (Tenório; Coralillo; Miravalles; Bagaces; Bebedero; La Palma de Nicoya; Esparta; Pigres; Alajuela; San José; Cartago; Los Cuadros de Irazú); casual or occasional in Yucatán (Mérida; Chichen-Itza; San Ignacio).

(?) *Chamæpelía passerina* (not *Columba passerina* Linnæus) SCLATER and SALVIN, Ibis, 1859, 223 (Dueñas, Guatemala; habits).—SALVIN and SCLATER, Ibis, 1860, 45 (Guatemala; habits).—SALVIN, Cat. Strickland Coll., 1882, 547, part (Guatemala).—OATES, Cat. Birds' Eggs Brit. Mus., i, 1901, 101, part (Dueñas, Guatemala).

*Chamæpelía passerina* LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 139 (San Jose and Cartago, Costa Rica); ix, 1869, 207 (Merida, Yucatan).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 389, part (Central American references).—BOUCARD,

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
One adult male from Guatemala (Dueñas).....	87	55	11	16
One adult male from Honduras.....	86	56	12	16.5
Two adult males from Nicaragua.....	88	58	11.5	16
Six adult males from Costa Rica.....	86.8	55.7	11.4	16.2
FEMALES.				
One adult female from Honduras.....	84	60	11.5	16
Three adult females from Nicaragua.....	85.7	55.7	11.7	15.5
Six adult females from Costa Rica.....	86.2	57	11.9	15.7

- Proc. Zool. Soc. Lond., 1878, 43 (San Jose, Costa Rica).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 408 (La Palma de Nicoya, Costa Rica); vi, 1883, 378 (San Juan del Sur, Nicaragua), 389 (Sucuya, Nicaragua), 396 (Ometepe, Nicaragua).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 502 (San Jose, Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Panajachal, 5,000 ft., Santa Maria and Dueñas, Guatemala?; San Jose and Irazu district, Costa Rica).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles and Bagaces, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 250, part (Merida, Yucatan; Dueñas, San Geronimo, Panajachal, and Santa Maria near Quezaltenango, Guatemala?; Sucuya, Ometepe, Lake Nicaragua, San Juan del Sur, and San Carlos, Nicaragua; San Jose, Cartago, Bebedero, Miravalles, Alajucla, Volcan de Irazu, and La Palma de Nicoya, Costa Rica).
- [*Chamaepelia passerina* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part. *Peristera passerina* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 135, part (Costa Rica).
- (?) *Chaëmepelia passerina* BOUCARD, Ann. Soc. Linn. Lyon, n. s., xxv, 1878, 24 (Guatemala; habits); Liste Ois. récol. Guat., 1878, 14.—RODRIGUEZ, Anal. Mus. Nac. Salvador, iv, 1910, 282 (Guatemala).
- Columbigallina passerina* ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. C. R., i, 1888, 127 (San Jose, Costa Rica).—CALVO, Apunt. Geog. Estad. e Hist., 1887, 88 (Costa Rica).—CHERRIE, Auk, vii, 1890, 333 (San Jose, Costa Rica); ix, 1892, 329 (San Jose).
- [*olumbigallina*] *passerina pallescens* (not *Chamaepelia passerina* var. *pallescens* Baird) RIDGWAY, Man. N. Am. Birds, 1887, 586, part (Central America); 2d ed., 1896, 591, part (Central America); Condor, vii, 1905, 154, in text (Pigres, Costa Rica).
- Columbigallina passerina pallescens* RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 523 (San Carlos, Nicaragua).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 320a, part (Central America).
- (?) *Columbogallina passerina pallescens* LANTZ, Trans. Kansas Ac. Sci. for 1897-99 (1900), 219 (Amatitlan, Guatemala).
- [*Columbigallina passerina*] var. *pallescens* DUBOIS, Synopsis Avium, ii, 1902, 763, part (Central America).
- Chamaepelia passerina pallescens* AMERICAN ORNITHOLOGISTS' UNION, Check List, 3d ed., 1910, 150, part (Central America).
- [*Chamaepelia*] *pallescens* SHARPE, Hand-list, i, 1899, 81, part (Central America).
- Chamaepelia passerina neglecta* CARRIKER, Ann. Carnegie Mus., vi, Sept. 7, 1910, 398 (Esparta, Costa Rica; coll. Carnegie Mus.).—TODD, Ann. Carnegie Mus., viii, 1913, 540 (monogr.).
- (?) *Chamaepelia granatina* (not of Bonaparte) TRISTRAM, Cat. Coll. Birds, 1889, 39 (Panama).
- (?) *P[yr]gitoenas albivitta* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 14, part ("Mittel-amerika").

**CHÆMEPELIA PASSERINA ALBIVITTA (Bonaparte).**

**CURAÇAO GROUND DOVE.**

Similar to *C. p. pallescens* but smaller; bill pale yellow or orange yellow (except tip); posterior under parts decidedly paler, the under tail-coverts mostly white; adult male with vinaceous of head, neck, and anterior under parts tinged with lavender-gray; adult female slightly browner above and much more whitish below.

*Adult male*.—Length (skins), 137–157 (147); wing, 76–82 (80); tail, 50–58 (53); exposed culmen, 10.5–12 (11.2); tarsus, 15–17 (16).<sup>a</sup>

*Adult female*.—Length (skins), 136–155 (145); wing, 75–81 (79); tail, 51–58 (53.5); exposed culmen, 11–12 (11.1); tarsus, 15–16.5 (15.7).<sup>a</sup>

Caribbean coast district of Colombia (Bonda, Minca, Santa Marta, and Sierra Nevada, Santa Marta; Páramo de Macotama; Cartegena; Tierra Bomba, and Bay of Tesco, near Cartagena; Sabanilla; Barranquilla; Bucaramanga?) and Venezuela (Carácas; Ciudad Bolívar; Agua Salada, Ciudad Bolívar; La Guaira; Tocuyo, Estado Lara; Carupano; El Callao; Caicará; Cumaná; Cariaco Peninsula; Margarita, Tortuga, Los Hermanos, Orquilla, Blanquilla, and Los Testigos islands) and islands of Curaçao, Aruba, and Bonaire. Trinidad? Tobago?

(?)*Chamaepelia passerina* (not *Columba passerina* Linnaeus) LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 82, part (Colombia).

*Chamaepelia passerina* SCHOTT, Rep. Lieut. Michler's Exp. Isth. Darien, 1861, 247, in text, part (Tierra Bomba and Bay of Tesco, near Cartagena, Colombia).

*Chamaepelia passerina* WYATT, Ibis, 1871, 383 (Santa Marta, Colombia).—(?)BERLEPSCH, Journ. für Orn., 1884, 317 (Bucaramanga, Colombia).—RIDGWAY, Proc. U. S. Nat. Mus., vii, 1884, 177 (Curaçao).—PETERS, Journ. für Orn. 1892, 113 (Curaçao; habits).—SALVADORI, Cat. Birds. Brit. Mus., xxi, 1893, 473, part (Venezuela; Trinidad).

[*Chamaepelia*] *passerina* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 141, part (Cumana, Venezuela; Trinidad).

*Columba passerina* (not of Linnæus) SUNDEVALL, Efv. Kongl. Vet.-Ak. Förh., 1869 (1870), 586, part (Venezuela; crit.).

*Peristera passerina* MARTIN, Bericht Reise Nederl. Westindien, 1887,—(Curaçao; Bonaire).

*Columbigallina passerina* ALLEN, Bull. Am. Mus. N. H., iv, 1892, 56 (Carupano, Venezuela).—BERLEPSCH, Journ. für Orn., 1892, 69, 97, part (Curaçao; crit.), 102, part (Curaçao, Colombia, Venezuela, Trinidad, and Tobago).—HARTERT, Ibis, 1893, 326, in text (Bonaire).—ROBINSON, Flying Trip to Tropics, 1895,

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
Five adult males from Colombia.....	80.8	53.8	11.3	16.3
Two adult males from Venezuela.....	76	52.5	11	15.5
One adult male from Margarita Island.....	82	53	12	16.5
Two adult males from Curaçao.....	79	52	10.8	15.5
FEMALES.				
Five adult females from Colombia.....	79.4	55	11.1	15.6
Three adult females from Venezuela.....	77	52.7	11	15.8
One adult female from Margarita Island.....	80	51	12	15.5
One adult female from Curaçao.....	80	51	11	16

- 43, 154, part (Barranquilla, Colombia), 21, 164 (Curaçao); Proc. U. S. Nat. Mus., xviii, 1896, 659 (Margarita I., Venezuela), 682 (Guanta, Venezuela), 683 (La Guaira, Venezuela).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 659 (Margarita I.; crit.).—PHELPS, Auk, xiv, 1897, 366 (Cumana, Cumanacoa and San Antonio, Venezuela).—ROBINSON and RICHMOND, Proc. U. S. Nat. Mus., xxiv, 1901, 167 (La Guaira, Venezuela; descr. nest and eggs).—CLARK (A. H.), Auk, xix, 1902, 261 (Margarita I.).
- (?) *Ch[amaepelia] granatina* BONAPARTE, Compt. Rend., xl, 1855, 21 (Bogota, Colombia); Consp. Av., ii, 1857, 77 (Bogota, Colombia; coll. Paris Mus.).
- (?) *Chamaepelia granatina* SCLATER, Proc. Zool. Soc. Lond., 1855, 163 (Bogota, ex Bonaparte; crit.).—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 296, footnote (crit.).
- Chamaepelia granatina* CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 195 (Cartagena, Colombia; habits); Rep. Lieut. Michler's Exped. Isth. Darien, 1861, 246 (Cartagena).
- Chamaepelia granatina* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 390, in text (Colombia; crit.).
- [*Chamaepelia granatina* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 283 (Puerto Cabello, Venezuela).
- Columbigallina passerina granatina* ALLEN, Bull. Am. Mus. N. H., xiii, Aug. 25, 1900, 128 (Bonda, Santa Marta, Colombia); xvi, 1905, 280 (Bonda; descr. nest and eggs).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 118 (Altigracia, Caicara, and Ciudad Bolivar, Venezuela; crit.).
- Chamaepelia passerina granatina* CARRIKER, Ann. Carnegie Mus., vi, 1910, 398, in text (crit.).
- Columbigallina passerina* var. *granatina* DUBOIS, Synopsis Avium, ii, 1902, 763, part.
- Chamaepelia albivitta* BONAPARTE, Compt. Rend., xl, 1855, 21 (Cartagena, Colombia), 220 (descr.); Consp. Av., ii, 1857, 77 (Cartagena, Colombia; coll. Paris Mus.).
- Chamaepelia albivitta* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 296 (crit.).
- (?) *Chamaepelia albivitta* TAYLOR, Ibis, 1864, 94 (Chachachacare I., Trinidad).—FINSCH, Proc. Zool. Soc. Lond., 1870, 554 (Trinidad, ex Taylor).
- Chamaepelia albivitta* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 390, in text (Venezuela; crit.).
- P[yrigitoenas] albivitta* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 14, part (Cartagena, Colombia).
- [*Chamaepelia albivitta* GRAY, Hand-list, ii, 1870, 240, no. 9340 (Cartagena).
- Chamaepelia passerina albivitta* TODD, Ann. Carnegie Mus., viii, May 8, 1913, 551 (monogr.).
- Columbigallina passerina pallescens* (not *Chamaepelia passerina* var. *pallescens* Baird) BANGS, Proc. Biol. Soc. Wash., xii, 1898, 132 (Santa Marta, Colombia).
- Columbigallina passerina perpallida* HARTERT, Ibis, ser. 6, v, July, 1893, 304 (Aruba I., Dutch West Indies; coll. Tring Mus.; also Curaçao I.; habits; crit.); 325 (Curaçao), 334 (Bonaire; habits); Novit. Zool., ix, 1902, 305 (Aruba; Curaçao; Bonaire).—ROBINSON, Flying Trip to Tropics, 1895, 166 (Curaçao)—LOWE, Ibis, 1907, 552 (Margarita I.; crit.).
- [*Columbigallina passerina perpallida* BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 119, in text (crit.).
- [*Columbigallina passerina perpallida* RILEY, Proc. U. S. Nat. Mus., xxix, 1905, 171-172, in text (crit.).
- [*Chamaepelia perpallida* SHARPE, Hand-list, ii, 1899, 82.



- Chamæpelia perpallida* LOWE, Ibis, 1907, 114 (Blanquilla I., Dutch West Indies; crit.); 1908, 114 (crit., etc.); 1909, 314 (Los Testigos Islands, near Trinidad; crit.), 322 (Cariaco peninsula, Venezuela), 327 (Los Hermanos Islands, Venezuela); Nat. on Desert Islands, 1911, 158 (Blanquilla I.; habits).
- Chamæpelia passerina perpallida* CORY, Pub. 137, Field Mus. N. H., 1909, 198 (Aruba), 205 (Curaçao), 210 (Bonaire), 218 (Orchilla), 220 (Tortuga), 223 (Blanquilla), 227 (Orquilla), 230 (Los Testigos), 240 (Margarita).
- Chamæpelia passerina perpallida* LOWE, Ibis, 1907, 552 (Curaçao, Bonaire, Aruba, Margarita, Blanquilla, and Los Hermanos Islands; crit.).
- Columbigallina perpallida* LOWE, Nat. on Desert Islands, 1911, 159 (Blanquilla).
- Columbigallina passerina* var. *perpallida* DUBOIS, Synopsis Avium, ii, 1902, 764 (Aruba; Bonaire; Curaçao).
- Columbina perpallida* BRABOURNE and CHUBB, Birds South Am., i, 1912, 18 (Aruba; Bonaire; Curaçao).
- Columbina griseola* (not *Columba griseola* Spix) BRABOURNE and CHUBB, Birds South Am., i, 1912, 18, part (Venezuela).

### CHÆMEPELIA PASSERINA ANTILLARUM (Lowe).

#### ANTILLEAN GROUND DOVE.

Similar to *C. p. albivitta* but slightly darker, the upper parts (especially wing-coverts) averaging slightly more grayish, the posterior under parts with much less of white, the bill blackish with base olive or olive-brownish in life.

*Adult male*.—Length (skins), 147–166 (155); wing, 78–82 (80); tail, 53–58 (56); exposed culmen, 11.5–13 (12); tarsus, 16.5–17.5 (16.8).<sup>a</sup>

*Adult female*.—Length (skins), 145–156 (150); wing, 76–81 (79); tail, 51–60 (55); exposed culmen, 11.5–12.5 (12); tarsus, 16–17.5 (16.7).<sup>a</sup>

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
One adult male from Grenada.....	80	58	12	16.5
Two adult males from Carriacou.....	80.5	56.5	12.2	16.7
One adult male from Union.....	82	55	11.5	17
One adult male from Bequia.....	80	54	12	16.5
Three adult males from St. Vince it.....	79.3	55.7	11.7	16.7
Two adult males from Barbados.....	80.5	57	12.5	17.2
FEMALES.				
Two adult females from Grenada.....	78.5	55	12	17
Two adult females from Carriacou.....	79	53.5	12	16.5
One adult female from Mustique.....	78	53	12	17.5
Two adult females from Bequia.....	77.5	53.5	12.2	16
One adult female from St. Vincent.....	80	58	11.5	16
Two adult females from Barbados.....	80.5	56	12	17.2

Southernmost Lesser Antilles: Grenada; Grenadines (Carriacou, Canonán, Unión, Mustique, and Bequia); St. Vincent; Barbados.

[*Columba passerina* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 165, part (citations of Ray and Willughby); ed. 12, i, 1766, 285, part.—GMELIN, Syst. Nat., i, pt. ii, 1789, 787, part.

*Chamæpelia passerina* SCHOMBURGK, Hist. Barbados, 1848, 681 (Barbados).—SCLATER, Proc. Zool. Soc. Lond., 1874, 175 (Barbados).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 196 (St. Vincent); i, 1879, 276 (Grenada), 277 (Grenadines), 487, part (St. Vincent and Grenada).—LISTER, Ibis, 1880, 43 (St. Vincent).—FEILDEN, Ibis, 1889, 490 (Barbados; habits).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Grenada; Bequia; Mustique; St. Vincent; Barbados).—OATES, Cat. Birds' Eggs Brit. Mus., i, 1901, 101, part (Barbados).—LOWE, Ibis, 1907, 115, in text, part (Grenada; crit.).

[*Chamæpelia passerina* CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24, part.

*Columbigallina passerina* CORY, Ibis, 1886, 472 (Barbados); Auk, iv, 1887, 116, part; Birds West Ind., 1889, 217, part; Cat. West Ind. Birds, 1892, 97, part (Bequia; Canonan; Carriacou; Grenada; Barbados).—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 625 (Grenada; habits; descr. nest and eggs); Auk, xix, 1902, 344 (Carriacou; habits).—BERLEPSCH, Journ. für Orn., 1892, 97, part (Grenada; crit.), 102, part (Grenada; St. Vincent; Barbados).

*Chæmepelia trochila* (not of Bonaparte) GRAY, List Birds Brit. Mus., Columbæ, 1856, 50 (Barbados).

[*Chæmepelia trochila* GRAY, Hand-list, ii, 1870, 240, no. 9337 (Barbados).

[*Chamæpelia trochila* HARTERT, Ibis, 1893, 305, in text (crit.).

*Columbigallina passerina trochila* RILEY, Smithson. Misc. Coll., quart. issue, xlvi, 1904, 281, part (St. Vincent; Grenada; measurements; crit.).—CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 262 (Barbados; St. Vincent; Grenada; Grenadines; habits; descr. nest and eggs), 302 (Barbados), 303 (St. Vincent), 304 (Grenadines), 306 (Grenada).

*Chamæpelia antillarum* LOWE, Bull. Brit. Orn. Club, xxi, no. cxliv, July 1, 1908, 109 (Barbados; Grenada; St. Vincent; coll. P. R. Lowe); Ibis, 1909, 306 (Barbados; crit.).

*Chæmepelia passerina antillarum* TODD, Ann. Carnegie Mus., viii, May 8, 1913, 555 (monogr.).

### CHÆMEPELIA PASSERINA TROCHILA (Bonaparte).

#### MARTINIQUE GROUND DOVE.

Similar to *C. p. antillarum* but coloration darker, the upper parts more olivaceous gray, remiges with more rufous-chestnut on outer webs, and basal two-thirds (more or less) of bill red (lake red or crimson) in life; adult male with vinaceous of head, neck, and chest deeper, without lavender-gray tinge, and with wing-coverts more decidedly vinaceous.

*Adult male*.—Length (skins), 167–171 (169); wing, 77–83 (80); tail, 53–63 (57.5); exposed culmen, 10.5–12 (11.1); tarsus, 15–17 (16).<sup>a</sup>

*Adult female*.—Length (skins), 155–166 (160); wing, 77–85 (80); tail, 51–62 (56); exposed culmen, 11–12.5 (11.3); tarsus, 15–17.5 (15.7).<sup>b</sup>

Lesser Antilles north of St. Vincent (Santa Lucia; Martinique; Dominica; Guadeloupe; Desirade; Antigua; Barbuda; St. Bartholomew; St. Christopher; St. Eustatius; Montserrat; Saba; Anguilla; and easternmost Greater Antilles (St. Croix; Anegada; Virgin Gorda; Tórtola; St. John; St. Thomas; Culebra; Vieques; Porto Rico).

*Columba passerina* (not of Linnaeus) FAHLBERG, Kongl. Vetensk. Acad. Nya Handl., vii, 1786, 253 (St. Bartholomew).—TEMMINCK, in Temminck and Knip, Pigeons, i, 1808–11, Colombi-gallines, 24, part, pls. 13, 14 (Porto Rico); Hist. Nat. Pig. et Gallin., i, 1813, 425, part (Porto Rico).—LEDRU, Voy. Iles Teneriffe, Trinite, etc., ii, 1810, 39 (St. Thomas; St. Croix; Porto Rico).—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 401, part (Martinique).—DESMAREST, Dict. Sci. Nat., xl, 1826, 308, part (Porto Rico).—LESSON, Compl. Buffon, Ois., viii, 1837, 12, part (Porto Rico).—BRYANT, Journ. für Orn., 1866, 191 (Porto Rico); Proc. Bost. Soc. N. H., x, 1866, 257 (Porto Rico).—SUNDEVALL, Öfv. Kongl. Vet.-Ak. Förh., 1869 (1870), 586, part (St. Bartholomew), 601 (Porto Rico).—GUNDLACH, Journ. für Orn., 1874, 308 (Porto Rico).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 450 (Guadeloupe).

<sup>a</sup> Eighteen specimens.

<sup>b</sup> Sixteen specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
Two adult males from Dominica.....	80	58	11.2	16.5
Two adult males from Santa Lucia.....	78.5	58	12	16.5
Two adult males from Guadeloupe.....	81	62	10.7	15.7
Two adult males from Antigua.....	80	55	11	(15.5)
Two adult males from Barbuda.....	77.5	56	10.5	15.5
One adult male from St. Christopher.....	81	63	11	16
One adult male from St. Eustatius.....	80	56	11	15
One adult male from St. Johns.....	81	55	10.5	15.5
Two adult males from St. Thomas.....	81.5	58	11.2	15.5
Three adult males from Porto Rico.....	80	55.7	11.3	16.5
FEMALES.				
Two adult females from Dominica.....	81.5	57.5	12	16
Two adult females from Santa Lucia.....	83.5	61	12.2	17.2
Two adult females from Antigua.....	78.5	58	11	15.5
Two adult females from Barbuda.....	79.5	55	11	15.7
One adult female from St. Eustatius.....	78	56	11	15
One adult female from Anegada.....		55	11	16
Three adult females from St. Thomas.....	78.7	53	11	15
Three adult females from Porto Rico.....	80.3	54.7	11	15.3

- Chamæpelia passerina* BELLO and ESPINOSA, Zool. Gart., xii, 1871, 348 (Porto Rico).—GUNDLACH, Journ. für Orn., 1874, 313 (Porto Rico); 1878, 161, 186 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 349 (Porto Rico; habits).—LAWRENCE, Forest and Stream, ix, 1877, 345 (Dominica); Proc. U. S. Nat. Mus., i, 1878, 67 (Dominica; descr. nest), 237 (Antigua), 241 (Barbuda); i, 1879, 360 (Martinique), 460 (Guadeloupe), 487, part (Barbuda; Antigua; Guadeloupe; Dominica; Martinique).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).—RIDGWAY, Proc. U. S. Nat. Mus., vii, 1884, 172 (St. Thomas).—SCLATER, Proc. Zool. Soc. Lond., 1889, 326 (Dominica), 395 (Santa Lucia); 1892, 500 (Anguilla).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Santa Lucia; Dominica; Guadeloupe; St. Christopher; Tortola; Anguilla; Virgin Gorda; St. Thomas; Porto Rico).—OATES, Cat. Birds' Eggs Brit. Mus., i, 1901, 101, part (St. Croix).—NICOLL, Ibis, 1904, 570 (Dominica), 572 (Montserrat), 576 (St. Croix; St. Thomas).—LOWE, Ibis, 1907, 116, in text, part (Porto Rico; St. Thomas; St. Croix; St. Christopher; Dominica; crit.).
- [*Chamæpelia passerina* CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24, part.
- Peristera passerina* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbæ), 1873, 135, part (St. Thomas).
- Columbigallina passerina* CORY, Ibis, 1886, 474 (Desirade); iv, 1887, 96 (Martinique); Auk, v, 1887, 96 (Martinique), 116, part; vii, 1890, 374 (Anegada), 375 (Tortola; Virgin Gorda); viii, 1891, 47 (Antigua), 48 (St. Croix; St. Christopher; Guadeloupe); Birds West Ind., 1889, 217, part; Cat. Birds West Ind., 1892, 97, part (Porto Rico; Tortola; Virgin Gorda; Anegada; St. Croix; St. Bartholomew; St. Eustatius; Montserrat; Guadeloupe; Desirade; Dominica; Martinique; Santa Lucia), 155 (St. Bartholomew).—BERLEPSCH, Journ. für Orn., 1892, 102, part (Santa Lucia; Martinique; St. Thomas).—VERRILL, Trans. Conn. Ac. Arts and Sci., viii, 1893, 324, 349 (Dominica).—BOWDISH, Oölogist, xvi, 1900, 72 (Vieques I.); Auk, xix, 1902, 361, part (Porto Rico; nesting habits).—HARTERT, Novit. Zool., ix, 1902, 276, in text (St. Thomas).—DUBOIS, Synopsis Avium, ii, 1902, 763, part.
- Columba passeris* KNOX, Hist. Acc. Isl. Dominica, 1791, 28 (Dominica; habits).
- Chamæpelia trochila* BONAPARTE, Compt. Rend., xl, 1855, 21 (Martinique).
- Chamaepelia trochila* BONAPARTE, Compt. Rend., xl, 1855, 21, 220 (Martinique; descr.); Consp. Av., ii, 1857, 77 (Martinique; coll. Paris Mus.).
- Chamæpelia trochila* NEWTON (A. and E.), Ibis, 1859, 253 (St. Croix; St. Thomas; habits; crit.), 375 (St. Croix), 377 (St. Thomas).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 378 (St. Thomas).—SCLATER, Ibis, 1862, 289 (Martinique).—SEMPER, Proc. Zool. Soc. Lond., 1872, 653 (Santa Lucia; habits).
- Chamaepelia trochila* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 296, footnote (Martinique; crit.).
- Pyrigitoenas trochila* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 14 (Martinique).
- Chamæpelia trochila* TAYLOR, Ibis, 1864, 171 (Porto Rico; St. Thomas; crit.).
- Chamæpelia trochilea* SCLATER, Proc. Zool. Soc. Lond., 1871, 266 (Santa Lucia).
- Columbigallina passerina trochila* RILEY, Smithson. Misc. Coll., xlvii, Nov. 8, 1904, 281 (Barbuda; Antigua; St. Bartholomew; St. Christopher; St. Eustatius; Guadeloupe; Dominica; measurements; crit.).—VERRILL, Addition to Avif. Dom., etc., 1905, [16, 23] (Dominica).
- Chamæpelia passerina trochila* CLARK (A. H.), West Ind. Bull., xi, no. 3, 1911, 183 (Santa Lucia).
- Chamæpelia passerina trochila* TODD, Ann. Carnegie Mus., xiii, 1913, 558 (monogr.).

*Columbigallina passerina socorrensis?* (not *C. p. socorroensis* Ridgway) HARTERT, Ibis, 1893, 305, in text (Porto Rico).

*Chamxepelia portoricensis* LOWE, Ibis, 9th ser., ii, Jan., 1908, 108 (Guanica, Porto Rico; coll. P. R. Lowe).

*Chamxepelia portoricensis* LOWE, Ibis, 1908, 545, in text (St. Thomas; crit.).

*Chamxepelia jamaicensis* (not of Maynard) LOWE, Ibis, 1908, 111, part (St. Thomas; St. Christopher; Dominica; crit.).

CHÆMEPELIA PASSERINA AFLAVIDA (Palmer and Riley).

CUBAN GROUND DOVE.

Intermediate in coloration between *C. p. antillarum* and *C. p. trochila*, but color of bill (in life) very different from either, being black to base, where washed or tinged with crimson.

*Adult male*.—Length (skins), 156–178 (165); wing, 77–86 (81); tail, 55–61 (58); exposed culmen, 10.5–12 (11.2); tarsus, 15–16.5 (15.6).<sup>a</sup>

*Adult female*.—Length (skins), 160–166 (164); wing, 81–85 (83.5); tail, 54–60 (57); exposed culmen, 11–12 (11.6); tarsus, 15–16 (15.4).<sup>a</sup>

Cuba (Havana; Pinár del Rio; Trinidad; Guamá; El Cobre; Holguín; San Diego de los Baños; Remédios; La Catchina near Tagua; Monteverde; Guanajáy; Santiago de Cuba; Guantánamo Bay; Figuabas), Isle of Pines (Júcaro; Hospital; Nueva Gerona; San Juan; Callebonita; McKinley; Santa Bárbara), and Haiti (Jaemel, Le Coup, and Port-au-Prince, Haiti; Catare, Honduras, Sanchez, San Cristóbal, La Vega, Maniél, Fuerte Resoli, Santa Domingo, and Puerta Plata, Santo Domingo). Casual on Grand Cayman and in Jamaica (Spanishtown).

[*Columba*] *passerina* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 285, part (Santo Domingo, ex Brisson).

*Columba passerina* TEMMINCK, in Temminck and Knip, Pigeons, i, 1808–11, Colombi-gallines, 24, part, pls. 13, 14 (Santo Domingo); Hist. Nat. Pig. et Gallin., i, 1813, 425, part (Santo Domingo); Pl. Col., i, Tabl. Méth., 1838, 81.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvii, 1818, 401, part (Santo Domingo); Gal. Ois., i, 1825, 333, part, pl. 196 (Santo Domingo).—HEARNE, Proc. Zool. Soc. Lond., 1834, 110 (Haiti).—RITTER, Reise nach Haiti, 1836,

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus
MALES.				
Five adult males from Cuba.....	82.4	59.4	11.5	15.9
Two adult males from Isle of Pines.....	81.5	59	11	15.5
Three adult males from Haiti.....	79.7	55.3	10.8	15.3
FEMALES.				
Seven adult females from Cuba.....	83.6	56.7	11.8	15.5
Two adult females from Isle of Pines.....	84	57	11.5	15
One adult female from Haiti.....	82	56	11	16

- 156 (Haiti).—LESSON, Compl. Buffon, Ois., viii, 1837, 12, part (Santo Domingo); ed. 2, 1838, 272.—D'ORBIGNY, in La Sagra, Hist. Nat. Cuba, Ois., iii, 1839, 131 (Cuba).—DENNY, Proc. Zool. Soc. Lond., 1847, 38, part (Cuba).—POEY, Mem. Real. Soc. Econ. Habana. (2), vii, 1848, 104 (Cuba); Mem. Hist. Nat. Isla de Cuba, i, 1851, 427 (Isle of Pines).—LEMBEYE, Aves de la Isla de Cuba, 1850, 132 (Cuba).—THIENEMANN, Journ. für Orn., 1857, 154 (Cuba; descr. eggs).—SAUSSURE, Rev. et Mag. de Zool., 1859, 121 (Haiti).—BRYANT, Proc. Bost. Soc. N. H., xi, 1867, 96 (Santo Domingo).—SUNDEVALL, Öfv. Kongl. Vet.-Ak. Förh., 1869 (1870), 586, part (Haiti; crit.).—GUNDLACH, Anal. Hist. Nat., 1873, 146 (Cuba; habits).
- [*Chamaepelia passerina* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 82, part (Cuba).
- Chamaepelia passerina* CABANIS, Journ. für Orn., 1856, 111 (Cuba; habits).—SALLÉ, Proc. Zool. Soc. Lond., 1857, 236 (Santo Domingo).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—GUNDLACH, in Poey's Repert. Fisico-Nat. Cuba, 1865-66, 300 (Cuba; habits); Journ. für Orn., 1874, 296 (Cuba; habits); Contr. Orn. Cubana, 1876, 7, 13, 136 (Cuba; habits; descr. eggs), 279 (synonymy).—BAIRD, Am. Journ. Sci. and Arts, xli, 1866, 188, part (Cuba); Ibis, 1867, 276 (Cuba).—PELZELN, Orn. Bras., 1870, 277, footnote, part (Santo Domingo).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 154 (Haiti); Birds Haiti and San Dom., 1885, 127.—TRISTRAM, Ibis, 1884, 168 (Santo Domingo).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Port-au-Prince, Haiti; Santo Domingo; San Cristobal, Cuba).—CHRISTY, Ibis, 1897, 335 (La Vega, Santo Domingo; habits).—MENECAUX, Rev. Franç. d'Orn., i, no. 2, 1909, 31 (Figuabas, e. Cuba).
- [*Chamaepelia passerina* GUNDLACH, Journ. für Orn., 1861, 336 (Cuba).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24, part ("Antilles," part).
- Pyrgitoenas passerina* REICHENBACH, Tauben, 1862, 162, part (Santo Domingo).
- Peristera passerina* SCHLEGEL, Mus. Pays-Bas, iv, no. 25 (Columbae), 1873, 135, part (Haiti).
- Columbigallina passerina* CORY, Auk, iv, 1887, 116, part; viii, 1891, 293, 294 (Santo Domingo; Cuba); ix, 1892, 272 (Havana and San Diego de los Baños, Cuba); Birds West Ind., 1889, 217, part; Cat. West. Ind. Birds, 1892, 97, part (Cuba; Isle of Pines; Haiti; Santo Domingo).—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 292 (Trinidad, s. Cuba; crit.).—GUNDLACH, Orn. Cubana, ed. 1895, 164 (Cuba; descr.; habits).—CHERRIE, Field Mus. Orn. Ser., i, 1896, 24 (Santo Domingo).
- Chamaepelia passerina* MENECAUX, Bull. Mus. Hist. Nat., xv, 1909, 238 (Cuba).
- (?)*Chamaepelia hortulana* WÜRTTEMBERG, Naumannia, ii, pt. ii, 1852, 56 (Haiti).
- Columbigallina passerina aflavida* PALMER and RILEY, Proc. Biol. Soc. Wash., xv, March 5, 1902, 23 (San Diego de los Baños, Cuba; coll. U. S. Nat. Mus.).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 197 (Callebonita, Hospital, Jucaro, and San Juan, Isle of Pines).—READ, Oölogist, xxviii, 1911, 3, 16 (McKinley, Isle of Pines).
- Columbigallina aflavida* MAYNARD, Cat. Birds West Ind., sec. app., 1903, 35 (Cuba).
- Chamaepelia aflavida* LOWE, Ibis, 1907, 116, in text (crit.).
- [*Chamaepelia aflavida* LOWE, Ibis, 1909, 341 (Grand Cayman, 1 spec.).
- Chamaepelia passerina aflavida* READ, Bird Lore, xiii, 1911, 44 (McKinley, Isle of Pines); xv, 1913, 45 (Santa Barbara, Isle of Pines).—TODD, Ann. Carnegie Mus., viii, 1913, 561 (monogr.).
- Chamaepelia axantha* LOWE, Ibis, Jan., 1908, 114 (new name for *C. p. aflavida* Palmer and Riley, rejected on ground of purism; crit., etc.).

## CHÆMEPELIA PASSERINA INSULARIS (Ridgway.)

## CAYMAN ISLAND GROUND DOVE.

Similar to *C. p. aflavida* but bill extensively pale colored basally (reddish in life, yellowish in dried skins) and adult male with the vinaceous areas slightly less purplish.

*Adult male*.—Length (skins), 168–174 (171); wing, 80–84 (82); tail, 55–60 (57); exposed culmen, 11–12 (11.1); tarsus, 15–16.5 (15.6).<sup>a</sup>

*Adult female*.—Length (skins), 159–165 (162); wing, 78–83 (81); tail, 55–60 (57); exposed culmen, 11–11.5 (11.2); tarsus, 15.<sup>b</sup>

Grand Cayman Island, south of Cuba. (Also Little Cayman and Cayman Brac ?.)

*Columbigallina passerina* (not *Columba passerina* Linnaeus) CORY, Auk, iii, 1886, 502 (Grand Cayman); iv, 1887, 116, part; vi, 1889, 32 (Cayman Brac); Birds West Ind., 1889, 217, part; Cat. West Ind. Birds, 1892, 97, part (Grand Cayman; Little Cayman; Cayman Brac), 139, part (crit.).

*Chamæpelis passerina* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Grand Cayman).—NICOLL, Ibis, 1904, 585 (Grand Cayman; crit.).

*Columbigallina passerina insularis* RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 36, Aug. 6, 1888, 574 (Grand Cayman, south of Cuba; coll. U. S. Nat. Mus.; ex Townsend, manuscript).—CORY, Birds West Ind., 1889, 297 (Grand Cayman; Cayman Brac; crit.).—BERLEPSCH, Journ. für Orn., 1892, 98, in text (crit.).—HARTERT, Ibis, 1893, 305, in text (crit.).

[*Chamæpelis*] *insularis* SHARPE, Hand-list, i, 1899, 82.

*Chamæpelis insularis* LOWE, Ibis, 1908, 113 (crit., etc.).

*Columbigallina insularis* MAYNARD, Cat. Birds West Ind., 1903, 7 (Grand Cayman).

*Chamæpelis passerina insularis* LOWE, Ibis, 1907, 116, in text (Cayman islands; crit.).

*Chamæpelis passerina insularis* TODD, Ann. Carnegie Mus., viii, 1913, 564 (monogr.).

*Chamæpelis jamaicensis* (not of Maynard) LOWE, Ibis, 1908, 111, part (Cayman islands; crit.); 1909, 341 (Grand Cayman; crit.); 1911, 145, part (Grand Cayman; references).

<sup>a</sup> Six specimens.

<sup>b</sup> Three specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.
FEMALES.				
Three adult females from Grand Cayman.....	81	57	11.2	15
Two adult females from Little Cayman ( <i>C. p. insularis</i> ?).....	81.5	54.5	10.5	15

The status of specimens from Little Cayman is doubtful, owing to paucity of material examined.

## CHÆMEPELIA PASSERINA BAHAMENSIS (Maynard).

## BAHAMA GROUND DOVE.

Similar to *C. p. aflavida* but coloration slightly paler, posterior under parts with more of white, and bill with less of reddish at base, often wholly black.

*Adult male*.—Length (skins), 155–176 (165); wing, 79–84 (81.5); tail, 53–60 (56); exposed culmen, 10–12 (10.8); tarsus, 15–16 (15.6).<sup>a</sup>

*Adult female*.—Length (skins), 146–170 (154); wing, 81–84 (82); tail, 53–59 (56.5); exposed culmen, 10.5–12 (11); tarsus, 15–16 (15.4).<sup>a</sup>

Bahamas (Great Bahama; Abaco; Little Abaco;<sup>b</sup> Biminis;<sup>b</sup> Berry Islands;<sup>b</sup> Eleuthera; New Providence; Andros; Cat Island; Concepción; Watling Island; Rum Cay; Long Island;<sup>b</sup> Green Cay; Acklin Island;<sup>b</sup> Plana Cay;<sup>b</sup> Maragauna; Miraporvos;<sup>b</sup> Caicos Islands; Current Island;<sup>b</sup> Bird Rock; Great Guana Cay; Great Sale Cay;<sup>b</sup> Elbow Cay;<sup>b</sup> Moraine Cay;<sup>b</sup> Stranger Cay<sup>b</sup>) and Bermudas. Accidental on east coast of Florida (Enterprise)?

*Chamœpelia passerina* (not *Columba passerina* Linnæus) JARDINE, Contr. Orn., 1849, 79 (Bermuda).—HURDIS, Jardine's Contr. Orn., 1850, 6 (Bermuda).—REID, Bull. U. S. Nat. Mus., no. 25, 1884, 225 (Bermuda, abundant resident; habits, etc.).

*Chamœpelia passerina* BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 120 (Bahamas).—ALBRECHT, Journ. für Orn., 1861, 55 (Bahamas).—BAIRD, Am. Journ. Sci. and Arts, xli, 1866, 188, part (Bahamas); Ibis, 1867, 276, part (Bahamas).—WALLACE, Geog. Distr. Anim., ii, 1876, 135 (Bermuda).—CORY, Birds

<sup>a</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.
MALES.				
One adult male from Abaco Island.....	84	55	10.5	15.5
Three adult males from New Providence Island.....	80.7	56	10.7	15.3
Two adult males from Eleuthera Island.....	82	56	11.7	16
Two adult males from Rum Cay.....	81.5	56	11	16
Two adult males from Bermudas.....	81	57	10	15
FEMALES.				
One adult female from Abaco Island.....	84	58	11	15
Three adult females from New Providence Island.....	82.3	57.3	10.8	15.5
One adult female from Eleuthera Island.....	84	53	12	15.5
One adult female from Green Cay.....	81	57	11.5	15
One adult female from Watling Island.....	81	57	11.5	15.5
One adult female from Rum Cay.....	81	55	11	16
Two adult females from Bermudas.....	82	57	10.5	15.2

<sup>b</sup> Specimens from these islands have not been compared. Taken as a whole, this is the least satisfactory of all the recognized forms of the species. It is very close to *C. p. aflavida* and may, possibly, have to be united to that form. (See Mr. Todd's remarks in Ann. Carnegie Mus., viii, pp. 570, 571).



- Bahama Is., 1880, 139, part (Miraporvos Is.; Bahamas in general); ed. 2, 1890, inserted page (Bahamas; crit.).—JENNINGS, John Hopkins Univ. Circ., vii, no. 63, 1888, 39 (New Providence I.; Abaco I.).—TRISTRAM, Cat. Coll. Birds, 1889, 39, part (Bermuda).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (Bermuda).—OATES, Cat. Birds' Eggs Brit. Mus., i, 1901, 101, part (Bermuda).—BONHOTE, Auk, xx, 1903, 177 (Bird Rock, Bahamas).
- [*Chamaepelia passerina*] SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 141, part (Bermuda).
- Chamaepelia passerina* CORY, Birds Bahama Is., 1880, 228, part.
- Columba passerina* (not of Linnæus) BLAND, Ann. Rep. Smithson. Inst. for 1858 (1859), 287 (Bermudas).—JONES, Naturalist in Bermuda, 1859, 36, 70 (habits).—MARTENS, Journ. für Orn., 1859, 216 (Bermudas).—GODET, Bermuda, 1860, 194 (Bermuda; habits).
- Columbigallina passerina* CORY, Auk, iv, 1887, 116, part; viii, 1891, 294 (New Providence I.), 295 (Berry Islands), 296 (Bimini Islands), 297 (Caicos Islands), 298 (Abaco I.); Birds West Ind., 1889, 217, part; Cat. West Ind. Birds, 1892, 97, part (Great Bahama, Abaco, Biminis, Berry, Eleuthera, New Providence, Andros, San Salvador, Concepcion, Watling, Rum Cay, Green Cay, Plana Cay, Acklin, Maragauna, North Caicos, East Caicos, and Grand Caicos islands, Bahamas); ix, 1892, 48 (Maragauna I.).—MILLS, Canad. Rec. Sci., ii, 1887, 352 (Green Turtle Cay, Abaco I.).—NORTHROP, Auk, viii, 1891, 76 (Andros I.; New Providence I.; habits).—CHAPMAN, Am. Nat., xxv, 1891, 530 (Bahamas).—NUTTING, Bull. Labr. State Univ. Iowa, iii, 1894, 40 (Egg I.), 203 (Eleuthera I.).—PRENTISS, Auk, xiii, 1896, 239 (Bermudas; habits).—BONHOTE, Ibis, 1899, 517 (New Providence I.; habits); 1903, 299 (New Providence and Little Abaco islands; habits; crit.).
- Chamaepelia bahamensis* MAYNARD, Am. Exchange and Mart, Jan. 15, 1887, 33; iii, no. 6, Feb. 5, 1887, 69 (Nassau, New Providence I., Bahamas; coll. C. J. Maynard?); Birds E. North. Am., 1895, 252 (Nassau, New Providence; Bahamas in general; Enterprise, e. Florida?; habits, crit.).—PALMER (W.), Osprey, v, 1901, 148 (reprint of orig. descr.).—LOWE, Ibis, 1908, 112 (crit., etc.).
- [*Chamaepelia bahamensis*] SHARPE, Hand-list, i, 1899, 81.
- [*Chamaepelia bahamensis*] LOWE, Ibis, 1908, 545, in text (color of bill, etc.).
- [*Columbigallina passerina bahamensis*] RIDGWAY, Man. N. Am. Birds, 1887, 586; 2d ed., 1896, 592.
- Columbigallina passerina bahamensis* RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 574, in text (crit.); Auk, viii, 1891, 334 (Abaco I.), 336 (Eleuthera I.), 337 (Cat I.; Watling I.), 338 (Rum Cay), 339 (Green Cay; Concepcion I.).—SCOTT, Auk, ix, 1892, 124, in text (crit.).—VERRILL (A. H.), Osprey, v, 1901, 85 (Bermudas; crit.); Am. Journ. Sci., (4), xii, 1901, 64 (Bermuda).—VERRILL (A. E.), Osprey, v, 1901, 174, in text (Bermudas; crit.).—PALMER and RILEY, Proc. Biol. Soc. Wash., xv, 1902, 34, in text (Bahamas; crit.).—ALLEN (G. M.), Auk, xxii, 1905, 123, 133 (Elbow Cay, Great Guana Cay, Moraine Cay, Stranger Cay, Great Sale Cay, and other wooded islands; descr. nest).—RILEY, Auk, xxii, 1905, 354 (New Providence, Cat, Watling, and Long islands); in Shattuck's Bahama Islands, 1905, 352, 362 (Great Bahama, Abaco, Little Abaco, Bimini, Berry, New Providence, Andros, Green Cay, Eleuthera, Current, Cat, Concepcion, Rum Cay, Watling, Long, Acklin, Plana Cay, and Bird Rock islands).
- [*Columbigallina bahamensis*] CORY, Birds West Ind., 1889, 297, in text (crit.).
- Columbigallina bahamensis* BANGS, Auk, xvii, July, 1900, 286 (New Providence, Current, and Eleuthera islands).—MAYNARD, Cat. Birds West Ind., 1903, 7.

- Columbigallina passerina* var. *bahamensis* DUBOIS, Synopsis Avium., ii, 1902, 764.  
*Chæmepelia passerina bahamensis* TODD, Ann. Carnegie Mus., vii, 1911, 391 (geog. range), 416 (Blue Hills, New Providence I.; crit.); viii, 1913, 568 (monogr.).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 450 (New Providence, Cat, Watling, Andros, and Abaco islands).  
*Columbigallina bermudiana* BANGS and BRADLEE, Auk, xviii, July, 1901, 250 (Hamilton, Bermuda; coll. Mus. Comp. Zool.).—VERRILL, Osprey, v, 1901, 174, in text (crit.).  
*Columbigallina passerina* var. *bermudiana* DUBOIS, Synopsis Avium, ii, 1902, 764.  
*Columbigallina passerina bermudiana* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xix, 1902, 318 (Bermudas).—CHAPMAN, Color Key N. Am. Birds, 1903, 126, 268 (descr.).—BOWDITCH, Am. Nat., xxxviii, 1904, 557 (Bermudas; habits).—REED, North Am. Birds' Eggs, 1904, 150 (nesting).  
*Chamæpelina bermudiana* LOWE, Ibis, Jan., 1908, 113 (crit., etc.).  
*Chæmepelia passerina bermudiana* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xxvi, July, 1909, 297 (crit.); Check List, 3rd ed., 1910, 150.—CHAPMAN, Handb. Birds E. North Am., 1912, 285 (reprint of orig. descr.).

### CHÆMEPELIA PASSERINA EXIGUA (Riley).

#### INAGUA GROUND DOVE.

Similar to *C. p. bahamensis* but decidedly smaller, coloration still paler, and bill always (?) wholly blackish.

*Adult male*.—Length (skins), 142–147 (144); wing, 76–82 (78.6); tail, 51–55 (52.5); exposed culmen, 10.5–11.5 (10.9); tarsus, 14.5–15.5 (15).<sup>a</sup>

*Adult female*.—Length (skin), 148; <sup>b</sup> wing, 77–83 (78.6); tail, 51–58 (53.1); exposed culmen, 10–11 (10.7); tarsus, 14.5–15.5 (15).<sup>c</sup>

Islands of Inagua, southern Bahamas, and Mona, near Porto Rico.

*Columbigallina passerina* (not *Columba passerina* Linnaeus) CORY, Cat. West Ind. Birds, 1892, 97, part (Great Inagua I., Bahamas; Mona I., near Porto Rico).—BOWDISH, Auk, xix, 1902, 361, part (Mona I.; nesting habits).

*Columbigallina passerina exigua* RILEY, Proc. U. S. Nat. Mus., xxix, no. 1418, Sept. 30, 1905, 171 (Mona Island, near Porto Rico; coll. U. S. Nat. Mus.).

*Chamæpelina exigua* LOWE, Ibis, 1908, 114 (crit., etc.).

*Chæmepelia passerina exigua* TODD, Ann. Carnegie Mus., vii, Oct., 1911, 391, 392 (geog. range), 417 (Great Inagua I.; crit.); viii, 1913, 571 (monogr.).—WORTHINGTON, Ann. Carnegie Mus., vii, 1911, 403, 450 (Great Inagua).

<sup>a</sup> Twelve specimens.

<sup>b</sup> One specimen.

<sup>c</sup> Nine specimens.

Locality.	Wing.	Tail.	Ex-posed culmen.	Tarsus.
MALES.				
Seven adult males from Inagua Island.....	79.6	53.7	10.9	15
Five adult males from Mona Island.....	77	51.6	10.9	15
FEMALES.				
Five adult females from Inagua Island.....	79.6	54	10.5	15
Four adult females from Mona Island.....	77.2	52	10.9	14.9

## CHÆMEPELIA PASSERINA JAMAICENSIS (Maynard).

## JAMAICAN GROUND DOVE.

Similar to *C. p. aflavida* but bill extensively light colored basally (yellow to orange in life), the adult male darker, with upper parts slightly browner, bluish gray of occiput, etc., darker, duller, and more restricted, and vinaceous of neck, chest, etc., decidedly more intense.

*Adult male*.—Length (skin), 152; <sup>a</sup> wing, 80–85 (82); tail, 53–59 (56); exposed culmen, 10.5–12 (11); tarsus, 14–16 (15.5).<sup>b</sup>

*Adult female*.—Length (skin), 154–162 (158); wing, 79–85 (82); tail, 52–58 (56); exposed culmen, 10–12 (11.3); tarsus, 15–16 (15.5).<sup>b</sup>

Jamaica (Kingston; Spanishtown; Trelawney; Hope Gardens; Port Antonio; Lucea; Priestman's River).

[*Columba passerina* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 165, part (Jamaica, ex Sloane); ed. 12, i, 1766, 285, part (Jamaica).—GMELIN, Syst. Nat., i. pt. ii, 1789, 787, part (Jamaica).

*Columba passerina* BROWNE, Civil and Nat. Hist. Jam., ed. 2, 1789, Index No. iii, [30] (Jamaica).—DENNY, Proc. Zool. Soc. Lond., 1847, 38, part (Jamaica).

*Chamæpelvia passerina* GRAY, List Gallinæ Brit. Mus., 1844, 14, part (Jamaica).—GOSSE, Birds Jamaica, 1847, 311; Naturalist's Sojourn in Jam., 1851, 173.—HARTLAUB, Ibis, xli, 1848, 405 (Jamaica).—SCLATER, Proc. Zool. Soc. Lond., 1861, 80 (Jamaica; crit.); Rev. List Jam. Birds, 1910, 19; Handb. Jamaica, 1910, 614.—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 302 (Jamaica; habits).—BAIRD, Am. Journ. Sci. and Arts, (2), xli, 1866, 188, part (Jamaica); Ibis, 1867, 276, part (Jamaica).—PELZELN, Orn. Bras., 1870, 277, footnote, part (Jamaica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 389, part (Jamaica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 473, part (near Spanishtown, Jamaica).—OATES, Cat. Birds, Eggs Brit. Mus., i, 1901, 101, part (Jamaica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, ii, 1902, 250, part (Jamaica; crit.).

*Ch[amaepelia] passerina* BONAPARTE, Consp. Av., ii, 1857, 77, part (Jamaica).

[*Chamæpelvia passerina* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part.—CORY, List Birds West Ind., 1885 (and rev. ed., 1886), 24, part.—SHARPE, Hand-list, i, 1899, 81 (Jamaica).—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 141, part (Jamaica).

*Chamæpelvia passerina* GRAY, List Birds Brit. Mus., Columbæ, 1856, 49, part (Jamaica).

[*Chamæpelvia passerina* GRAY, Hand-list, ii, 1870, 239, no. 9336, part (Jamaica).

*Chamæpelvia passerina passerina* AMERICAN ORNITHOLOGISTS' UNION, Check List, 3rd ed., 1910, 150.

*P[yrgitocenas] passerina* REICHENBACH, Vollst. Naturg., Columbariæ, i, 1861, 13, part (Jamaica).

*Peristera passerina* SCHLEGEL, Mus. Pays-Bas, iv, no. 35, 1873, 135, part (Jamaica).

*Columbigallina passerina* CORY, Auk, iv, 1887, 116, part; Birds West Ind., 1889, 217, part; Cat. West Ind. Birds, 1892, 97, part (Jamaica).—BERLEPSCH, Journ. für Orn., 1892, 97, footnote, part (Jamaica).—SCOTT, Auk, ix, 1892, 124 (Jamaica; habits).—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 292 (Jamaica; crit.).—FIELD, Auk, xi, 1894, 123 (Jamaica).—DUBOIS, Synopsis Avium, ii, 1902, 763, part (crit.).

<sup>a</sup> One specimen.

<sup>b</sup> Ten specimens.

*Chamæpelia trochila* (not of Bonaparte) NEWTON, Ibis, 1859, 253, part (Jamaica; crit.).

*Pyrgitoenas trochila* REICHENBACH, Tauben, 1862, 162, part (Jamaica).

*Columbigallina jamaicensis* MAYNARD, App. to Cat. Birds West Ind., 2d ed., 1899 (=1900), 34 (Jamaica; coll. Boston Soc. N. H.); Cat. West Ind. Birds, 1903, 7 (Jamaica).

*Chamæpelia jamaicensis* LOWE, Bull. Brit. Orn. Club, xxi, 1908, 110, in text (crit.); Ibis, 1908, 111, part (Jamaica; crit.); 1911, 145, part (Jamaica).

*Chæmepelia passerina jamaicensis* TODD, Ann. Carnegie Mus., viii, 1893, 566 (monogr.).

### CHÆMEPELIA MINUTA ELÆODES Todd.

#### PLAIN-BREASTED GROUND DOVE.

Similar to *C. m. minuta*<sup>a</sup> but coloration darker, especially the upper parts, the back browner or more olivaceous.

*Adult male*.—Forehead and anterior portion of crown light bluish gray, paler and more or less tinged with very pale vinaceous anteriorly, deepening on posterior crown and occiput into deep grayish brown (deep to dark hair brown), the hindneck more grayish, sometimes decidedly bluish gray; back, scapulars, proximal secondaries, rump, and upper tail-coverts plain deep grayish brown (deep hair brown to nearly olive-brown); wing-coverts paler and more grayish brown, more or less tinged with vinaceous, some of the lesser coverts (near center of lesser covert area) and proximal secondaries (on outer webs), with spots of metallic blue-black or dark steel blue, those on proximal secondaries more or less cuneate and oblique; distal secondaries dusky grayish brown, very narrowly edged with paler; alulæ dull sooty blackish; primary coverts with basal half (approximately) chestnut-rufous, the terminal portion dull blackish; primaries mostly chestnut-rufous, but terminal portion and greater part of outer web (except on innermost quills) dull black or blackish, this extending to base on three or four outer quills; middle pair of rectrices deep brownish gray to grayish brown, the remaining rectrices brownish gray basally and at tip, the intermediate portion black, this black band growing much broader toward lateral rectrices, on which not more than the basal third is gray, while the gray tip is margined, especially on outer web, with white; sides of head and neck, and under parts pale vinaceous-drab to deep vinaceous-drab, lighter and clearer (more vinaceous) on side of forehead (from base of bill to above eye), fading into vinaceous-whitish on chin and upper throat, and into buffy white on center of abdomen, the flanks tinged with grayish brown; under tail-coverts grayish brown or brownish gray, rather broadly, but not sharply, margined with whitish; axillars, under wing-coverts, and under surface of remiges (except terminal portion) rufous-chestnut or chestnut-rufous; bill olivaceous or horn

<sup>a</sup> See p. 397.

color, darker terminally; iris pink; legs and feet flesh color; length (skins), 140-152 (147); wing, 71-78 (74); tail, 48-55 (50.5); exposed culmen, 10-11 (10.6); tarsus, 15-16 (15.6).<sup>a</sup>

*Adult female*.—Similar to the adult male, but the vinaceous-drab of head, neck, and under parts replaced by light drab or drab-gray, fading into white on chin, upper throat, and abdomen, the wing-coverts without vinaceous tinge, the greater coverts edged with whitish, the whole pileum and hindneck grayish brown or drab (paler on anterior portion of forehead); length (skins), 145-162 (151); wing, 71-79 (74); tail, 47-52 (50); exposed culmen, 10-11 (10.7); tarsus, 15-16 (15.4).<sup>a</sup>

*Young*.—Similar to the adult female, but wing-coverts, scapulars, proximal secondaries, and upper tail-coverts margined terminally with paler, the interscapulars and feathers of lower rump with narrower and less distinct paler terminal margins; flanks and under tail-coverts suffused with pale buffy brown.

West-central Colombia (Bogotá; Bucaramanga; Ocaña; Herradura), Panamá (Panamá Railway; Sabana de Panamá; Gatún; Rio Indio near Gatún; Corozál), and southwestern Costa Rica (Buenos Aires de Térraba; Paso Real, Boruca); reappearing in Guatemala (Retalhuleu; Los Amates, Yzabál), British Honduras (Toledo District; Manatee District), Campeche (Campeche), Tabasco (Montecristo), and Vera Cruz (Atoyac).

(?) *Chamæpelia minuta* (not *Columba minuta* Linnæus?) REICHENBACH, Syn. Avium, Columbariæ, 1847, pl. 256, figs. 1422, 1423.

*Chamæpelia minuta* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 481, part (Atoyac, Vera Cruz; Retalhuleu, Guatemala; Panama; Bogota, Colombia).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 252, part (Atoyac, Vera Cruz; Retalhuleu, Guatemala; Panama).

[*Chamæpelia*] *minuta* SHARPE, Hand-list, i, 1899, 82, part (Mexico to Panama).

*Columbigallina minuta* DUBOIS, Synopsis Avium, ii, 1902, 764, part (s. Mexico; Central America).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1906, 214 (Sabana de Panama).

*Chamæpelia minuta* BANGS, Auk, xxiv, 1907, 288, 292 (Paso Real, Costa Rica).

*Chamæpelia minuta* DEARBORN, Pub. 125, Field Mus. N. H., 1907, 80 (Los Amates, Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 399 (Buenos Aires de Terraba, Costa Rica; habits).

*Chamæpelia minuta* RODRIGUEZ, Anal. Mus. Nac. Salvador, iv, 1910, 282 (Guatemala).

*Chamæpelia amazilia* (not of Bonaparte) GRAY, List Birds Brit. Mus., Columbæ, 1856, 50, part (Colombia).

*Chamæpelia amazilia* SCLATER, Proc. Zool. Soc. Lond., 1856, 30 (Bogota, Colombia).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 370 (Panama).—

(?) WYATT, Ibis, 1871, 383 (Ocaña and Herradura, Bucaramanga, Colombia).—

(?) BERLEPSCH, Journ. für Orn., 1884, 319 (Ocaña and Herradura, ex Wyatt).

*Chamæpelia granatina* (not of Bonaparte) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 333 (Panama R. R.).

<sup>a</sup> Ten specimens.

*Peristera griseola* (not *Columbina griseola* Spix) SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 135 (Guatemala).

[*Chamæpelia*] *griseola* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part (Colombia; Panama).

*Chamæpelia minuta elxodes* TODD, Ann. Carnegie, Mus., viii, May 8, 1913, 578 (Buenos Aires, s. w. Costa Rica; coll. Carnegie Mus.).

**CHÆMEPELIA RUFIPENNIS RUFIPENNIS (Bonaparte).**

**RUDDY GROUND DOVE.**

*Adult male*.—Pileum gray or brownish gray (dark or deep gull gray to neutral gray or light neutral gray), becoming much paler on forehead (which is sometimes tinged with pale vinaceous), passing into more vinaceous gray on nape, this into cinnamon-brown, walnut brown, or roods brown on back and scapulars, the wings, rump, and upper tail-coverts (especially the first) brighter (deep pecan brown to vinaceous roods brown); outer webs of exterior scapulars and innermost secondaries (sometimes some of proximal greater coverts also) with an oblique bar of black, some of the smaller proximal coverts occasionally with small black spots; alulæ, primary coverts, primaries, and distal secondaries chestnut-rufous or rufous-chestnut, tipped with grayish brown or dusky, this occupying most of outer web on the first, elsewhere most extended on longer primaries, narrowest (sometimes obsolete) on secondaries; middle pair of rectrices similar in color to rump, etc., sometimes becoming grayish brown or dusky distally; remaining rectrices dull black distally, cinnamon-brownish basally, the black increasing in extent toward the outermost rectrix, which has only the extreme basal portion brownish or grayish, one or more of the outer rectrices being margined terminally with light cinnamon-brownish or russet-vinaceous, especially on outer web; sides of head (including superciliary region and sides of forehead) pale grayish vinaceous, fading into dull white or vinaceous-white on chin and upper throat, deepening into dull russet-vinaceous, or light grayish russet-vinaceous,<sup>a</sup> on under parts, deepest on under tail-coverts; axillars and proximal or central under wing-coverts dull black, the rest of under surface of wing chestnut-rufous, the coverts sometimes suffused or terminally margined with dusky, the remiges (especially longer primaries) with tips grayish brown; bill horn color, grayish brown, or olive, darker terminally; iris red or pink; legs and feet flesh color; length (skins), 152–182 (165); wing, 83.5–94 (89.2); tail, 57–69.5 (63.2); exposed culmen, 12–13.5 (12.8); tarsus, 15–17.5 (16.4); middle toe, 15–17 (16.3).<sup>b</sup>

<sup>a</sup> There is no color represented in "Color Standards and Color Nomenclature" which very closely approximates the color of the under parts in the adult male of this species, though sometimes army brown is very close to the color of the under tail-coverts.

<sup>b</sup> Fifty-three specimens.

*Adult female.*—Similar in pattern of coloration to the adult male, but general color of upper parts buffy brown to light olive-brown (duller and sometimes more grayish on pileum), the under parts buffy drab or buffy drab-gray on foreneck and chest, fading into white or buffy white on abdomen, chin, and upper throat; proximal greater and middle wing-coverts freckled or margined (sometimes broadly) at tip with whitish; length (skins), 143–183 (165); wing, 83.5–92 (87); tail, 55–66.5 (61); exposed culmen, 11.5–13.5 (12.5); tarsus, 15–17 (16); middle toe, 14.5–16.5 (15.7).<sup>a</sup>

<sup>a</sup> Thirty-seven specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from Trinidad.....	90.2	63.7	12.5	16.5	17
One adult male from Tobago.....	92	68.5	12.5	16	16
Three adult males from Margarita Island, Venezuela.....	89.3	61.3	12.7	15.7	15.8
One adult male from Venezuela.....	89	63.5	13	16	16
Five adult males from eastern Colombia (Santa Marta).....	87.8	58.4	12.6	16.4	16.1
Five adult males from middle Panama (Canal Zone).....	88.2	63.5	12.9	16.4	16.8
Six adult males from San Miguel Island, Bay of Panama.....	90.6	65.8	13.3	16.2	16.2
Two adult males from Saboga Island, Bay of Panama.....	91.5	69	13.2	17	17
Five adult males from Costa Rica.....	89.8	61.2	12.7	16.3	16.2
Three adult males from Honduras.....	88.5	63.8	12.7	16.5	16
Four adult males from Guatemala.....	89.9	63.1	12.1	16.5	16
One adult male from Chiapas.....	91	66	12	16	16
Six adult males from Yucatan.....	89.2	62.3	13.3	16.6	16.4
One adult male from Campeche.....	92.5	64	12.5	17	16.5
One adult male from Tabasco.....	87	62	13	16.5	15
Two adult males from Oaxaca.....	86.7	61.2	12.2	16.2	16.5
Five adult males from Vera Cruz.....	89.8	64.4	12.9	16.8	16.6
Two adult males from Colima ( <i>C. r. eluta</i> ).....	88.2	62.2	11.5	16.2	16
Five adult males from Sinaloa ( <i>C. r. eluta</i> ).....	87.9	63.2	12	16.4	15.3
FEMALES.					
One adult female from Tobago.....	91	63	12	16	15.5
One adult female from Venezuela.....	88	56	12.5	16.5	16
Three adult females from Colombia.....	87.7	61.3	12.7	16.3	15.8
Five adult females from middle Panama (Canal Zone).....	85.9	62.8	12.4	15.8	15.6
Three adult females from San Miguel Island, Bay of Panama.....	86	63.8	13	16.3	15.8
One adult female from Saboga Island, Bay of Panama.....	88	64	12	16.5	16.5
Five adult females from Costa Rica.....	86.5	58.6	12.2	16.1	15.7
Three adult females from Honduras.....	89.5	63.5	12.8	16.2	15.7
Two adult females from Guatemala.....	87.7	59.2	12.7	16.2	15.7
Two adult females from Chiapas.....	86.2	58.2	12	15.7	15.7
Five adult females from Yucatan.....	87.5	59	12.7	15.9	15.5
Two adult females from Tabasco.....	87.7	61.7	12.2	15.7	15.5
Two adult females from Vera Cruz.....	86	64.2	12.7	16.2	15.7
Two adult females from Guerrero ( <i>C. r. eluta</i> ).....	84.2	59.5	12.2	15.7	15.7
One adult females from Sinaloa ( <i>C. r. eluta</i> ).....	87.5	53	12.5	16.5	15

*Immature male*.—Variously intermediate in coloration, according to age, between adult male and female.

*Young male*.—Similar to the adult female, but general tone of coloration slightly more rufescent, especially on wing-coverts and under parts, the former without whitish on tips or terminal margins.

Southeastern Mexico, in States of Vera Cruz (Jalapa; Orizaba; Huatusco; Omealca; Potrero; Buena Vista; Motzorongo; San Andrés Tuxtla; Tlalcotalpám; Atoyác; Playa Vicente), Oaxaca (Túxtepec; Putla<sup>a</sup>), Tabasco (Teapa; San Juan Bautista), Chiapas (Tonala<sup>a</sup>; Yajalón; Huehuetán), Campeche (Campeche), Yucatán (Temác; Tekanto; Izalám; Peto; Buctzotz; Mérida; Chichen-Itza; Cozumél Island), and Quintana-Roo (Xcopen; Camp Mengel), and southward, through Guatemala (Dueñas; Retalhuleu; Amatitlán; Petén; Gualán; Los Amates, Yzabál; El Paraiso; near Virginia Plantation), Salvador (La Libertad), British Honduras, Honduras (Comayagua; San Pedro; San Pedro Sula; Céiba; Truxillo), Nicaragua (Chinandega; Matagalpa), western Costa Rica (Orosi, Cachí; Barranca de Punta Arenas; Punta Arenas; Miravalles; La Palma de Nicoya; San José; Las Trojas de Alajuela; Pigres; Boruca; El Pozo del Rio Grande; El Pozo de Térraba; Brunka, Térraba Valley; Buenos Aires), Panamá (Calobre, Chitra, and Mina de Chorchá, Veragua; Divala, David, and Bugaba, Chiriquí; Gatún, Lion Hill, Chepo, and Rio Indio, Canal Zone; San Miguél and Saboga islands), Colombia (Cartagena; Bucaramanga; Barranquilla; Honda; Magdalena Valley; Savanilla; Bonda, Cienega, Chirua, Masinga Vieja, La Concepción, and Sierra Nevada, Santa Marta; Ocaña; Medellín, Antioquia; Bogotá; Pueblo Viejo, Cauca Valley), and Venezuela (Caracas; San Esteban; Cumanacoa; San Antonio, Bermudez; Altagracia, Caicará, La Unión, and Ciudad Bolívar, Orinoco Valley; Valle; Margarita Island) to Guianas, Trinidad, and Tobago.

*Chamaepelia talpicoti* (not *Columba talpacoti* Temminck) JARDINE, Ann. and Mag. N. H. (2), xx, 1847, 374 (Tobago).

*Chamaepelia talpacoti* HARTLAUB, Isis, xli, 1848, 407 (Tobago).

*Chamaepelia talpacoti* TAYLOR, Ibis, 1864, 94 (Ciudad Bolivar, Venezuela).

*Ch[amaepelia] rufipennis* BONAPARTE, Compt. Rend., xl, 1855, 22 (Cartagena, Colombia; crit.).

*Chamaepelia rufipennis* SCLATER, Proc. Zool. Soc. Lond., 1858, 359 (Comayagua, Honduras), 369 (Jalapa, Vera Cruz).—MOORE, Proc. Zool. Soc. Lond., 1859, 61 (San Pedro, Honduras; Peten, Guatemala).—SCLATER and SALVIN, Ibis, 1859, 223 (Comayagua); Proc. Zool. Soc. Lond., 1864, 370 (Lion Hill, Panama; crit.); 1868, 629 (San Esteban, Venezuela); 1879, 544 (Medellin, Antioquia, Colombia; descr. nest).—TAYLOR, Ibis, 1860, 227 (Comayagua, Honduras).—SALVIN, Proc. Zool. Soc. Lond., 1867, 159 (David, Panama); 1870, 217 (Chitra, Calobre, Bugaba, and Mina de Chorchá, Panama); Ibis, 1889, 378

<sup>a</sup> Specimens from these localities have not been examined. They may represent *C. r. eluta*.



- (Cozumel I., Yucatan).—FRANTZIUS, Journ. für Orn., 1869, 372 (Orosi, Costa Rica).—WYATT, Ibis, 1871, 383 (Ocaña, Bucaramanga, and Magdalena Valley, Colombia).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (Punta Arenas, Costa Rica); 1883, 459 (Yucatan).—SANCHEZ, Anal. Mus. Nac. Mex., i, 1878, 105 (Yucatan).—SALVIN and GODMAN, Ibis, 1880, 178 (Sierra Nevada de Santa Marta, Colombia); Biol. Centr.-Am., Aves, iii, 1902, 253, part (David, Chitra, Calobre, Bugaba, Divala, Chepo, Lion Hill, Punta de Sabana, and San Miguel I., Panama; San Jose, Las Trojas, Orosi, Punta Arenas, and La Palma de Nicoya, Costa Rica; Chinandega and Matagalpa, Nicaragua; Comayagua, Truxillo, and San Pedro, Honduras; Retalhuleu, Dueñas, Paraiso, and Peten, Guatemala; La Libertad, Salvador; Brit. Honduras; Tekanto, Merida, Chichen-Itza, Izalam, Buctzotz, Peto, and Cozumel I., Yucatan; Teapa, Tabasco; Tonalá, Chiapas; Putla, Oaxaca?; Potrero, Omealca, Huatusco, Playa Vicente, Atoyac, and Jalapa, Vera Cruz).—ZELEDÓN, Cat. Aves de Costa Rica, 1882, 28.—BERLEPSCH, Journ. für Orn., 1884, 317 (Bucaramanga, Colombia).—TRISTRAM, Cat. Coll. Birds, 1889, 39 (Tobago).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 487, part (Trinidad; San Esteban, Venezuela; Santa Marta, Medellin, and Bogota, Colombia; Bugaba, Mina de Chorchá, Chitra, Lion Hill, and Chepo, Panama; Costa Rica; Chinandega and Matagalpa, Nicaragua; La Libertad, Salvador; El Paraiso, Dueñas, and Retalhuleu, Guatemala; Brit. Honduras; Izalam, Peto, Buctzotz, and Cozumel I., Yucatan; Tonalá, Chiapas?; Teapa, Tabasco; Putla, Oaxaca?; Atoyac, Huatusco, and Playa Vicente, Vera Cruz).—LAURENCIO, Mem. y Rev. Soc. Cient., vii, 1894, 221 (tierra caliente de Vera Cruz).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xiv, no. 339, 1899, 9 (Punta de Sabana, Panama).—DALMAS, Mém. Soc. Zool. France, xiii, 1900, 144 (Tobago).—PENARD, Vogels van Guyana, 1908, 340 (Guiana; descr.; habits; crit.).
- [*Chamæpelia rufipennis* LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 207 (Merida, Yucatan).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133, part.—SHARPE, Hand-list, i, 1899, 82, part.
- Chamæpelia rufipennis* GRAY, List Birds Brit. Mus., Columbæ, 1856, 51, part (Trinidad; "west coast of America;" Colombia).—ERNST, Primer Anuario Estadístico (Caracas), 1877, 310 (San Esteban, Venezuela).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 80 (Los Amates and San Jose, Guatemala).—CORY, Pub. 137, Field Mus. N. H., 1909, 240 (Margarita I., Venezuela).
- Chamæpelia rufipennis* SCLATER, Proc. Zool. Soc. Lond., 1857, 19 (Bogota, Colombia).
- Chamæpelia rufipennis* SUMICHRAST, La Naturaleza, v, 1881, 231 (Potrero and Omealca, Vera Cruz).—RODRIGUEZ, Anal. Mus. Nac. Salvador, iv, 1910, 282 (Guatemala).
- Chamaepelia rufipennis* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 16 (Cartagena, Colombia); ii, 1862, 163 (Central American references).
- Chamæpelia rufipennis* LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 301 (Panama R. R.).
- Chamæpelia rufipennis* LÉOTAUD, Ois. Trinidad, 1866, 366 (Trinidad; descr.; habits).—LAWRENCE, Ann. Lyc. N. Y., viii, 1867, 178 (David, Panama).
- Chamæpelia rufipennis rufipennis* BANGS, Auk, xxiv, 1907, 292 (Boruca, Pozo del Rio Grande, and Barranca de Punta Arenas, Costa Rica).
- Chamæpelia rufipennis rufipennis* CARRIKER, Ann. Carnegie Mus., vi, 1910, 399 (Pigres, Punta Arenas, Cachi, Miravalles, El Pozo de Terraba, Boruca, and Buenos Aires, Costa Rica; habits).—PETERS, Auk, xxx, 1913, 373 (Camp Mengel, Quintana Roo).—TODD, Ann. Carnegie Mus., viii, 1913, 586 (monogr.).

- Chamæpelia talpacoti rufipennis* NUTTING, Proc. U. S. Nat. Mus., v, Sept. 12, 1882, 408 (La Palma de Nicoya, Costa Rica).
- [*Talpacotia rufipennis* BONAPARTE, Consp. Gen. Av., ii, 1857, 79 (Cartagena, Colombia; coll. Brit. Mus. and Paris Mus.).
- Talpacotia rufipennis* BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 297 (Colombia).—BONAPARTE, Icon. Pigeons, 1857, pl. 121 and text (Colombia; crit.).—MÜLLER, Reisen in Mexico, iii, 1865, 589 (Mexico).—SOUSA, Mus. Nac. Lisboa, Columbæ, 1873, 21 (Cartagena, Colombia; references).
- Peristera rufipennis* SCHLEGEL, Mus. Pays-Bas, iv, no. 25 (Columbæ), 1873, 136 (Guiana; Caracas, Venezuela; Colombia; Guatemala).
- [*Leptopelia rufipennis* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 283 (Costa Rica; Caracas, Venezuela).
- Columbigallina rufipennis* ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. C. R., i, 1888, 127 (Las Trojas, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., viii, 1885, 581 (Cozumel I., Yucatan); x, 1888, 584 (Truxillo, Honduras); Condor, vii, 1905, 154, in text (Pigres, Costa Rica).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 204 (Tekanto, Yucatan).—CHERRIE, Expl. Zool. C. R., 1891-2 (1893), 53 (Brunka, Terraba Valley, Costa Rica).—CORY, Auk, x, 1893, 220 (Tobago).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 74 (Trinidad; notes).—ROBINSON, Flying Trip to Tropics, 1895, 117, 154 (Barranquilla and Honda, Colombia); Proc. U. S. Nat. Mus., xviii, 1896, 660 (Margarita I.).—PHELPS, Auk, xiv, 1897, 366 (Cumanacoa and San Antonio, Venezuela).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 132 (Santa Marta, Colombia); Proc. New Engl. Zool. Club, ii, 1900, 15 (Loma del Leon, Panama); Auk, xviii, 1901, 25 (San Miguel I., Panama), 257, in text (crit.), 358 (Divala, Panama).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 128 (Bonda, Masinga Vieja, and Cienega, Santa Marta, Colombia); xvi, 1905, 280 (Bonda; descr. nest and eggs).—DUBOIS, Synopsis Avium, ii, 1902, 764.—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 119 (Altagracia, Caicara, Ciudad Bolivar, and La Union, Orinoco Valley, Venezuela).—CLARK (A. H.), Auk, xix, 1902, 261 (Margarita I.).—HELLMAYR, Novit. Zool., xiii, 1906, 47 (Caparo and Seelet, Trinidad; Cumanacoa, Venezuela; Tobago; Bogota, Colombia; crit.).—COLE, Bull. Mus. Comp. Zool., i, 1906, 117 (Chichen-Itza, Yucatan; habits; descr. nest; food).
- Columbigallina rufipennis rufipennis* BANGS, Bull. Mus. Comp. Zool., xxxix, July, 1903, 142 (Ceiba, Honduras).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 148 (San Miguel and Saboga islands, Panama; crit.).
- Chamæpelia rufipennis eluta* (not *Columbigallina passerina eluta* Bangs) TODD, Ann. Carnegie Mus., viii, 1913, 590, part (Campeche; La Vega, Chichen-Itza, Merida, Tekanto, Temax, and Cozumel I., Yucatan; San Juan Bautista, Tabasco; Huehuetan and Yajalon, Chiapas; Tuxtepec, Oaxaca; Achotal, Buena Vista, San Andres Tuxtla, Motzorongo, Orizaba, and Tlalcotalpam, Vera Cruz; Puebla).
- Chamæpelia rufipennis nesophila* TODD, Ann. Carnegie Mus., viii, May 8, 1913, 590, footnote, in text (Pearl Islands, Bay of Panama; coll. E. A. and O. Bangs).<sup>a</sup>

<sup>a</sup> The specimens upon which Mr. Todd based the above tentative name are, as he remarks, conspicuously different from ordinary females of *C. r. rufipennis*; but they are so closely similar to immature males of that form that I strongly suspect error in the determination of sex by the collector. An adult female from Saboga Island (the reddish-tinted specimens being from San Miguel Island) is precisely like adult females from the mainland.

## CHÆMEPELIA RUFIPENNIS ELUTA (Bangs).

## VINACEOUS GROUND DOVE.

Similar to *C. r. rufipennis* but coloration paler, the adult male with general color of upper parts approaching brownish drab, the under parts nearly pale vinaceous-drab, the occiput light neutral gray, passing into much paler gray on forehead; adult female rather deep drab or grayish buffy brown, the chest drab-gray.

*Adult male*.—Length (skins), 162–183 (173); wing, 85–91.5 (88); tail, 56.5–67 (62.9); exposed culmen, 11.5–12.5 (11.9); tarsus, 15–17.5 (16.3); middle toe, 14–16.5 (15.7).<sup>a</sup>

*Adult female*.—Length (skins), 161–175 (168); wing, 82–87.5 (85.3); tail, 53–60.5 (57.3); exposed culmen, 12–12.5 (12.3); tarsus, 15–16.5 (15.7); middle toe, 14.5–15.5 (15).<sup>b</sup>

Southwestern Mexico, in States of Guerrero (Acapulco; Tierra Colorada; Engido Nuevo), Colima (Hacienda Magdalena; Plains of Colima) and Sinaloa (Los Robles, near Rosário; Los Latos; Escuinapa), and Territory of Tepic (Santiago);<sup>c</sup> Putla, w. Oaxaca?; Tonalá Pacific coast of Chiapas?<sup>d</sup>

? *Chamæpelia rufipennis* (not *Talpacotia rufipennis* Bonaparte) SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 487, part (Santiago, Tepic; Tierra Colorado and Acapulco, Guerrero; Putla, Oaxaca?; Tonalá, Chiapas?).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 253, part (Los Robles and Escuinapa, Sinaloa; Santiago, Tepic; Acapulco and Tierra Colorada, Guerrero; Putla, Oaxaca?; Tonalá, Chiapas?).

*Columbigallina rufipennis eluta* BANGS, Auk, xviii, July, 1901, 358 (Escuinapa, s. Sinaloa, w. Mexico; coll. E. A. and O. Bangs).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 343 (Escuinapa).

[*Chamæpelia*] *rufipennis eluta* SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 254, in text (crit.).

*Chæmepelia rufipennis eluta* TODD, Ann. Carnegie Mus., viii, 1913, 590, part (Acapulco and Engido Nuevo, Guerrero; Plains of Colima; Las Robles, Escuinapa, and Los Latos, Sinaloa).

<sup>a</sup> Seven specimens.

<sup>b</sup> Three specimens.

<sup>c</sup> After carefully examining a very large series of specimens of this species from Mexico and Central America, I have concluded that the most logical course is to restrict this form to specimens from the tierra caliente of southwestern Mexico. It is true that some specimens from Yucatan and other parts of southeastern Mexico are very nearly as pale as those from Guerrero, Sinaloa, etc., but they are always appreciably different; and considering that from the same localities come specimens that can not be distinguished from typical *C. r. rufipennis*, whereas all specimens from the western coast district are extremely uniform in their pale coloration, it seems to me best to revise the respective ranges of these two forms as above. It is a great pleasure to be able to say that this is the only instance in which my studies of the genus lead me to a different conclusion from Mr. Todd's.

<sup>d</sup> Specimens from Putla and Tonalá not seen by me, but I think it very likely that the range of *C. r. eluta* may extend along the arid Pacific coast district as far as Chiapas.

## Genus CLARAVIS Oberholser.

*Peristera* (not of Rafinesque, 1815), SWAINSON, Zool. Journ., iii, 1827, 360. (Type, *Columba cinerea* Temminck=*Peristera pretiosa* Ferrari-Perez.)

*Claravis*<sup>a</sup> OBERHOLSER, Proc. Ac. Nat. Sci. Phila., June 2, 1899, 203. (New name for *Peristera* Swainson, preoccupied.)

Small arboreal or semi-terrestrial Pigeons (length about 180-240 mm.) with outermost primary abruptly attenuated terminally; tail nearly three-fourths as long as wing, truncated; planta tarsi without scales, and frontal antia decidedly posterior to malar antia.

Bill relatively small and slender, the exposed culmen decidedly shorter than tarsus (slightly longer than outer toe without claw), its greatest depth equal to about one-fourth the length of exposed culmen, the maxillary unguis faintly arched basally, the gonys not distinctly prominent basally; nasal operculum relatively short and broad, moderately tumid; frontal antia reaching but little beyond base of nasal operculi, much posterior to malar antia, which is opposite middle of nasal operculum, the mental antia reaching to decidedly beyond anterior end of the same. Wing moderately large, rather pointed, the longest primaries exceeding distal secondaries by about one-third the length of wing; third primary (from outside) longest, but second and fourth very little shorter, the first (outermost) shorter than fifth, its terminal portion abruptly and excessively attenuated.<sup>b</sup> Tail nearly three-fourths as long as wing, truncated or very slightly rounded, the rectrices appreciably broader apically, their tips broadly rounded. Tarsus as long as middle toe without claw, the extreme upper portion in front feathered, the acrotarsium, with a single series of broad, rather indistinct, transverse scutella, the planta tarsi without obvious scales, except on upper portion, where very indistinct; lateral toes much shorter than middle toe, the inner toe with claw reaching to base of middle claw, the outer a little shorter; hallux (without claw) about as long as basal phalanx and half of second phalanx of middle toe.

*Plumage and coloration.*—Plumage soft and blended, except scapulars, wing-coverts, and tail-coverts; bare orbital space very narrow, obvious only beneath eye.

*Range.*—Southern Mexico to southeastern Brazil, Paraguay, and Peru. (Three species.)

## KEY TO THE SPECIES OF CLARAVIS.

a. Upper parts gray. (*Adult males.*)

b. Tail entirely black; under tail-coverts slate-gray. (Southern Mexico to Peru, Bolivia, and Paraguay.).....*Claravis pretiosa*, adult male (p. 431).

<sup>a</sup> "From *clara* (*clarus*) and *avis*." (Oberholser.)

<sup>b</sup> As in the genus *Leptotila*.

- bb. Tail with lateral rectrices extensively white distally; under tail-coverts white.  
c. Foreneck and chest gray. (Southeastern Brazil.)

**Claravis godefrida**, adult male (extralimital).<sup>a</sup>

- cc. Foreneck and chest deep chocolate. (Southern Mexico to Venezuela and Peru.).....**Claravis mondetoura**, adult male (p. 435).

aa. Upper parts brown. (*Adult females and young.*)

- b. Lateral rectrices without white tips; under tail-coverts cinnamon or cinnamon-brown.....**Claravis pretiosa**, adult female and young (p. 431).

- bb. Lateral rectrices broadly tipped with white, light grayish brown, or light cinnamon; under tail-coverts buffy.

- c. Lateral rectrices tipped with light cinnamon or cinnamon-buff, the middle portion purplish brown; wing-bands grayish buffy; wing 122 mm.

**Claravis godefrida**, adult female and young (extralimital).

- cc. Lateral rectrices tipped with white to pale grayish brown, the middle portion dark purple; wing-bands grayish brown; wing 110-118 mm.

**Claravis mondetoura**, adult female and young (p. 435).

### CLARAVIS PRETIOSA (Ferrari-Perez).

#### BLUE GROUND DOVE.

*Adult male*.—General color plain bluish gray, the upper parts between dark gull gray and slate-gray, darkest (nearer slate-gray) on back, fading into pale gull gray to nearly pure white on forehead, the under parts much paler gray (gull gray to pale gull gray), deepening into deep to dark gull gray on under tail-coverts and posterior flanks, fading into white on chin and upper throat; wing-coverts and innermost secondaries with a greater or less number of black spots, mostly roundish or transversely oval in form, but those on greater coverts much larger and more in form of broad transverse bars; alulae, primary coverts, primaries, and distal secondaries dusky (dull dark neutral gray), the last more or less broadly edged with light bluish gray; tail black, the middle pair of rectrices concolor with back, etc., sometimes darker distally; axillars and under wing-coverts light bluish gray; bill (in life) grayish green or grayish olive-green, usually more yellowish terminally and darker on culmen; bare orbital space pale grayish olive-green; iris red or pink to yellow; legs and feet flesh color; length (skins), 182-230 (207); wing, 107.5-118 (112.3); tail, 70-82.5 (76.2); exposed culmen, 12.5-15.5 (14); tarsus, 16.5-19.5 (18.1); middle toe, 17-20 (18).<sup>b</sup>

*Adult female*.—General color of upper parts light olive-brown or deep buffy brown to deep cinnamon-brown or prouts brown, becoming

<sup>a</sup> *Columba godefrida* Temminck, Les Pigeons, i, fam. seconde, 1808-11, 125 (Brazil; coll. Paris Mus.).—*C[olumba] godefrida* Temminck, Les Pigeons, i, 1808-11, Table, p. ii.—*Columba geoffroyi* Temminck, Les Pigeons, i, fam. seconde, 1808-11, pl. 57 (name on plate only).—*Peristera geoffroyi* Gray, List Gallinae Brit. Mus., 1844, 16; Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 494.—*P[eristera] geoffroyi* Reichenbach, Vollst. Naturg., Columbariae, i, 1861, 24, pl. 266, figs. 2870, 2871 (♂), pl. 257, fig. 1430 (♀).—*Chamaepelia geoffroyi* Hartlaub, Syst. Verz., 1844, 91.—*Columba geofroi* Temminck, Hist. Nat. Pigeons et Gallin., i, 1813, 297 (Brazil).—*Peristera trifasciata* Reichenbach, Syn. Av., 1847, fig. 1430 (Brazil; =female).

<sup>b</sup> Thirty-six specimens.

paler (and usually more grayish) on forehead, and passing into cinnamon-brown or russet on upper tail-coverts and middle rectrices; primaries, etc., as in adult male, but distal secondaries edged with pale grayish brown instead of bluish gray; wing-spots chestnut or bay (instead of black), the larger ones margined posteriorly by pale cinnamon-buff or whitish; foreneck and chest light drab to dull tawny-olive, passing into white on chin and upper throat and into very pale gray, tinged with pale buffy brown, on lower breast, etc., the under tail-coverts russet or mikado brown (the shorter or more anterior ones often more grayish or intermixed with gray); axillars and under wing-coverts light bluish gray; length (skins), 186-214 (200); wing, 104-118 (110.9); tail, 71-80.5 (75.1); exposed culmen, 12.5-14.5 (13.8); tarsus, 16-22 (18.2); middle toe, 16.5-19.5 (18).<sup>a</sup>

*Young*.—Similar to the adult female, but scapulars and wing-coverts margined terminally with pale cinnamon or cinnamon-buff, wing-spots smaller and indistinct, and feathers of foreneck and chest with paler margins.

*Immature male*.—Similar to the adult male, but with admixture of grayish brown feathers (of young plumage), especially on upper parts.

<sup>a</sup> Twenty-three specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALE.					
Three adult males from Vera Cruz.....	113.3	73.2	14	18.3	18.2
Three adult males from Oaxaca.....	113.7	73.5	15.2	18.7	19
One adult male from Campeche.....	108	73.5	13.5	17.5	18.5
Two adult males from Guatemala.....	114.5	78.2	12.7	18.2	18.7
One adult male from Honduras.....	114	78	15	18.5	18
One adult male from Nicaragua.....	114.5	75	14.5	19	19
Seven adult males from Costa Rica.....	113.5	76.3	14.1	18.7	17.4
Five adult males from Panama.....	110	75.5	14	18.6	18.3
Eight adult males from Colombia.....	112.4	77.1	14.2	17.7	17.7
One adult male from Venezuela.....	109	72	13.5	16.5	17
Two adult males from western Brazil (Chapada, Mattogrosso) ..	113.2	79.2	13.7	17.5	18
Two adult males from Bolivia.....	113.5	75.7	13.5	18	17.5
FEMALE.					
One adult female from Puebla.....	114	74	14	19	18.5
Four adult females from San Louis Potosi.....	112.9	76.5	14.5	18.5	18.7
One adult female from Guatemala.....	113	73	14	18	18
One adult female from Nicaragua.....	111	71	13.5	18	17.5
Five adult females from Costa Rica.....	111.6	76.6	13.5	19.3	18.4
One adult female from western Panama.....	104	71.5	13	18.5	17.5
Two adult females from middle Panama (Canal Zone).....	111.5	75	14	18.5	18.7
Five adult females from Colombia.....	109.6	75.2	13.8	17.4	17.3
Two adult females from Venezuela.....	108.5	75.5	13.5	16.5	17.2
One adult female from western Brazil (Chapada, Mattogrosso) ..	112	71	13	17.5	17.5

Notwithstanding the very extensive geographic range of this species, I am unable to make out any variation of coloration or dimensions which can be correlated with locality; in other words, the individual variation, which is considerable, seems to be greater than the geographic variation. The few adult females seen from Mexico all have the chest much less brown, or more grayish, than many of those from more southern localities, though among the latter are specimens which in this respect exactly match the Mexican birds.

Southeastern Mexico, in States of Tamaulipas (Tampico), Vera Cruz (Córdova; Potrero near Córdova; Orizaba; Jalapa; Playa Vicente; Otatitlán), Puebla (Metlatoyuca), San Louís Potosí (Jilitla), Mexico (near City of Mexico)?, Oaxaca (Túxtepec; Santo Domingo), Campeche (Apazote), and Yucatan (Chichen-Itza; Camp Mengel, Quintana Roo), and southward through Guatemala (sources of Rio de la Pasión; Yzabál; Retalhuleu; Montágua Valley; Rio Manágua; Choc-túm), Honduras (Omoa; Truxillo; Céiba; La Pita), British Honduras (Belize; Orange Walk), Nicaragua (Volcán de Chinandega; Rio San Juan; Rio Escondido; Los Sábalo), and Costa Rica (San José; San Sebastián de San José; Tres Rios; Naranjo de Cartago; Birrís de Cartago; Laguna de Cartago; Bonilla; Turrialba; Talamanca; Guápiles; Barranca; Gulf of Nicoya; Miravalles; Pigres; Las Trojas de Alajuela) to Panamá (Calobre, Calovévora, and Mina de Chorchá, Veragua; Bugaba and Dívala, Chiriquí; Tabernilla, Rio Cana Quebrada, Lion Hill, Sabana de Panamá, and Bahío, Canal Zone); also, nearly the whole of tropical South America, from Colombia to Peru, Guianas, Trinidad, southern Brazil, northern Paraguay (Rio Pilcomayo), northern Argentina (Tucumán) and Bolivia.

*Columba cinerea* (not of Scopoli, 1786 *a*) TEMMINCK, Les Pigeons, i, 1808-11, 126, pl. 58 (Brazil); Hist. Nat. Fig. et Gallin., i, 1813, 299 (Brazil); Pl. Col., livr. 44, 1824, pl. 266.—VIEILLOT, Nouv. Dict. d' Hist. Nat., xxvi, 1818, 366 (Brazil); Tabl. Enc. Méth., i, 1823, 382.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 83.—LESSON, Compl. Buff., Ois., viii, 1837, 44; 2d ed., 1838, 281.

[*Columba*] *cinerea* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 477.—WAGLER, Syst. Av., 1827, *Columba*, sp. 85; Isis, 1829, 745.—TSCHUDI, Wiegmann's Archiv für Naturg., x, pt. 1, 1844, 305 (Peru).

*Peristera cinerea* SWAINSON, Zool. Journ., iii, 1827, 360.—GRAY, List Birds Brit. Mus., Columbæ, 1856, 52 (Cayenne; Brazil; Rio Ucayali, e. Peru).—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 303.—SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz); 1859, 391 (Playa Vicente, Vera Cruz); 1864, 178 (near City of Mexico).—BONAPARTE, Compt. Rend., xlii, 1856, 944 (Mexico).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1859, 61 (Omoa, Honduras); 1864, 370 (Lion Hill, Panama); 1867, 753 (Xeberos, e. Peru); 1873, 306 (e. Peru); 1879, 544 (Remedios, Antioquia, Colombia).—MOORE, Proc. Zool. Soc. Lond., 1859, 61 (Omoa, Honduras).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 301 (Lion Hill, Panama); ix, 1868, 138 (Gulf of Nicoya, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 560 (Vera Cruz).—SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Calovevora, Mina de Chorchá, and Bugaba, w. Panama); Ibis, 1874, 99 (Guatemala).—PELZELN, Orn. Bras., 1870, 278 (crit. in footnote).—SCHLEGEL, Mus. Pays.-Bas, iv, no. 35 (Columbæ), 1873, 138 (Brazil; Colombia; Panama; Costa Rica).—CABANIS, Journ. für Orn., 1874, 230 (Cantogallo, s. Brazil).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1877, 329 (Peru); Orn. du Pérou, iii, 1886, 253.—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 408 (Los Sábalo, Nicaragua).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 575 (Chimbo, w. Ecuador; fresh colors of bill, etc.).—

*a* An undetermined species, said to be from Luzon, Philippine Islands.

- TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 111 (Yaguachi, Ecuador).—BERLEPSCH, Journ. für Orn., 1887, 34 (Rio Pilcomayo, Paraguay), 124 (Paraguay); 1889, 319 (Tarapoto, n. e. Peru).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Las Trojas de Alajuela and Naranjo de Cartago, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 584 (Truxillo, Honduras).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 106 (lower Rio Beni, Bolivia); v, 1893, 149 (Chapada, Mattogrosso, w. Brazil).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 491 (Tampico, s. Tamaulipas; Yucatan; sources of Rio de la Pasion, Yzabal, Choctum, and Retalhuleu, Guatemala; Belize and Orange Walk, British Honduras; Volcan de Chinandega, Nicaragua; Barranca, Costa Rica; Mina de Chorchá, Calovevora, and Lion Hill, Panama; Remedios, Antioquia, Colombia; Venezuela; Quonga and Ourumel, British Guiana; Cayenne, French Guiana; Rio Ucayali, e. Peru; Balzar Mts., w. Ecuador; Rio Copiru, Bahia, and Chapada, Mattogrosso, Brazil); Boll. Mus. Zool., etc., Torino, xv, 1900, 14 (Carandasinlio, Mattogrosso, w. Brazil).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 74 (Trinidad).—KOENIGSWALD, Journ. für Orn., 1896, 391 (São Paulo, s. Brazil).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica).—IHERING, Rev. Mus. Paulista, iii, 1899, 401 (Piracicaba, São Paulo, s. Brazil); iv, 1900, 163 (Cantogallo and Novo Friburgo, São Paulo), 282 (measurements of eggs).—HARTERT, Novit. Zool., v, 1898, 504 (Chimbo, n. w. Ecuador).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 35 (Foreste del Rio Peripa and Vincés, w. Ecuador).—GOODFELLOW, Ibis, 1902, 228 (Santo Domingo, n. w. Ecuador; habits; fresh colors of bill, etc.).—SALVIN and GODMAN, Biol. Center-Am., Aves, iii, 1902, 255 (Tampico, s. Tamaulipas; Cordova, Playa Vicente, and Jalapa, Vera Cruz; City of Mexico; Yucatan; Belize and Orange Walk, Brit. Honduras; sources Rio de la Pasion, Yzabal, Choctum, and Retalhuleu, Guatemala; Omoa and Truxillo, Honduras; Volcan de Chinandega, Los Sabalos, Rio San Juan, and Rio Escondido, Nicaragua; Las Trojas, Alajuela, San Jose, Naranjo de Cartago, Talamanca, Tres Rios, Turrialba, Barranca, and Gulf of Nicoya, Costa Rica; Calovevora, Mina de Chorchá, Bugaba, Divala, and Lion Hill, Panama; Colombia to Brazil and Peru).
- [*Peristera*] *cinerea* BONAPARTE, Consp. Gen. Av., ii, 1857, 75 (Brazil).—PELZELN, Orn. Bras., 1870, 451.—GRAY, Hand-list, ii, 1870, 241, no. 9364.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.—SHARPE, Hand-list, i, 1899, 82.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 142 ("Vale of Mexico;" Panama; Trinidad; Brazil).
- P[eristera] cinerea* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 23, pl. 256, figs. 10, 1425, 1426 (Brazil).
- C[hamaepelia] cinerea* HARTLAUB, Syst. Verz., 1844, 99.
- Claravis cinerea* REISER, Denkw. Mat.-Nat. Kaiserl. Ak. Wiss. Wien, 1910, 88 (coast of Piahy, n. e. Brazil).
- (?) *Peristera ustulata* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 83 (Brazil; coll. Berlin Mus.).—BONAPARTE, Compt. Rend., xliii, 1856, 944 (Mexico).
- Peristera pretiosa* FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, Sept. 28, 1886, 175 (Jalapa, Vera Cruz; new name to replace *Columba cinerea* Temminck, preoccupied).
- [*Peristera*] *pretiosa* SHARPE, Hand-list, i, 1899, 82 (Mexico).
- Claravis pretiosa* OBERHOLSER, Proc. Ac. Nat. Sci. Phila., June 2, 1899, 203.—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 15 (Lion Hill, Panama); Bull. Mus. Comp. Zool., xxxix, 1903, 142 (Ceiba, Honduras).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 128 (Minca, Cacagualita, and Mamatoca, Santa Marta, Colombia).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 119 (La Union and La Pricion, Orinoco Valley, Venezuela).—IHERING, Rev. Mus. Paulista, vi, 1904, 341 (Paraguay).—HELLMAYR, Novit. Zool., xiii, 1906, 47 (Chaguaramas and Laventilla, Trinidad; crit.); xv, 1908, 93 (Rio Aragua and Goyaz,



Brazil).—COLE, Bull. Mus. Comp. Zool., 1, 1906, 118 (Chichen-Itza, Yucatan).—THAYER and BANGS, Bull. Mus Comp. Zool., xlvii, 1906, 214 (Sabana de Panama).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 79 (Montagua Valley, Guatemala).—BERLEPSCH, Novit. Zool., ix, 1908, 295 (Cayenne).—DABBENE, Orn. Argentina, 1910, 194 (Tucuman, Argentina).

*Claravis pretiosa pretiosa* CARRIKER, Ann. Carnegie Mus., vi, 1910, 400 (Bonilla, Pigres, San Sebastian de San Jose, San Jose, Laguna de Cartago, La Estrella de Cartago, Talamanca, Alajuela, Pozo Azul de Pirris, Guapiles, El Hogar, and El Pozo de Terraba, Costa Rica; crit.).—PETERS, Auk. xxx, 1913, 373 (Camp Mengel, Quintana Roo).

*Chamaepelia plumbea* BERTONI, Aves Nuevas del Paraguay, 1902, 27 (Paraguay). *Chamaepelia cruziana* (not *Columba cruziana* Prévost and Knip) LYNCH ARRIBALZAGA, An. Mus. Nac. Buenos Aires, vii, 1902, 339.

*Claravis pretiosa livida* BANGS, Proc. Biol. Soc. Wash., xviii, June 9, 1905, 153 (Rio Cauca, n. w. Colombia; coll. E. A. and O. Bangs).

### CLARAVIS MONDETOURA (Bonaparte).

#### MONDÉTOUR'S GROUND DOVE.

*Adult male*.—General color of upper parts slate-gray, fading into grayish white or pale gull gray on forehead, the back, scapulars, rump, and upper tail-coverts (especially the first) somewhat darker and less bluish gray (deep neutral gray); outer webs of proximal secondaries crossed by a broad subterminal band of violaceous black, margined, more or less distinctly, both anteriorly and posteriorly, by a narrow line of pale bluish gray, the proximal greater coverts with a similar, but usually somewhat narrower, band, the proximal smaller coverts sometimes with a few similar but smaller markings; alulae, primary coverts, primaries, and distal secondaries deep brownish gray (sometimes, however, scarcely different from color of back); rectrices (except middle pair) extensively grayish white distally, the white increasing in extent to the outermost rectrix, on which it occupies at least the distal half; chin and upper throat white; lower throat, fore-neck, and chest (sometimes upper breast also) uniform deep chocolate to diamine brown, passing into slate-gray on lower breast, sides, and flanks; abdomen, anal region, and under tail-coverts white or buffy white, the last sometimes tinged or suffused with pale gray; axillars and under wing-coverts deep grayish brown to dull blackish brown; bill black; iris pink, pinkish white,<sup>a</sup> straw color,<sup>b</sup> or yellow;<sup>b</sup> legs and feet blood red<sup>a</sup> or burnt carmine;<sup>b</sup> length (skins), 182–241 (213); wing, 107–117 (112.4); tail, 66–83.5 (77.6); exposed culmen, 12.5–13.5 (13); tarsus, 21–22.5 (21.8); middle toe, 19.5–21 (20.3).<sup>c</sup>

*Adult female*.—General color of upper parts olive-brown or sepia-brown, lighter or more grayish brown on wing-coverts, the primaries, etc., deep grayish brown; wing spots or bands semi-metallic dark purple (corinthian purple to dark perilla purple) instead of violet-black; rectrices (except middle pair) dull black or brownish black

<sup>a</sup> According to M. A. Carriker, jr.

<sup>b</sup> According to W. W. Brown, jr. (According to H. Whitely, the legs and feet in the Peruvian bird are lead color!)

<sup>c</sup> Seven specimens.

distally and tipped with pale grayish brown, both the subterminal black and the terminal pale grayish or brownish, increasing in width toward the outermost rectrix, on which they are both broader and paler (sometimes dull white) and the black extends nearly if not quite to the extreme base; forehead and malar region mikado brown or cinnamon, fading into dull white to light cinnamon on chin and upper throat (sometimes whole throat); foreneck and chest deep drab to buffy brown or light olive-brown, passing into rather deeper brown on sides and flanks and into pale buff to buffy white on abdomen, the under tail-coverts more deeply buffy; axillars and under wing-coverts olive-brown to sepia-brown or nearly vandyke brown; length (skins), 194-220 (207); wing, 110-118 (114.3); tail, 71.5-82.5 (76.4); exposed culmen, 12.5-15 (13.8); tarsus, 21.5-23.5 (22.4); middle toe, 18.5-21.5 (20.6).<sup>a</sup>

<sup>a</sup> Five specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Two adult males from Mexico (Vera Cruz?).....	109.2	72	13	21.7	19.7
Two adult males from Costa Rica.....	115.5	81	13	21.2	20.7
Three adult males from western Panama (Boquete, Chiriquí)..	112.5	79	13	22.2	20.3
FEMALES.					
One adult female from Costa Rica.....	110	74	13.5	21.5	18.5
Two adult females from western Panama (Boquete).....	112	75.7	14.2	22.5	21.2
One adult female from central Colombia (Bogotá).....	117	74	14	21.5	20.5
Three adult females from Venezuela (near Merida).....	114.8	76.4	13.8	22.4	20.6

Both Salvadori (Cat. Birds Brit. Mus., xxi, 496) and Salvin and Godman (Biol. Centr.-Am., Aves, iii, 257) call attention to the fact that Mexican and Guatemalan specimens differ from South American ones in having "the under wing-coverts black, with no admixture of cinnamon-rufous." The last named authors remark that while "it is possible that the Central American form is distinct from that inhabiting South America," they "have not as yet seen a specimen from Costa Rica," and assume that there is a gap in the geographic range of the species. While I have not been able to examine an adult male from any South American locality, I have, however, seen specimens from not only Costa Rica but western Panamá (Chiriquí) also, and am able to state that all of these (five males, altogether) have the axillars and under wing-coverts uniform dark grayish-brown (not black), like two adult males from Mexico, and that all the Central American birds therefore differ in this respect from South American ones.

The two adult males from Mexico (definite localities not known), while agreeing with the five examples from Costa Rica and western Panamá in color of the axillars and under wing-coverts and coloration in general, differ from them in having the color of the back, scapulars, rump, and upper tail-coverts decidedly darker and browner, the color of these parts being fuscous to nearly chaetura drab instead of deep neutral gray. Both specimens, however, retain traces of the young plumage (the secondaries of the first plumage having not yet been replaced), and the differences noted may, therefore, be owing to difference of age.

Adult females from Venezuela and Colombia appear to be not different from Central American ones.

*Young*.—Similar to the adult female but upper parts browner (the upper tail-coverts deep snuff brown), wing-coverts (especially the proximal greater and middle coverts) margined terminally with pale buffy brown or brownish white, wing-spots much less distinct and dull dusky brown, and under parts minutely freckled.

Southeastern Mexico, in State of Vera Cruz (Jalapa; Orizaba; Omealca; Jocuila), and southward through Guatemala (Calderas, Volcán de Fuego, 7,000–8,000 ft.), Costa Rica (Birrís de Cartago; Cot de Cartago; Estrella de Cartago; Volcán de Irazú, 8,000 ft.; Volcán de Turrialba), Panamá (Boquete; Volcán de Chiriquí, 3,000 to 7,000 ft.), Colombia (Bogotá), and Ecuador (Monji; San Rafael; Juna) to Peru (Huasampilla; Rio Cadena) and Venezuela (Caracas; Culata near Mérida, 3,000 meters).

*Peristera mondetoura* BONAPARTE, Compt. Rend., xlii, 1856, 765, 957; xliii, 1856, 944, 949 (Caracas, Venezuela); Rev. et Mag. de Zool., 1856, 248; Icon. Pig., 1857, pl. 126, figs. 1, 2.—REICHENBACH, Tauben, i, 1862, 164.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 139 (Birrís de Cartago, Costa Rica; crit.).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).—SCLATER, Proc. Zool. Soc. Lond., 1873, 780, 783 (Huasampilla, Peru).—SALVIN, Ibis, 1874, 99 (Volcan de Fuego, Guatemala; crit.).—SUMICHRAST, La Naturaleza, v, 1881, 232 (Omealca and Jocuila, Vera Cruz).—TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 111 (San Rafael, Ecuador).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. C. R., i, 1888, 127 (Cot de Cartago, Costa Rica).—TACZANOWSKI, Orn. du Pérou, iii, 1886, 251, Tables, p. 102.—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 151 (Bogota, Colombia; crit.).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 495 (Jalapa, Vera Cruz; Volcan de Fuego, Guatemala; Colombia; Venezuela; Monji and Juna, Ecuador; Huasampilla, Peru).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 256 (Jalapa and Orizaba, Vera Cruz; Calderas, Volcan de Fuego, Guatemala, 7,000–8,000 ft.; Birrís, Cartago, and Volcan de Irazu, Costa Rica; Boquete and Volcan de Chiriquí, 3,000–7,000 ft., Panama; Colombia; Venezuela; Ecuador; Peru).—BERLEPSCH and STOLZMANN, Ornith., xiii, 1906, 125 (Rio Cadena, Peru).

[*Peristera*] *mondetoura* GRAY, Hand-list, ii, 1870, 242, no. 9366.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.—SHARPE, Hand-list, i, 1899, 82.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 142.

*Claravis mondetoura* OBERHOLSER, Proc. Ac. Nat. Sci. Phila., June 2, 1892, 203.—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 23 (Boquete and Volcan de Chiriquí, 3,000–7,000 ft., Panama).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 401 (Cartago, La Estrella de Cartago, Volcan de Irazu at 8,000 ft., and Volcan de Turrialba, Costa Rica).

(?) *C[olumba] melancholica* TSCHUDI, in Wiegmann's Archiv für Naturg., x, pt. i, 1844, 306 (Peru).

*Peristera lansbergii* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 139 (Caracas, Venezuela; coll. Leyden Mus.).

*Peristera lansbergi* SALVIN, Ibis, 1874, 455 (crit.).—SHARPE, Ibis, 1875, 50, footnote.

## Genus LEPTOTILA Swainson.

- Leptotila* SWAINSON, *Classif. Birds*, ii, 1837, 349. (Type, monotypy, *P[eristera] rufaxilla* Selby=*Columba rufaxilla* Richard and Bernard.)
- Leptotila* (emendation; not *Leptoptilos* Lesson, 1831 nor *Leptoptilus* Strickland, 1841) GRAY, *List. Gen. Birds*, 2d ed., 1841, 75.
- Leptopila* (emendation) SCHLEGEL, *Mus. Pays-Bas*, iv, no. 35 (Columbae), 1873, 158.
- Homoptila* SALVADORI, *Atti Roy. Ac. Sci. Torino*, vi, 1871, 131. (Type, *II. decipiens* Salvadori=*Leptotila ochroptera* Pelzeln.)
- Ægyptila* SUNDEVALL, *Meth. Nat. Av. Disp. Tent.*, 1873, 156. (New name for *Leptotila* Swainson).
- Æchmoptila* COUES, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iv, no. 1, 1878, 48. (Type, *Columba jamaicensis* Linnæus.)

Medium-sized or rather small ground pigeons (length about 210—331 mm.), with terminal portion of outermost primary abruptly attenuated, tarsus decidedly longer than middle toe (without claw), lateral rectrices tipped with white, without spots on wing-coverts, and with axillars and under wing-coverts cinnamon-rufous.

Bill relatively small and slender (exposed culmen shorter than lateral toes), its depth through thickest part less than one-third the length of exposed culmen, the contracted basal portion occupying more than half its length. Wing moderately large, moderately concave beneath, much rounded, the longest primaries exceeding distal secondaries by more than length of tarsus; third, third and fourth, or fourth primaries (from outside) longest, the first equal to or shorter than seventh, the outermost strongly bowed or arched, much narrower than the rest, and with the terminal third abruptly attenuated. Tail about two-thirds to three-fourths as long as wing, decidedly to strongly rounded, the rectrices relatively broad and with rounded tips. Tarsus exceeding middle toe (without claw) by one-fifth to one-fourth its length, rather slender, the acrotarsium covered with a single series of broad transverse scutella, the acrotarsium smooth; tibio-tarsal joint and lower portion of tibia entirely naked; lateral toes decidedly shorter than middle toe, the inner with claw reaching to or slightly beyond base of middle claw, the outer slightly shorter; hallux much shorter, little if any more than half as long as middle toe.

*Plumage and coloration.*—Plumage quite normal (except in shape of outermost primary; frontal feathering advancing but little upon base of maxilla, its antia forming a double-rounded point on the same vertical line as the malar antia, the feathering of chin extending less than halfway from malar antia to tip of mandible. Coloration wholly immaculate, plain brownish above, paler and more vinaceous below, becoming white on abdomen and under tail-coverts, the pileum sometimes bluish gray, the forehead sometimes whitish, the neck (except in front) sometimes glossed with metallic purple or bronze; axillars and under wing-coverts always cinnamon-rufous, and lateral rectrices always tipped with white.

*Range*.—Northern Mexico (including Rio Grande Valley in Texas) and southward to Peru and Argentina; Jamaica, Grand Cayman, and Grenada, only, in West Indies. (About twenty species.)

## KEY TO THE SPECIES AND SUBSPECIES OF LEPTOTILA.

- a. Hindneck glossed with metallic purple, bronze, or green.
- b. Inner webs of remiges with much of vinaceous-cinnamon or dull cinnamon-rufous.
- c. Forehead (extensively) and whole throat white.
- d. Flanks and posterior portion of sides white, like abdomen and under tail-coverts; outer webs of primaries grayish brown.
- e. Larger (wing 146-162, tail 97-117); white tips to lateral rectrices broader (Jamaica.)..... *Leptotila jamaicensis* (p. 441).
- ee. Smaller (wing 136-143, tail 86.5-97.5); white tips to lateral rectrices narrower.
- f. Upper parts much darker and browner; chest much paler vinaceous. (Grand Cayman, south of Cuba.)..... *Leptotila collaris* (p. 443).
- ff. Upper parts much paler and grayer or more olivaceous; chest deeper vinaceous. (St. Andrews Island, Caribbean Sea.)  
*Leptotila neoxena* (p. 444).
- dd. Flanks and posterior portion of sides pale vinaceous, like chest; outer webs of primaries rufescent brown (except distally). (Yucatan.)  
*Leptotila gaumeri* (p. 445).
- ec. Forehead pale vinaceous-grayish to pale wood brown or vinaceous-buff. (*Leptotila verreauxi*.)
- d. Inner webs of remiges dull cinnamon-rufous or vinaceous-cinnamon for greater part, this extending quite to shaft on basal portion.
- e. Smaller (wing averaging less than 140 mm.); white tips to lateral rectrices longer; occiput and hindneck without bluish gray; forehead paler.
- f. Coloration much less brown, the upper parts grayish olive-brown (very light snuff brown) to hair brown, the forehead, foreneck, and chest more or less grayish pale vinaceous or pale vinaceous-gray.
- g. Upper parts more brownish (grayish olive-brown, rarely light snuff brown); forehead and chest more vinaceous; under tail-coverts white or but little tinged with buff. (Venezuela and adjacent islands, through eastern and central Colombia, Panama, and Costa Rica to extreme southwestern Nicaragua.)  
*Leptotila verreauxi verreauxi* (p. 446).
- gg. Upper parts more grayish (hair brown); forehead and chest more grayish; under tail-coverts usually strongly buffy. (Western Colombia to northwestern Peru.)  
*Leptotila verreauxi occidentalis* (extralimital).<sup>a</sup>
- ff. Coloration much browner, the upper parts olive-brown to bistre, the forehead, chest, etc., cinnamon-drab to fawn color. (Eastern Costa Rica.)..... *Leptotila verreauxi riottei* (p. 450).

<sup>a</sup> *Leptotila verreauxi occidentalis* Chapman, Bull. Am. Mus. N. H., xxxi, Art. xvi, July 23, 1912, 142 (San Antonio, alt. 6,600 ft., Western Andes, Cauca, Colombia; coll. Am. Mus. Nat. Hist.). Specimens from western Ecuador are appreciably darker than those from western Colombia and Peru, which are, apparently, identical in coloration.

- ee.* Larger (wing averaging much more than 140 mm.); white tips to lateral rectrices shorter; occiput and hindneck suffused with bluish gray; forehead darker. (Bolivia.) *Leptotila verreauxi megalura* (extralimital).<sup>a</sup>
- dd.* Inner webs of remiges dull cinnamon-rufous or vinaceous-cinnamon only toward edges. (Western shores and islands of Lake Nicaragua.)  
*Leptotila verreauxi nuttingi* (p. 450).
- bb.* Inner webs of remiges merely edged (more or less indistinctly) with dull cinnamon-rufous or cinnamonaceous. (*Leptotila fulviventris*.)
- c.* Forehead and anterior under parts more strongly vinaceous; posterior under parts more strongly buffy. (Yucatan to southern Vera Cruz and British Honduras, and adjacent parts of Guatemala and Chiapas.)  
*Leptotila fulviventris fulviventris* (p. 451).
- cc.* Forehead and anterior under parts less strongly vinaceous (more grayish); posterior under parts less buffy.
- d.* Under parts darker, upper parts more grayish; smaller (wing averaging 146.5 in male, 143.8 in female). (Mexico in general, except Yucatan, etc., north to southern Texas, south to northern Nicaragua.)  
*Leptotila fulviventris brachyptera* (p. 453).
- dd.* Under parts paler, upper parts more brownish; larger (wing averaging 151.9 in male, 149.3 in female). (Tres Marias Islands, western Mexico.)  
*Leptotila fulviventris capitalis* (p. 456).
- aa.* Hindneck not distinctly, if at all, glossed with metallic purple, etc.
- b.* Upper parts grayish brown to olive-brown or bister.
- c.* Occiput and nape grayish brown to olive-brown or bister, nearly concolor with back, etc.
- d.* Chest gray.
- e.* Occiput and nape grayish brown (hair brown, deep drab, or benzo brown). (*Leptotila cassini*.)
- f.* Paler, the chest more purely gray, breast much less strongly vinaceous, upper parts and lateral under parts less brownish. (Panama and adjacent portion of northern Colombia.) *Leptotila cassini cassini* (p. 456)
- ff.* Darker, the chest less purely gray, breast more strongly vinaceous, upper parts and lateral under parts more brownish. (Costa Rica to Guatemala.).....*Leptotila cassini cerviniventris* (p. 458).
- ee.* Occiput and nape rufescent brown (pecan brown to verona brown). (Western Panama and western Costa Rica.) *Leptotila rufinucha* (p. 460).
- dd.* Chest not gray (more or less vinaceous).
- e.* Inner webs of remiges rufous-cinnamon or vinaceous-cinnamon only toward edge; middle of crown bluish gray; under parts with less of white, the vinaceous of chest more extended; back, etc., more brownish. (Guianas to Amazon Valley and Colombia.)...*Leptotila rufaxilla* (extralimital).<sup>b</sup>

<sup>a</sup> *Leptotila megalura* Sclater and Salvin, Proc. Zool. Soc. Lond., 1879, 640 (Tiltilo, Yungas, Bolivia; coll. Salvin and Godman); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 556, pl. 13.

<sup>b</sup> *Columba rufaxilla* Richard and Bernard, Act. Soc. Hist. Nat. Paris, i, 1792, 118 (Cayenne).—*Peristera rufaxilla* Selby, Naturalists' Libr., Pigeons, 1835, pl. 24.—[*Leptotila*] *rufaxilla* Swainson, Classif. Birds, ii, 1837, 349.—*Leptotila rufaxilla* Berlepsch and Hartert, Novit. Zool., ix, 1902, 118 (Maipures, etc., Orinoco Valley).—[*Leptotila*] *rufaxilla* Bonaparte, Consp. Av., ii, 1857, 73, part.—*Leptotila rufaxilla* Sclater and Salvin, Proc. Zool. Soc. Lond., 1867, 591 (Mexiana I., lower Amazon); Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 551.—*Leptopila rufaxilla* Schlegel, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 160 (Brazil; Surinam).—*Engyptila rufaxilla*

- ee. Inner webs of remiges cinnamon or rufous-cinnamon quite to the shafts; middle of crown brownish gray; under parts more extensively white, vinaceous of chest more restricted; back, etc., more olivaceous. (Island of Grenada, Lesser Antilles.)..... *Leptotila wellsii* (p. 461).
- cc. Occiput and nape (also hindneck) slate-gray, in strong contrast with brown of back, etc. (Southeastern Mexico to northern Colombia).  
*Leptotila plumbeiceps* (p. 462).
- bb. Upper parts deep cinnamon-brown to dull chestnut or auburn (the pileum and nape slate-gray). (Coiba Island, western Panama.)  
*Leptotila battyi* (p. 464).

## LEPTOTILA JAMAICENSIS (Linnæus).

## JAMAICAN DOVE.

*Adult male*.—Forehead and anterior portion of crown white, passing into bluish gray or occiput and nape, which are glossed with metallic bronze, bronze-green, or purple; hindneck and sides of neck bright metallic coppery bronze or purple, passing through bronze-green into bluish green or greenish blue on extreme lower portion of hindneck; rest of upper parts olive-brown, faintly glossed with bronze, the extreme upper back sometimes glossed with dark purple or coppery bronze, the brown of upper parts becoming somewhat more grayish posteriorly; alulae, primary coverts, and primaries dark grayish brown, the primaries (especially the longer ones) edged distally with pale brown or cinnamon; middle rectrices concolor with back, etc. (or sometimes more grayish), the other rectrices deep gray or brownish gray becoming more or less darker subterminally and tipped with white, this becoming gradually broader toward the outermost rectrix, the outer web of which is narrowly edged with white; malar, suborbital, and auricular regions very pale pinkish gray (nearly pallid quaker drab or pallid mouse gray) passing into white on chin and throat; foreneck and chest very pale grayish vinaceous or pinkish pale vinaceous-fawn, passing into white on lower breast and more posterior under parts; axillars and under wing-coverts dull cinnamon-rufous or mikado brown, the under surface of remiges similar but slightly paler, passing into brownish gray distally; bill black; iris whitish with an outer ring of reddish; legs and feet lake red; length (skins), 272–331 (312); wing, 146–162

Sundevall, Av. Nat. disp. Tent., 1873, 100.—*Engyptila rufaxilla* Salvin, Ibis, 1886, 174 (Brit. Guiana).—*Columba frontalis* Temminck and Knip, Fig., i, fam. trois., 1808–11, 18, pl. 10 (Guiana).—*Columba jamaicensis* (not of Linnaeus) Temminck, Fig. et Gallin., i, 1813, 411, 495, part.—*Peristera jamaicensis* Selby, Naturalists' Libr., Pigeons, 1835, 207, part.—[*Leptoptila*] *dubusi* Bonaparte, Consp. Av., ii, 1857, 74 (Rio Napo, e. Ecuador; coll. Paris Mus.).—*Leptoptila dubusi* Sclater and Salvin, Proc. Zool. Soc. Lond., 1866, 198 (Rio Ucayali, e. Peru).

Only two or three examples of this species have been examined. Its geographic range is so extensive that it probably requires subdivision.

(156.7); tail, 97–117 (110.7); exposed culmen, 15–17.5 (16.5); tarsus, 29–32.5 (30.7); middle toe, 22.5–25 (23.6).<sup>a</sup>

*Adult female*.—Similar to the adult male and not always distinguishable but usually with the forehead less purely white (tinged with bluish gray), metallic gloss of neck somewhat less bright, and color of foreneck and chest less pinkish (more grayish); length (skins), 263–317 (295); wing, 151–160 (153.9); tail, 99.5–114 (105.8); exposed culmen, 15.5–17 (16.1); tarsus, 28–31 (29.4); middle toe, 23–24 (23.2)<sup>b</sup>

Jamaica (near Spanish Town; Priestmans River; Moneague; St. Mathews Parish).

[*Columba*] *jamaicensis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 283 (Jamaica; ex. Brisson, Orn., i, 134).—GMELIN, Syst. Nat., i, pt. 2, 1789, 782.—LATHAM, Index Orn., ii, 1790, 595.

*Columba jamaicensis* BONNATERRE, Tabl. Enc. Méth., 1790, 236.—TEMMINCK, Fig. et Gallin., i, 1813, 411, part.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 398.—DESMAREST, Dict. Sci. Nat., xl, 1826, 307, part.—DENNY, Proc. Zool. Soc. Lond., 1837, 39.

[*Columba*] *jamaicensis* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 495, part ("America Australi").

*Col [umba] jamaicensis* BONAPARTE, Compt. Rend., xl, 1855, 99.

*Goura jamaicensis* STEPHENS, Shaw's Gen. Zool., xi, 1819, 126.

*Peristera jamaicensis* SELBY, Nat. Libr., v, Pigeons, 1835, 207, part.—GOSSE, Birds Jamaica, 1847, 313; Naturalist's Soj. in Jamaica, 1851, 173.—GRAY, List Birds Brit. Mus., Columbæ, 1856, 53.—ALBRECHT, Journ. für Orn., 1862, 204.

[*Leptoptila*] *jamaicensis* REICHENBACH, Av. Syst. Nat., 1852, p. xxv; Tauben, i, 1861, 24.—BONAPARTE, Consp. Av., ii, 1857, 73; Icon. Fig., 1857, pl. 119.—GRAY, Hand-list, ii, 1870, 242, no. 9379.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.—SHARPE, Hand-list, i, 1899, 87.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145.

[*Leptoptila*] *jamaicensis* REICHENBACH, Vollst. Naturg., Columbariæ, i, 1861, 24.

*Leptoptila jamaicensis* MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 302.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 60.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 557.—SCLATER, Revised List Birds Jam., 1910, 19.

*Leptoptila jamaicensis* SCHLEGEL, Mus. Pays-Bas. iv, no. 35 (Columbæ), 1873, 158, part (Jamaica).

<sup>a</sup> Nine specimens.

<sup>b</sup> Seven specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males of <i>L. jamaicensis</i> .....	156.7	110.7	16.5	30.7	23.6
Two adult males of <i>L. collaris</i> .....	140.5	(94)	16.5	30.7	23.7
One adult male of <i>L. neozena</i> .....	140	86.5	.....	30	22
Five adult males of <i>L. gawmeri</i> .....	144.1	95	17.3	28.9	23
FEMALES.					
Seven adult females of <i>L. jamaicensis</i> .....	153.9	105.8	16.1	29.4	23.2
Two adult females of <i>L. collaris</i> .....	136.2	95.7	16.5	29.5	23
One adult female of <i>L. neozena</i> .....	136	.....	15	30	23



- E[ngyptila] jamaicensis* NEWTON (A. and E.), Handb. Jamaica, 1881, 114.—  
*Engyptila jamaicensis* SALVIN, Cat. Strickland Coll., 1882, 550; Ibis, 1890, 91, part (Jamaica).—CORY, Auk, iv, 1887, 111 (synonymy; descr.; range); Birds West Ind., 1889, 212; Cat. West Ind. Birds, 1892, 97.—SCOTT, Auk, ix, 1892, 123 (habits).—FIELD, Auk, xi, 1894, 123.  
*[Engyptila] jamaicensis* CORY, List Birds West Ind., rev. ed., 1886, 23.  
*Columba*, sp. 66, part.  
*Peristera rufaxilla* SELBY, Jardine's Naturalists' Libr., v. 1835, pl. 24 (see p. 207),  
*[Leptoptila] rufaxilla* REICHENBACH, Tauben, i, 1861, 25, part.  
*Per[istera] albifrons* BONAPARTE, Compt. Rend., xl. 1855, 99 (crit).  
*[Leptoptila] albifrons* BONAPARTE, Consp. Av., ii, 1857, 74 ("Mexico;" "Cuba;" coll. Paris Mus.<sup>a</sup>).  
*L[eptoptila] albifrons* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 26, part ("Cuba").  
*Leptoptila albifrons* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 160 ("Cuba").

## LEPTOTILA COLLARIS (Cory).

## GRAND CAYMAN DOVE.

Similar to *L. jamaicensis* but wing and tail decidedly shorter, color of upper parts darker and browner, and white tips to lateral rectrices much shorter.

*Adults (sexes alike)*.—Forehead and anterior part of crown white, passing into slate-gray on posterior part of crown, the occiput darker and more brownish (dusky drab), faintly glossed with purplish bronze; hindneck and sides of neck vinaceous-brown, brightly glossed with metallic reddish bronzy purple (this extending to sides of chest), the lower portion of hindneck glossed with greenish bronze or bronze-green; back, scapulars, wing-coverts, proximal secondaries, rump, and upper tail-coverts plain olive-brown to nearly mars brown, the alulae, primary coverts, and primaries darker, the last edged distally with dull whitish to pale rusty; middle rectrices deep grayish brown or fuscous, the other rectrices more grayish (between slate color and deep neutral gray) becoming darker (dull blackish slate) subterminally and tipped with white, this about 10–12 mm. long on outermost pair, decreasing in extent and more grayish toward middle pair; auricular region dull ecru-drab, passing into much paler anteriorly (on sub-orbital and malar regions) and dull white on chin and throat; foreneck and chest pale grayish vinaceous, passing into buffy white on lower breast and more posterior under parts, the sides faintly tinged with pale grayish vinaceous; axillars, under wing-coverts, and under surface of remiges (except terminally) rufous-cinnamon or mikado brown; bill black; iris white or gray; legs and feet red.

*Adult male*.—Length (skin), 259; <sup>b</sup> wing, 138–143 (140.5); <sup>c</sup> tail, 94; <sup>b</sup> exposed culmen, 16.5; <sup>c</sup> tarsus, 30–31.5 (30.7); <sup>c</sup> middle toe, 23.5–24 (23.7).<sup>c</sup>

<sup>a</sup> See Salvadori, Cat. Birds Brit. Mus., xxi, 545, footnote.

<sup>b</sup> One specimen.

<sup>c</sup> Two specimens.

*Adult female*.—Length (skins), 229–270 (249.5); wing (one specimen), 136.2; tail, 94–97.5 (95.7); exposed culmen, 16–17 (16.5); tarsus, 28–31 (29.5); middle toe, 22–24 (23).<sup>a</sup>

Island of Grand Cayman, south of Cuba.

*Engyptila collaris* CORY, Auk, iii, Oct., 1886, 498 (Grand Cayman I., south of Cuba; coll. C. B. Cory); iv, 1887, 112; Birds West Ind., 1889, 213; Cat. West Ind. Birds, 1892, 97, 129, 139.

*Leptoptila collaris* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 559, footnote.—LOWE, Ibis, 1911, 145 (Grand Cayman).

[*Leptoptila*] *collaris* SHARPE, Hand-list, i, 1899, 87.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145.

### LEPTOTILA NEOXENA (Cory).

#### ST. ANDREWS ISLAND DOVE.

Similar to *L. collaris* but general color of upper parts lighter and more grayish brown, and hindneck and sides of neck with ground color less reddish brown and the metallic gloss less reddish purple, chest rather deeper pale grayish vinaceous, and distal secondaries distinctly edged with paler (except toward base); similar also to *L. gaumeri*, but upper parts darker and decidedly browner, and color of chest darker, more grayish.

*Adults (sexes alike)*.—Forehead and anterior portion of crown white, or grayish white, passing into slate-gray on posterior portion of crown, the occiput darker and glossed with metallic purple; hindneck and sides of neck grayish brown, brightly glossed with metallic purple (this extending to sides of chest), the lower hindneck glossed with metallic bronze-green; back, scapulars, wing-coverts, proximal secondaries, rump, and upper tail-coverts clear olive-brown to grayish olive-brown or brownish olive; alulae, primary coverts, primaries, and distal secondaries dark grayish brown or fuscous, the secondaries and primaries narrowly but distinctly edged distally with pale brownish or dull whitish; middle rectrices grayish brown (nearly hair brown), the other rectrices more grayish (dull slate color) basally, passing into slate-blackish distally, and tipped with white, this about 9 mm. wide (at widest part) on outermost rectrix, gradually becoming narrower toward middle rectrices; malar and suborbital regions pale grayish vinaceous, the auricular region similar but slightly darker; chin and throat dull white or buffy white; foreneck, chest, and upper breast dull pale grayish vinaceous; rest of under parts white, tinged with pale pinkish buff on sides and flanks; axillars, under wing-coverts, and under surface of remiges (except terminal portion of the last) rufous-cinnamon or mikado brown; bill black; legs and feet pale brownish (purplish red in life?).

<sup>a</sup> Two specimens.

*Adult male*.—Wing, 140; tail, 86.5; exposed culmen (bill broken); tarsus 30; middle toe, 22.<sup>a</sup>

*Adult female*.—Wing, 136; tail (imperfect); exposed culmen, 15; tarsus, 30; middle toe, 23.<sup>a</sup>

St. Andrews Island, Caribbean Sea.

*Engyptila neoxena* CORY, Auk, iv, July [separates issued May 28], 1887, 179, 181 (reprint, p. 3) (St. Andrews Island, Caribbean Sea; coll. C. B. Cory).

*Leptoptila neoxena* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 559, footnote.

[*Leptoptila*] *neoxena* SHARPE, Hand-list, i, 1899, 87.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145.

### LEPTOTILA GAUMERI (Lawrence).

#### GAUMER'S DOVE.

Similar to *L. jamaicensis* but upper parts much lighter or grayer, primaries strongly tinged with russet (except distally), metallic gloss of neck usually less reddish (more bronzy and greenish), vinaceous of foreneck and chest decidedly deeper and extended backward along sides, and size decidedly smaller (except bill).

*Adult male*.—Forehead and anterior portion of crown white, passing into gray on hinder crown and occiput, this usually more or less glossed with metallic purple or bronze; whole hindneck and sides of neck (except laterally) metallic bronzy purple or purplish bronze, becoming more golden, greenish, or even bluish on extreme lower portion of hindneck; rest of upper parts plain grayish brown, more brownish anteriorly (sometimes approaching light bistre, but usually more nearly deep drab), light olive-brown or hair brown posteriorly, the middle rectrices sometimes still grayer (mouse gray); distal secondaries narrowly edged with pale cinnamon or brownish white; primaries darker grayish brown, indistinctly edged with pale brownish, these edgings passing into whitish on distal portion of longer quills; chin and throat white passing into pale vinaceous-fawn on malar and suborbital regions, sides of neck, foreneck, and chest, fading gradually into white on abdomen, posterior flanks, anal region, and under tail-coverts; rectrices (except middle pair) slate-gray passing into dark slate or slate-blackish subapically, and tipped with white, this increasing in width toward the outermost rectrix, which is narrowly edged with white; axillars, under wing-coverts, and inner webs of remiges (except apically) plain cinnamon-rufous; bill black; legs and feet pale brownish (lake red or pinkish in life); length (skins), 255–277 (267); wing, 137–148.5 (144.1); tail, 91.5–97.5 (95); exposed culmen, 17–17.5 (17.3); tarsus, 28.5–29 (28.9); middle toe, 22.5–23.5 (23).<sup>b</sup>

*Adult female*.—Similar to the adult male and probably not always distinguishable, but usually (?) slightly duller in coloration.<sup>c</sup>

<sup>a</sup> One specimen.

<sup>b</sup> Five specimens.

<sup>c</sup> In the considerable series examined most of the specimens are of undetermined sex, and there are none which are marked as female. There are, however, some specimens which are appreciably duller in color than any of the five males, and these are probably females.

Yucatan (Silám; Izamál; Mérida; Cozumél Island; Mugerés Island; Holbox Island).

*Engyptila gaumeri* LAWRENCE, Ann. N. Y. Acad. Sci., iii, no. 5, Jan., 1885, 157 (Silam, Yucatan; coll. G. N. Lawrence).—SALVIN, Ibis, 1885, 193 (crit.).

*Leptoptila gaumeri* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 557 (n. Yucatan; Cozumel, Mugerés, and Holbox Islands, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 261 (Silam, Izamal, and Merida, n. Yucatan; Holbox, Mugerés, and Cozumel Islands).

[*Leptoptila*] *gaumeri* SHARPE, Hand-list, i, 1899, 86.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145 (Yucatan).

*Leptoptila jamaicensis* (not *Columba jamaicensis* Linnæus) SCLATER, List. Vertebr. Anim., 8th ed., 1883, 457 (Cozumel Island, Yucatan).

*Engyptila jamaicensis* SALVIN, Ibis, 1885, 193 (Cozumel I.; crit.); 1889, 378 (Holbox, Mugerés, and Cozumel Islands; crit.); 1890, 91, part (Holbox, Mugerés, and Cozumel Islands).

#### LEPTOTILA VERREAUXI VERREAUXI (Bonaparte).

##### VERREAUX'S DOVE.

*Adult male*.—Forehead pale grayish vinaceous to vinaceous-buff, deepening into dull light brownish vinaceous to light, slightly vinaceous, fawn color on superciliary and supra-auricular regions, and passing into a slightly more grayish hue on anterior portion of crown; posterior part of crown and occiput varying from hair brown to drab-brown, the hindneck similar but lighter, more or less brightly glossed with metallic purple or purplish bronze, intermixed with bronze-green or sometimes even bluish green on extreme lower portion; rest of upper parts light grayish olive-brown to light sepia or snuff brown (more rarely), the alulæ, primary coverts, and primaries dusky grayish brown, the last narrowly edged distally with paler; middle rectrices concolor with back, etc., or slightly paler and more grayish, the others growing gradually darker and more grayish toward the outer pair, which are deep slate-gray or slate color basally, passing into black subterminally and broadly tipped with white, the succeeding three or four (on each side) also tipped with white, but this decreasing in extent and more and more tinged with brownish toward the middle pair; malar, suborbital, and auricular regions, foreneck, sides of neck, and chest pale grayish vinaceous to nearly light vinaceous-drab, the breast and sides paler and more pinkish, fading into white or buffy white on abdomen and anal region, the under tail-coverts nearly pure white (sometimes tinged with pale cream-buff on outer webs of outermost coverts), the flanks more or less tinged or suffused with light wood brown or brownish buff; axillars, under wing-coverts, and under surface of remiges dull cinnamon-rufous (pecan brown), the distal portion of remiges grayish brown; bill black; iris straw yellow to orange or orange-red; bare orbital space light blue (sky blue to cobalt blue); legs and feet purplish red; length (skins), 235–295 (264); wing, 125–145 (134); tail, 91.5–109.5

(100.7); exposed culmen, 14-18 (15.9); tarsus, 25.5-31.5 (27.7); middle toe, 21-26 (24.2).<sup>a</sup>

*Adult female*.—Similar to the adult male and apparently not always distinguishable but usually with coloration slightly duller, the forehead, neck, and chest less vinaceous (the latter more often pale vinaceous-drab), and metallic reflections on hindneck less often (?) purple, usually (?) bronzy or bronze-greenish; length (skins), 245-288 (268); wing, 129-143.5 (135.3); tail, 94-109 (101.9); exposed culmen, 15-17.5 (15.9); tarsus, 25.5-29.5 (27.3); middle toe, 20.5-25 (23.2).<sup>b</sup>

<sup>a</sup> Twenty-nine specimens.

<sup>b</sup> Thirty specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from southwestern Nicaragua ( <i>L. v. nuttingi</i> )....	141	107	15	30.5	24.5
One adult male from eastern Costa Rica ( <i>L. v. riottii</i> ).....	140	111	17	29.5	24
Five adult males from western Costa Rica.....	142.8	104.5	16.7	30.1	24.3
Four adult males from middle Panama (Canal Zone).....	135.2	99.7	16	24.4	23.5
One adult male from central Colombia (Bogota).....	137	103	14	30	25
Eight adult males from eastern Colombia (Santa Marta).....	133.9	99.6	15.6	27.5	23.5
Nine adult males from Venezuela.....	134.9	102.1	15.7	27.2	23.4
Two adult males from Margarita Island (" <i>L. v. insularis</i> ").....	130	98.2	16	26.2	22.5
Two adult males from Aruba Island (" <i>L. v. insularis</i> ").....	129	98.5	17.5	27.5	23
One adult male from Curaçao (" <i>L. v. insularis</i> ").....	143	103.5	16	27.5	23
One adult male from Tobago.....	130.5	105	16	29	22.5
One adult male from Trinidad.....	137	103	16.5	28	23.5
One adult male from western Colombia ( <i>L. v. occidentalis</i> ).....	136	101	18	30.5	26
Three adult males from western Ecuador ( <i>L. v. occidentalis</i> ).....	133.7	101.7	16.8	31	26
Two adult males from Peru ( <i>L. v. occidentalis</i> ).....	135	106.2	16.7	29.5	25.2
One adult male from Bolivia ( <i>L. v. bolivianus</i> ).....	144	103	15.5	28.5	24.5
FEMALES.					
One adult female from southwestern Nicaragua ( <i>L. v. nuttingi</i> )..	145.7	104	17.5	31	25
One adult female from southwestern Nicaragua ( <i>L. v. verreauxi</i> )..	143	103	16	27.5	23.5
Three adult females from western Costa Rica.....	141.5	107.7	16	28.8	23.7
Two adult females from middle Panama (Canal Zone).....	135.7	104	16.2	28	23.2
One adult female from San Miguel Island, Bay of Panama.....	135	101.5	17	28	24.5
Seven adult females from eastern Colombia (Santa Marta).....	135.8	101.1	15.7	27.2	22.9
Ten adult females from Venezuela.....	134.3	102.2	15.5	26.9	22.5
Two adult females from Margarita Island (" <i>L. v. insularis</i> ").....	131	98	16.5	26	22
Two adult females from Testigos Islands (" <i>L. v. insularis</i> ").....	131.2	97	15.5	27.2	22.7
One adult female from Curaçao (" <i>L. v. insularis</i> ").....	131	98	17	27	23
One adult female from Trinidad.....	137	103	16.5	28.5	23.5
Six adult females from western Ecuador ( <i>L. v. occidentalis</i> ).....	134.2	102.2	17.6	30.1	25.8
One adult female from western Peru ( <i>L. v. occidentalis</i> ).....	136	108	17.5	29.5	26
Three adult females from Bolivia ( <i>L. v. bolivianus</i> ).....	145.7	104.3	17.5	27.8	23.5

Apart from their shorter wing and tail, I can see no difference between examples of this species from Margarita and other islands off Venezuela and mainland examples; and considering the great range of individual variation in measurements I do not think the supposed island form (*L. v. insularis*) worth recognizing. A larger series of island specimens might, however, prove the supposed form to be valid. Specimens from the interior of Venezuela are appreciably darker, and may require subspecific separation.

*Young*.—Coloration much duller than in adults. Scapulars and wing-coverts narrowly margined terminally with paler brown; chest, etc., light grayish brown, the feathers narrowly margined with pale buffy brown; no metallic gloss on hindneck.

Extreme southwestern corner of Nicaragua (San Juan del Sur) and southward through western Costa Rica (Volcán de Miravalles; Bolsón; Bebedero; La Palma de Nicoya; Barranca; San Lucas; San Mateo; Pigres; Lagarto; Buenos Aires; Paso Real; El Pozo de Térraba; Pozo Azul de Pirrís; Boruca; Dota; Santa Maria de Dota; Alajuela; Las Trojas; San José; Cartago; Volcán de Irazú), Panamá (Santa Fe, Calobre, and Cordillera de Tolé, Verágua; Bugaba, Chiriquí; Lion Hill, Gatún, Puerto Bello, and near Panamá, Canal Zone; San Miguél and Saboga islands, Bay of Panamá), central and eastern Colombia (Bogotá; Bonda, Don Diego, Santa Marta, and Sierra Nevada, at 2,000 feet, Santa Marta; Medellín, Antioquia) to Venezuela (San Antonio and Cumanacoa, Bermudez; Sierra de Carabobo and El Trompillo, Carabobo; San Germán de Upata; Maripa, Rio Cáura; Orope and Encontrados, Zúlia; Rio Aurare; Tocuyo; Cariaquito; San Esteban; Upata; Las Quiguas; Mérida; Caña Guanoco; Altagràcia, Orinoco Valley; Margarita Island; Los Testigos Islands) to islands of Curaçao, Aruba, Bonaire, Trinidad, Monos near Trinidad, and Tobago. Guianas?

*Leptoptila verreauxi* BONAPARTE, Compt. Rend., xl, 1855, 99 (Colombia; crit.).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 333 (Isth. Panama); ix, 1868, 137 (San Jose, Dota, and Barranca, Costa Rica).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 320, part (Panama); 1870, 782 (Merida, Venezuela); 1879, 544 (Retiro and Medellín, Antioquia, Colombia).—SALVIN, Proc. Zool. Soc. Lond., 1867, 159 (Santa Fe de Veragua, Panama); 1870, 217 (Calobre and Bugaba, w. Panama).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (San Jose, Costa Rica).—SALVIN and GODMAN, Ibis, 1880, 178 (Minca, Sierra Nevada de Santa Marta, 2,000 feet, Colombia); Biol. Centr.-Am., Aves, iii, 1902, 260, part (San Jose, Barranca, Dota, Miravalles, Alajuela, San Lucas, Bebedero, Las Trojas, San Mateo, Cartago, Volcan de Irazu, and La Palma de Nicoya, Costa Rica; Santa Fe, Calobre, Bugaba, Cordillera de Tole, Divala, Lion Hill, and San Miguel I., Panama; Colombia; Venezuela; Trinidad; Guiana?).—BERLEFSCH, Journ. für Orn., 1884, 319 (Ocaña, Colombia).—TRISTRAM, Cat. Coll. Birds, 1889, 40 (Tobago).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 548, part (San Jose, Costa Rica; Santa Fe, Cordillera de Tole, Bugaba, and Lion Hill, Panama; Medellín and Minca, Colombia; Puerto Cabello, Venezuela; Trinidad; Quonga, Brit. Guiana?).—HARTERT, Ibis, 1893, 305 (Aruba), 324 (Curaçao), 334 (Bonaire).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica).—DALMAS, Mém. Soc. Zool. France, xiii, 1900, 144 (Tobago).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 23 (Bogaba, Panama); Auk, xxiv, 1907, 292 (Boruca, Paso Real, and El Pozo de Terraba, Costa Rica).—LOWE, Ibis, 1907, 552 (Margarita I., Venezuela; crit.).—BEEBE, Zoologica, i, 1909, 73 (Caña Guanoco, Venezuela).

[*Leptoptila*] *verreauxi* BONAPARTE, Consp. Gen. Av., ii, 1857, 73 (Colombia; coll. C. L. Bonaparte).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 60 (syn.; distr.).

- [*Leptoptila verreauxi* GRAY, Hand-list, ii, 1870, 243, no. 9383.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.—SHARPE, Hand-list, i, 1899, 86, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 144 (Tobago; Panama).
- Leptotila verreauxi* WYATT, Ibis, 1871, 383 (Ocaña, Colombia).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 132 (Santa Marta, Colombia); xxii, 1909, 29, 30, in text (Bolson, Costa Rica); Auk, xviii, 1901, 25 (San Miguel I., Panama).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 128 (Bonda, Santa Marta, Colombia); xvi, 1905, 279 (Bonda; descr. nest and eggs).—BERLEPSCH and HARTERT, Novit. Zool., ix, 1902, 118 (Altagracia, etc., Orinoco Valley, Venezuela; crit.).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 148 (San Miguel and Saboga islands, Panama).—RIDGWAY, Condor, vii, 1905, 154, in text (Pigres, Costa Rica).—HELLMAYR, Novit. Zool., xiii, 1906, 47 (Laventilla, Point Gourde, and Seelet, Trinidad; crit.).—BERLEPSCH, Novit. Zool., xv, 1908, 295 (Cayenne).—CORY, Pub. 137, Field Mus. N. H., 1909, 198 (Aruba), 210 (Bonaire), 221 (Los Testigos Islands).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 401 (Pigres, San Jose, Bebedero, Pozo Azul, Bolson, Miravalles, San Mateo, El Pozo de Terraba, Boruca, and Buenos Aires, w. Costa Rica; habits).
- [*Leptoptila verreauxii* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 25; ii, 1862, 164.
- Peristera verreauxi* LÉOTAUD, Ois. Trinidad, 1866, 369.
- Engyptila verreauxi* NUTTING, Proc. U. S. Nat. Mus., v, 1882, 408 (La Palma de Nicoya, Costa Rica); vi, 1883, 378 (San Juan del Sur, Nicaragua).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 498 (Volcan de Irazu, Costa Rica), 502 (San Jose, Costa Rica); vii, 1884, 173 (Trinidad).—ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. C. R., i, 1888, 127 (Las Trojas, San Jose, San Mateo, and Cartago, Costa Rica).—CHERRIE, Auk, ix, 1892, 329 (San Jose, Costa Rica); Expl. Zool. Merid. C. R., 1893, 53 (Lagarto, Costa Rica).—CORY, Auk, x, 1893, 220 (Tobago).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 74 (Trinidad; Monos I.).
- Peristera brevipennis* GRAY, List Birds Brit. Mus., Columbae, 1856, 54, part (Trinidad).—BONAPARTE, Compt. Rend., xliii, 1856, 945.
- Peristera rufaxilla* (not *Columba rufaxilla* Richard and Bernard) GRAY, List Birds Brit. Mus., Columbae, 1856, 54, part (spec. b.).
- Leptoptila albifrons* (not of Bonaparte) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 370 (Panama; crit.).
- Leptopila jamaicensis* (not *Columba jamaicensis* Linnæus) SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 158, part (Bogota, Colombia; Caracas, Venezuela).
- Peristera jamaicensis* JARDINE, Ann. and Mag. N. H., xx, 1847, 374 (Tobago).
- [*Peristera jamaicensis* GIEBEL, Thes. Orn., iii, 1877, 67, part.
- Leptotila insularis* RICHMOND, Proc. U. S. Nat. Mus., xviii, Aug. 12, 1896, 659 (Margarita Island, Venezuela; coll. U. S. Nat. Mus.).—CLARK (A. H.), Auk, xix, 1902, 261 (Margarita Island).
- [*Leptoptila insularis* FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 144 (reprint of orig. descr.).
- Leptotila verreauxi insularis* HARTERT, Novit. Zool., ix, 1902, 305 (Aruba; Bonaire; Curaçao; crit.).
- Leptotila verreauxi riottei* (not *Leptoptila riottei* Lawrence) THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, Sept., 1905, 148, in text, part.

## LEPTOTILA VERREAUXI RIOTTEI (Lawrence).

## RIOTTE'S DOVE.

Similar to *L. v. verreauxi* but coloration much darker, the upper parts much browner (olive-brown to bister), the foreneck and chest cinnamon-drab to fawn color.

*Adult male*.—Length (skin), 268; wing, 140; tail, 111; exposed culmen, 17; tarsus, 29.5; middle toe, 24.<sup>a</sup>

Eastern Costa Rica (Navarro; Bellavista? <sup>b</sup>).

*Leptotila riottei* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., ix, 1868, 137 (Navarro, e. Costa Rica; coll. U. S. Nat. Mus.).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).

*Leptotila riotii* SALVIN, Ibis, 1874, 312 (crit.).

*Peristera riottei* GIEBEL, Thes. Orn., iii, 1877, 67.

*Leptotila verreauxi riottei* THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, Sept., 1905, 148, in text, part.

*Leptotila verreauxi* (not of Bonaparte) SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 548, part (in synonymy).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 260, part (Navarro, Costa Rica; Bellavista, Costa Rica?).

## LEPTOTILA VERREAUXI NUTTINGI Ridgway.

## OMETEPE DOVE.

Similar to *L. v. verreauxi* but with much less of vinaceous-russet (or cacao brown) on inner webs of remiges, this color forming merely a broad edging, at the widest part not more than one-fourth the width of the web; upper parts browner (but much lighter brown than in *L. v. riottei*).

*Adult male*.—Length (skin), 260; wing, 141; tail, 107; exposed culmen, 15; tarsus, 30.5; middle toe, 24.5.<sup>c</sup>

*Adult female*.—Length (skin), 260; wing, 147.5; tail, 104; exposed culmen, 17.5; tarsus, 31; middle toe, 25.<sup>c</sup>

In the coloration of the inner webs of the remiges this form is precisely intermediate between *L. verreauxi* and *L. fulviventris*; since, however, specimens of the latter from northern Nicaragua have no more of the cinnamonaceous or vinaceous coloring on the inner webs of the remiges than those from extreme northern localities, actual intergradation, while not improbable, is by no means proven. In

<sup>a</sup> One specimen (the type), from Navarro, on the Caribbean slope. Only one other example seen by me; this being a specimen collected by Boucard, but without locality and with sex undetermined.

<sup>b</sup> According to Carriker, Bellavista is another name for Agua Caliente (sometimes called Hervidero), "a small village, situated on a river of the same name [Agua Caliente], about 4 miles south of Cartago, and at a considerably lower altitude (about 3,800 feet)." I have not seen a specimen of this species from Agua Caliente, but think that specimens from that altitude on the Caribbean slope probably represent this form. Navarro, the type locality, is "on the Caribbean slope," south of the Rio Reventazón, "at an altitude of probably 2,500 to 3,000 feet."

<sup>c</sup> One specimen.



case intergradation between the two supposed species should actually be found to exist, the northern forms would have to be called *Leptotila verreauxi fulvifrons*, *Leptotila verreauxi brachyptera*, and *Leptotila verreauxi capitalis*.

Western shore of Lake Nicaragua (Sucuyá) and island of Ometepe, in Lake Nicaragua.

*Engyptila verreauxi* (not *Leptotila verreauxi* Bonaparte) NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 389 (Sucuya, Nicaragua), 396 (Ometepe, Nicaragua).

*Leptotila verreauxi nuttingi* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 107 (Ometepe, Nicaragua; coll. U. S. Nat. Mus.).

### LEPTOTILA FULVIVENTRIS FULVIVENTRIS (Lawrence).

#### BUFF-BELLIED DOVE.

*Adult male*.—Forehead pale vinaceous-buff to pale vinaceous-fawn color, deepening posteriorly, through a more grayish hue on crown, into light brownish drab on occiput and nape, which are faintly glossed with bronze or purple, the brownish drab passing laterally into nearly vinaceous-drab on supra-auricular region; hindneck lighter and more olivaceous, brightly glossed with metallic purple and bronze; rest of upper parts plain olivaceous-drab, the extreme upper back faintly glossed with bronze or bronze-green; alulae, primary coverts, and primaries deep grayish brown, very narrowly and indistinctly edged with paler, the edgings on distal portion of longer primaries more distinct and whitish; middle rectrices nearly concolor with back, sometimes slightly darker subterminally and paler terminally, the rest brown or grayish brown basally, dull brownish black subterminally and white at tip, both the white and the black increasing in extent toward the outermost rectrix, the outer web of which is narrowly edged with white; loreal, suborbital, and auricular regions, sides of neck, foreneck, and chest dull light vinaceous-fawn color, fading into nearly white on chin and upper throat, deepest on foreneck and upper chest (where approaching light cinnamon-drab or light pinkish cinnamon-drab), passing into a lighter and more pinkish hue (light vinaceous-fawn or light vinaceous-buff) on breast, this passing into light pinkish cinnamon or pinkish buff on inner portion of sides and flanks (which are more brownish, more or less wood brown or avellaneous, outwardly), the abdomen, anal region, and under tail-coverts very pale buff or buffy white, the last often suffused with pinkish buff, especially on shorter (more anterior) coverts; axillars and under wing-coverts rufous-brown (mikado brown or pecan brown); under surface of remiges deep grayish brown, the edges of inner webs paler for proximal half (more

or less) and tinged with cinnamomeous; bill black; iris yellow to orange-yellow; bare orbital space pale grayish blue, sometimes tinged with red; legs and feet lake red; length (skins), 265-284 (275); wing, 142-145 (143.7); tail, 98-103 (101.5); exposed culmen, 15.5-17 (16.1); tarsus, 28-31 (29.4); middle toe, 22-26 (24.2).<sup>a</sup>

*Adult female*.—Similar to the adult male and not always distinguishable,<sup>b</sup> but usually(?) somewhat duller in coloration, especially the foreneck and chest, which are somewhat darker and less vinaceous; length (skins), 255-275 (263); wing, 129.5-143 (137.8); tail, 93-108 (98.1); exposed culmen, 15-17.5 (16.4); tarsus, 27-29 (28.1); middle toe, 22-24.5 (23.3).<sup>c</sup>

*Young*.—Very different in coloration from adults. Above olive-brown, including pileum, the interscapulars, scapulars, wing-coverts, remiges, and upper tail-coverts margined terminally with light rusty brown or cinnamon, the feathers of rump with pale buffy brown terminal margins, the greater wing-coverts and proximal secondaries sometimes with mesial streaks of light rusty brown or cinnamon; foreneck and chest grayish brown or drab, the feathers margined terminally with pale buffy; rest of under parts pale brownish buffy, darker laterally, paler (pale dull buff to dull buffy white on center of abdomen, anal region, and under tail-coverts).

Yucatán (Mérida; Chichen-Itza; Buctzotz; Izamal; Temáx; Tizimín), Tabasco (Montecristo; Tlapa), Campeche, southeastern Vera

<sup>a</sup> Four specimens.

<sup>b</sup> If determination of sex by collectors can always be trusted.

<sup>c</sup> Nine specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Yucatan.....	143.3	101	16.3	28.8	23.7
One adult male from eastern Chiapas (Teopisca).....	145	103	15.5	31	26
One adult male from British Honduras.....	141	108	16	28.5	22
Thirty-two adult males of <i>L. f. brachyptera</i> .....	146.5	107.2	16	30.1	24.3
Five adult males of <i>L. f. capitalis</i> .....	151.9	105.7	17.6	31.8	24.2
FEMALES.					
One adult female from southern Vera Cruz (San Andres Tuxtla).....	129.5	95.5	17	28.5	23
One adult female from Tabasco (Montecristo).....	136	95	16	27	24
Four adult females from Yucatan.....	140.2	98.9	16.7	28.4	23.6
One adult female from eastern Chiapas (Huehuetan).....	133	94.5	15	27.5	23
One adult female from northeastern Guatemala (Toyabaj, Quiché).....	140	94.5	17	27.5	23
Twenty-seven adult females of <i>L. f. brachyptera</i> .....	143.8	103.3	16.2	29.4	24.1
Three adult females of <i>L. f. capitalis</i> .....	149.3	103	18.2	30.3	24.8

Cruz (San Andrés Tuxtla), northern Chiapas, (Huehuetán; Teopisca), northern Guatemala (Toyabáj, Quiché), and British Honduras (near Manatee Lagoon).

*Leptoptila albifrons* (not of Bonaparte, 1854) LAWRENCE, Ann. Lyc. N. Y., ix, 1869, 207 (Merida, Yucatan).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 459 (Yucatan; crit.; habits).

*Peristera albifrons* NEHRKORN, Journ. für Orn., 1881, 69 (Yucatan; descr. eggs).

*Leptoptila fulviventris* LAWRENCE, Ann. N. Y. Acad. Sci., ii, no. 9, May 29, 1882, 287 (Yucatan; coll. State Univ. Kansas).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 435 (crit.).—REICHENOW and SCHALOW, Journ. für Orn., 1883, 407 (reprint of orig. descr.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 259 (Buctzotz, Izamal, Tizimin, and Merida, Yucatan).

*Engyptila fulviventris* LAWRENCE, Ann. N. Y. Acad. Sci., iv, 1885, 272 (crit.).

*Leptotila fulviventris fulviventris* COLE, Bull. Mus. Comp. Zool., 1, Nov., 1906, 118 (Chichen-Itza, Yucatan).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 3d ed., 1910, 149 (extralimital).

[*Leptotila*] *brachyptera* subsp. *fulviventris* FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 144.

*Engyptila vinaceifulva* LAWRENCE, Ann. N. Y. Acad. Sci., iii, no. 9, Dec., 1885, 270 (Temax, Yucatan; coll. G. N. Lawrence).<sup>a</sup>

*Leptoptila brachyptera* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 545, part (Merida, Buctzotz, Tizimin, and Izamal, Yucatan; crit.).

*Leptotila fulviventris brachyptera* CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 287 (Chichen-Itza, Yucatan).

### LEPTOTILA FULVIVENTRIS BRACHYPTERA (Salvadori).

#### SENNETT'S DOVE.

Similar to *L. f. fulviventris*, but coloration less buffy below (often with little if any buff), the under tail-coverts nearly (sometimes quite) pure white; forehead less vinaceous (more grayish), neck and chest usually less vinaceous.<sup>b</sup>

<sup>a</sup> The type is an albinistic specimen of *L. f. fulviventris*.

<sup>b</sup> There is much variation in all these characters in a large series of specimens, and it is not unlikely that a further subdivision of the species may be required. The dullest-colored specimens—that is, those with least vinaceous tinge to neck and chest and with forehead distinctly grayish—are those from southern Texas, Nuevo Leon, and northern Tamaulipas; those from the western parts of Mexico as far south as Oaxaca and in western Chiapas being, on the average, intermediate in coloration between the Rio Grande specimens and *L. f. fulviventris* from Yucatan, etc. Specimens from Nicaragua are about the most vinaceous ones in the entire series, quite as much so as the most brightly colored birds from Yucatan, and have the upper parts decidedly browner than in a great majority of more northern examples, but differ from *L. f. fulviventris* in much whiter posterior under parts. The series of specimens from Nicaragua is, however, much too small to warrant separation on their evidence alone.

*Adult male*.—Length (skins), 265–311 (281); wing, 140–158 (146.5); tail, 96–113 (107.2); exposed culmen, 14–17.5 (16); tarsus, 27.5–33 (30.1); middle toe, 22.5–26 (24.3).<sup>a</sup>

*Adult female*.—Length (skins), 250–300 (276); wing, 135–152.5 (143.8); tail, 94.5–114.5 (103.3); exposed culmen, 14.5–17 (16.2); tarsus, 27–31 (29.4); middle toe, 22–25 (24.1).<sup>b</sup>

Southern Texas (Brownsville; Fort Brown; Hidalgo; Lomita Ranch) and southward over nearly the whole of Mexico (except southeastern coast district, from southern Vera Cruz to Yucatan and northern Chiapas), in Tamaulipas (Forlón; Victoria; Linares; Sota la Marina; Camargo; Rio de la Cruz; Aldama; Tampico), Vera Cruz (Playa Vicente; Jalapa; Orizaba; Miradór; Rivera; Pasa Nueva; Cuesta de Misantla; Coátepec; Atoyác; Sochiapa; Vega del Casadero), Puebla (Metlatoyuca; Rancho del Ahuehuate), San Luís Potosí, Nuevo León (Monteréy; Montemorelos; Rio Salada; Hacienda de las Escobas; Rio de la Gilla; Pesquería Grande), southern Sonora (Álamos), Durango (Chacalá), Sinaloa (Matzatlán; Escuinapa), Jalisco (Barranca Veltrán; Lake Chapala), Tepic (San Blas; Santiago), Michoacán (Los Reyes) Colima (Manzanillo; Santiago; Rio de la

<sup>a</sup> Thirty-two specimens.

<sup>b</sup> Twenty-seven specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from southern Texas.....	149.7	110.4	16	30.1	24.7
Four adult males from Tamaulipas.....	144.2	104.6	16.3	29.9	24.5
Two adult males from Nuevo Leon.....	150.7	107.7	16.2	31.5	25
One adult male from southern Sonora.....	141	102	15	27.5	22.5
Two adult males from Durango.....	143.5	99	15	28.7	23
One adult male from Michoacan.....	142	103	15	29	23.5
One adult male from Colima.....	142.5	106	.....	31.5	23.5
Two adult males from Oaxaca.....	145.5	110	15.5	30.5	24
Five adult males from middle and northern Vera Cruz.....	143.6	107.3	16.1	30.4	24.3
One adult male from western Chiapas (Tuxtla Gutierrez).....	148	103	15.5	29	23
Three adult males from Guatemala.....	146.2	100.8	16.3	29.5	24.3
One adult male from Nicaragua.....	153	113	17	32	26
FEMALES.					
Ten adult females from southern Texas.....	147.4	106.7	15.9	28.9	23.7
Two adult females from Tamaulipas.....	142.7	105	16.2	29.7	24
Three adult females from Nuevo Leon.....	145.5	101.5	16.5	29.7	23.3
One adult female from Jalisco.....	138.5	96	.....	29	23.5
One adult female from Sinaloa.....	136	99.5	17	31	24.5
One adult female from Colima.....	137	94.5	16	28.5	22
Two adult females from Guerrero.....	140	100.5	15.5	29.5	24
One adult female from Oaxaca.....	139	99.5	16	29.5	24
Two adult females from middle and northern Vera Cruz.....	144.7	107	16	29.2	24.7
One adult female from Puebla.....	146	105	17	30	25
One adult female from San Luis Potosí.....	145	103	17	29	24
Two adult females from Nicaragua.....	138	102.5	17	27	22.5

Armeria), Guerrero (Tlapa; Acapulco), Oaxaca (Tehuántepec; Santa Efigénia; mountains near Santo Domingo) and western Chiapas (Tonalá; Tuxtla Gutierrez), through Guatemala (Dueñas; Amatitlán; Rio Manágua; San José; San Gerónimo; Retalhuleu; Barranca Honda; Tolimán; Panajachél; Los Amates, Ysabál; Teepám; Patulúl), Salvador (La Libertád), and Honduras to northern Nicaragua (Matagalpa; Chinandega; Volcán de Chinandega). Accidental or occasional on Tres Marias Islands, western Mexico.

*Peristera jamaicensis* (not *Columba jamaicensis* Linnæus) GRAY, List Birds Brit. Mus., Gallinæ, 1844, 15, part (spec. *g*, Mexico).

(?) *Leptopila jamaicensis* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbæ), 1873, 158, part (Mexico).

(?) *Z[enaid]a amabilis* (not of Bonaparte) McCALL, Proc. Ac. Nat. Sci. Phila., 1851, 220 (bet. Matamoros and Camargo, Tamaulipas).

*Leptoptila albifrons* (not of Bonaparte, 1854) SCLATER, Proc. Zool. Soc. Lond., 1857, 214 (Orizaba, Vera Cruz); 1859, 368 (Jalapa, Vera Cruz), 391 (Playa Vicente, Vera Cruz); 1864, 178 (near City of Mexico).—SCLATER and SALVIN, Ibis, 1859, 222 (Dueñas, Guatemala; habits); Proc. Zool. Soc. Lond., 1864, 370, part (Guatemala); 1870, 838 (coast of Honduras).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 305, part (Mazatlan, Sinaloa; habits; descr. nest and eggs); Bull. U. S. Nat. Mus., no. 4, 1876, 44 (Santa Efigenia and Tehuantepec City, Oaxaca).—COUES, Bull. Nutt. Orn. Club, ii, 1877, 82 (Hidalgo, Texas).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 219 (Amatitlan and San Jose, Guatemala).

*L[eptoptila] albifrons* REICHENBACH, Vollst. Naturg., Columbariæ, i, 1861, 26, part (Mexico).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 60 (Mexico; Guatemala).

*[Leptoptila] albifrons* GRAY, Hand-list, ii, 1870, 242, no. 9380.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.

*[Peristera] albifrons* GRAY, Hand-list, ii, 1870, 242, no. 9380 (Mexico).—GIEBEL, Thes. Orn., iii, 1877, 65, part.

*Echmoptila albifrons* COUES, in SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 49 (Hidalgo, Texas; habits).—BREWER, Ibis, 1878, 488 (s. Texas; descr. eggs).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 158 (Fort Brown, Texas; habits; descr. nest and eggs).—RIDGWAY, in MERRILL, Proc. U. S. Nat. Mus., i, 1878, 158 (synonymy).

*Engyptila albifrons* COUES, Bull. Nutt. Orn. Club, v, April, 1880, 100; Check List, 2d ed., 1882, no. 542.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am. Birds, 1881, no. 463.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 318.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 175 (Rancho del Ahuehuete, Puebla).—BENDIRE, Life Hist. N. Am. Birds, i, 1892, 144.

*E[ngyptila] albifrons* COUES, Key N. Am. Birds, 2d ed., 1884, 567.—RIDGWAY, Man. N. Am. Birds, 1887, 214; 2d ed., 1896.

*Leptoptila brachyptera* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 545, part (Mexico; coll. Brit. Mus.; ex *Peristera brachyptera* GRAY, List Birds Brit. Mus., Columbæ, 1856, 54=*nomen nudum*; Brownsville and Hidalgo, Texas; Rio Salada, Monterey, Hacienda de los Escobas, Pesqueria Grande, Rio de la Gilla, and Montemorelos, Nuevo Leon; Sota la Marina, Aldama, and Tampico, Tamaulipas; Cuesta de Misantla, Misantla, Coatepec, Atoyac, Jalapa, Vega del Casadero, Playa Vicente, and Sochiapa, Vera Cruz; Sonora; San Blas, Tepic, and Santiago, Tepic; Lake Chapala and Beltran, Jalisco; Santiago, Colima; Acapulco, Guerrero; Tehuantepec, Oaxaca; Tonalá, Chiapas; Dueñas,

San Geronimo, Retalhuleu, Barranca Honda, Toliman, and Panajachel, Guatemala; La Libertad, Salvador; Chinandega and Volcan de Chinandega, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 257 (localities cited under Salvadori).

[*Leptoptila brachyptera*] FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 144 (Mexico; Honduras).

*Leptotila fulviventris brachyptera* AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 313; 3rd ed., 1910, 149.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 35 (Jalapa, Vera Cruz).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 343 (Escuinapa, etc., Sinaloa).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 79 (Los Amates, Lake Amatitlan, Lake Atitlan, near Tecpam, Patulul, and San Jose, Guatemala).—PHILLIPS, Auk, xxviii, 1911, 75 (Rio de la Cruz, Tamaulipas).

[*Leptotila fulviventris brachyptera*] RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 214.

*Leptotila fulviventris brachyptera* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xii, April, 1895, 167.

[*Leptotila fulviventris* (not of Lawrence)] SHARPE, Hand-list, i, 1899, 86.

### LEPTOTILA FULVIVENTRIS CAPITALIS (Nelson).

#### TRES MARIAS DOVE.

Similar to *L. f. brachyptera* but under parts much paler (the fore-neck and chest pinkish pale ecru-drab instead of dull light vinaceous-fawn color to pale brownish drab), back, etc., more brownish (than in Mexican specimens of *L. f. brachyptera*), and averaging larger.

*Adult male*.—Length (skins), 280–301 (292); wing, 150–153 (151.9); tail, 101.5–109 (105.7); exposed culmen, 17–18 (17.6); tarsus, 31–33 (31.8); middle toe, 23–25 (24.2).<sup>a</sup>

*Adult female*.—Length (skins), 275–290 (283); wing, 147–151 (149.3); tail, 99–106 (103); exposed culmen, 17.5–18.5 (18.2); tarsus, 30–31 (30.3); middle toe, 24–25.5 (24.8).<sup>b</sup>

Tres Marias Islands (Maria Madre Island), western Mexico.

*Leptoptila albifrons* (not of Bonaparte, 1854) LAWRENCE, Proc. Bost. Soc. N. H., xiv, 1871, 274 (Tres Marias Islands); Mem. Bost. Soc. N. H., ii, 1874, 305, part (Tres Marias; habits).

*Leptoptila brachyptera* (not of Salvadori ex *Peristera brachyptera* Gray) SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 545, part (Tres Marias; crit.).

*Leptotila capitalis* NELSON, Proc. Biol. Soc. Wash., xii, Jan. 27, 1898, 6 (Maria Madre Island, Tres Marias group, w. Mexico; coll. U. S. Nat. Mus.).

[*Leptoptila capitalis*] SHARPE, Hand-list, i, 1899, 86.

*Leptotila capitalis* SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 259 (Tres Marias).

[*Leptoptila brachyptera* subsp. *capitalis*] FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 144 (reprint of orig. descr.).

### LEPTOTILA CASSINI CASSINI (Lawrence).

#### CASSIN'S DOVE.

*Adult male*.—Forehead pale gray to grayish white, passing, through deeper gray (gull gray or light gull gray) on crown, into hair brown, deep drab, or bronze-brown on occiput and nape, the hindneck much

<sup>a</sup> Five specimens.

<sup>b</sup> Three specimens.

grayer and with lower portion sometimes faintly glossed with bronzy or purplish; back, scapulars, and wing-coverts plain olive-brown, the remaining upper parts similar but usually somewhat less brownish; lateral rectrices darker (nearly black distally), the outermost (one to three pairs) tipped with white; malar, suborbital, and auricular regions drab-gray to pale mouse gray, passing into pale purplish gray on neck and chest, this into olive-brownish on flanks and outer portion of sides; lower abdomen creamy or pinkish white (the middle under parts usually more or less tinged with pale vinaceous); anal region and under tail-coverts white, the latter with outer webs gray or olive-brownish; axillars and under wing-coverts cinnamon-rufous, the proximal portion of inner webs of remiges tinged with the same; bill black; bare loreal space and posterior angle of bare orbital space, dull crimson, the rest of orbital space gray; iris pale grayish yellow to sulphur yellow; legs and feet lake red; length (skins), 238-256 (247); wing, 128-137.5 (132.8); tail, 83-90 (87.1); exposed culmen, 14-16 (14.6); tarsus, 29.5-33.5 (31.3); middle toe, 23-25 (24).<sup>a</sup>

*Adult female*.—Similar to the adult male, and usually(?) quite indistinguishable, but sometimes with coloration slightly duller; length (skins), 233-255 (244); wing, 129-136 (132.4); tail, 79.5-91 (85.7); exposed culmen, 14-16.5 (14.9); tarsus, 29-32.5 (30.6); middle toe, 23-24.5 (23.9).<sup>b</sup>

*Young*.—Very different in coloration from adults. General color of upper parts essentially as in adults but wing-coverts, secondaries, and proximal primaries more or less distinctly margined terminally with russet or cinnamon; feathers of occiput and nape with shaft-streaks (more or less distinct) of cinnamon or light rusty; foreneck and chest dull brown, the feathers margined terminally with pale cinnamon or brownish buffy; otherwise much as in adults.

Panamá (Montaña del Vermejo and Saná, Verágua; Volcán de Chiriquí and Bugaba, Chiriquí; Laguna del Pita; Cana; Gatún,

<sup>a</sup> Ten specimens.

<sup>b</sup> Ten specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from middle Panama (Canal Zone).....	132.8	87.1	14.6	31.3	24
Twenty-four adult males of <i>L. c. cerviniventris</i> .....	132.2	86.7	15	31.2	24.2
FEMALES.					
One adult female from northern Colombia (Turbo).....	135	86.5	.....	30.5	23.5
Ten adult females from middle Panama (Canal Zone).....	132.4	85.7	14.9	30.6	23.9
Twenty-one adult females of <i>L. c. cerviniventris</i> .....	130.8	84.5	15.1	31	23.8

Rio Indio near Gatún; Cerro Azúl at 1,000 ft.; Lion Hill), and adjacent portion of northern Colombia (Turbo; Rio Truando).

*Leptoptila verreauxi* (not of Bonaparte) CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 175 (Turbo and Rio Truando, Colombia).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 333 (Rio Truando).

*Leptoptila cassini* LAWRENCE, Proc. Ac. Nat. Sci. Phila., 1867, 94 (line of Panama R. R., coll. G. N. Lawrence).—NEWTON, Ibis, 1868, 230 (crit.).—SALVIN, Proc. Zool. Soc. Lond., 1870, 217 (Bugaba and Volcan de Chiriqui, w. Panama).—ROWLEY, Orn. Misc., iii, pt. xii, 1878, 79, pl. 93 (nest and eggs).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 560, part (Lion Hill; Montaña del Vermejo, Veragua, Panama).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 15 (Loma del Leon, Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 262, part, pl. 68, fig. 1 (Montaña de Vermejo, Lion Hill, and Laguna del Pita, Panama; Turbo and Rio Truando, n. w. Colombia).

[*Leptoptila*] *cassini* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 60.

[*Leptoptila*] *cassini* GRAY, Hand-list, ii, 1870, 243, no. 9387.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134, part.—SHARPE, Hand-list, i, 1899, 87, part.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900 (Panama).

[*Leptoptila*] *cassini cassini* BANGS, Proc. Biol. Soc. Wash., xxii, March 10, 1909, 30, in text.

#### LEPTOTILA CASSINI CERVINIVENTRIS (Sclater and Salvin).

##### VINACEOUS-BREASTED DOVE.

Similar to *L. c. cassini* but coloration decidedly darker throughout, the neck and chest less purely gray, under parts browner laterally, breast, etc., more strongly (and usually more extensively) vinaceous fawn color, and upper parts browner (the occiput and nape olive-brown to nearly natal brown); dark phase distinguished from that of *L. c. cassini*, by more deeply or extensively vinaceous fawn colored breast.

*Adult male*.—Length (skins), 239–271 (253); wing, 126–139 (132.2); tail, 77–96 (86.7); exposed culmen, 13.5–16 (15), tarsus, 29–34 (31.2); middle toe, 22.5–26 (24.2).<sup>a</sup>

*Adult female*.—Length (skins), 231–269 (248); wing, 124.5–138 (130.8); tail, 72–99 (84.5); exposed culmen, 13.5–16.5 (15.1); tarsus, 29–32 (31); middle toe, 22–25 (23.8).<sup>b</sup>

<sup>a</sup> Twenty-four specimens.

<sup>b</sup> Twenty-one specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Twelve adult males from Costa Rica.....	132.9	86.4	15.3	31.5	24.4
Six adult males from Nicaragua.....	131.3	86.2	15.2	31.2	24.5
Three adult males from Honduras.....	134.3	88.7	13.8	30.5	24.2
Three adult males from British Honduras.....	129.2	86.8	14.5	31.2	23.3
FEMALES.					
Ten adult females from Costa Rica.....	131.2	86.1	15.7	31.2	23.9
Seven adult females from Nicaragua.....	129.8	80.5	14.6	30.8	24.1
Two adult females from Honduras.....	131.7	86.5	15.2	30.5	22.7
Two adult females from British Honduras.....	131.5	88.2	14.5	31	23.2



Costa Rica (Rio Sicsola, Talamanca; Pacuare; Turrialba; El Hogár; Cuabre; Guápiles; Juan Viñas; Jiménez; Bonilla; Tucurriqui; Carrillo; Cachí; San Carlos; Cartago; San José; Siquirres; Cariblanco de Sarapiquí; Cerro de Santa Maria; Volcán de Miravalles; Tenório; La Vizágua), and northward through Nicaragua (La Libertad, Chontales; San Emilio on Lake Nicaragua; La Vizágua; Rio Coco; Rio Escondido; Rio Grande; Savalá and Trema, Matagalpa; San Rafael del Norte; Peña Blanca), and Honduras (Truxillo; Yaruca) to British Honduras (Cayo; Toledo District; Manatee District; forest near Manatee Lagoon) and Guatemala (Choctúm, Vera Paz; between Cobán and Chiséc).

*Leptoptila cerviniventris* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 59 ([Choctum] Vera Paz, Guatemala; coll. Salvin and Godman).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 561 (Cayo, Brit. Honduras; Choctum, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 263, pl. 67, fig. 2.

[*Leptoptila*] *cerviniventris* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 60. [*Leptoptila*] *cerviniventris* GRAY, Hand-list, ii, 1870, 243, no. 9385.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.

*Leptotila cerviniventris* BOUCARD, Liste Ois. récol. Guat., 1878, 15.

[*Leptotila*] *cassini cerviniventris* BANGS, Proc. Biol. Soc. Wash., xxii, March 10, 1909, 30, in text.

*Leptoptila cassinii* (not of Lawrence, 1867) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 137 (San Jose and Tucurriqui, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 371 (Tucurriqui, Costa Rica).

*Leptopila cassinii* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 159 ("Mexico").

*Leptoptila cassini* BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (San Carlos, Costa Rica; descr. eggs).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica; habits).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 560, part (Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 262, part (Rio Escondido, Nicaragua; San Jose, Tucurriqui, Pacuare, Jimenez, San Carlos, Miravalles, Cartago, and Carrillo, Costa Rica).

[*Leptoptila*] *cassini* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134, part.—SHARPE, Hand-list, i, 1899, 87, part.

*Peristera cassini* GIEBEL, Thes. Orn., iii, 1877, 66, part.

*Engyptila cassini* ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. C. R., i, 1888, 127 (Pacuare and Jimenez, Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 523 (Rio Escondido, Nicaragua).

*Engyptila vinaceiventris* RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 37, Aug. 6, 1888, 583 (Truxillo, Honduras; coll. U. S. Nat. Mus.).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 523 (Rio Escondido).

*Leptoptila vinaceiventris* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 561 (La Libertad, Chontales, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 263 (Truxillo, Honduras; La Libertad, Rio Coco, and Rio Escondido, Nicaragua).

[*Leptoptila*] *vinaceiventris* SHARPE, Hand-list, i, 1899, 87 (Honduras; Nicaragua).—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145.

*Leptotila cassini vinaceiventris* BANGS, Proc. Biol. Soc. Wash., xix, July 30, 1906, 102 (Volcan de Miravalles and Juan Viñas, Costa Rica; crit.); xxii, 1909, 30 (Tenorio, Cerro Santa Maria, and La Vijagua, n. Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 402 (Bonilla, Jimenez, Tenorio, La Vizagua, Cachí, Cerro Santa Maria, Cariblanco de Sarapiquí, Guapiles, El Hogar, Cuabre, and Rio Sicsola, Costa Rica; crit.).

## LEPTOTILA RUFINUCHA (Sclater and Salvin).

## RUFIOUS-NAPED DOVE.

Closely resembling *L. cassini casini* and *L. c. cerviniventris*, but color of occiput and nape different (pecan brown to verona brown, instead of olive-brown or drab), and forehead decidedly darker gray.

*Adults (sexes alike).*—Forehead and anterior portion of crown light gray (nearly pale mouse gray), usually slightly paler anteriorly and darker posteriorly; occiput and nape light tawny-brown (pecan brown to verona brown); hindneck grayish brown (hair brown to nearly benzo brown); rest of upper parts plain olive-brown, the primaries darker; two outer rectrices (on each side) brownish black tipped with white, the next blackish brown; malar, suborbital, and auricular regions pale ecru-drab to drab-gray, passing into light mouse gray or pale quaker drab on lower throat, foreneck, sides of neck, and chest, this fading into dull white on chin and upper throat and, posteriorly, passing into slightly browner gray suffused with light vinaceous-fawn or vinaceous-buff, the central portion of lower breast and upper abdomen nearly pure light vinaceous-fawn or vinaceous-buff; lower abdomen, anal region, and under tail-coverts white, the latter with outer webs of exterior row grayish; sides and flanks strongly tinged or suffused with olive-brown; axillars and under wing-coverts cinnamon-rufous; bill black; bare skin of lores and orbital region crimson or lake red; iris white; legs and feet pale brownish (lake red in life).

*Adult male.*—Length (skins), 210–264 (243); wing, 122–140.5 (133.1); tail, 78–90.5 (85.1); exposed culmen, 13.5–16 (14.8); tarsus, 28.5–33 (31.3); middle toe, 22.5–25 (23.6).<sup>a</sup>

*Adult female.*—Length (skins), 231–264 (248); wing, 129–136 (132.4); tail, 81–87.5 (84.7); exposed culmen, 14–16.5 (15); tarsus, 30–33.5 (31.3); middle toe, 23–26 (24.4).<sup>b</sup>

Western Costa Rica (El General; Alajuela; Las Trojas; La Candelaria;<sup>c</sup> Tambór; Pigres; Boruca; Pozo del Rio Grande; Pozo Azul de Pirris; Palmár, Boruca; El Pozo de Térraba; Pozo del Pitál; Buenos Aires; Lagarto) and western Panamá (Dívala, Bugaba, Boquete, and Volcán de Chiriquí, Chiriquí; Verágu).

<sup>a</sup> Fifteen specimens.

<sup>b</sup> Eleven specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Fourteen adult males from Costa Rica.....	133	85.2	14.7	31.1	23.6
One adult male from western Panamá (Dívala, Chiriquí).....	134	83	15.5	33	23
FEMALES.					
Ten adult females from Costa Rica.....	132.5	84.6	15	31.4	24.3
One adult female from western Panamá (Dívala).....	131.5	85.5	15	30.5	24.5

<sup>c</sup> According to Carriker (Ann. Carnegie Mus., vi, 403, 404) this locality is probably an error.

- Leptoptila rufinucha* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 162 ("Veragua," i. e., Bugaba, Chiriquí, w. Panama; coll. Salvin and Godman).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 562 (Volcan de Chiriqui and Boquete, Chiriqui, w. Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 264, pl. 68, fig. 2 (Pozo Azul de Pirris, Las Trojas, Alajuela, La Candelaria, Pozo Pital, Tambor, and Pirris, Costa Rica; Volcan de Chiriqui, Bugaba, and Divala, Panama).—BANGS, Auk, xxiv, 1907, 292 (Boruca and El Pozo, s. w. Costa Rica).
- [*Leptoptila*] *rufinucha* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—SHARPE, Hand-list, i, 1899, 87.
- Leptotila rufinucha* CARRIKER, Ann. Carnegie Mus., vi, 1910, 403 (Las Trojas, Pigres, El General, Boruca, and Buenos Aires, s. w. Costa Rica; habits).
- Engyptila rufinucha* ZELEDÓN, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. C. R., i, 1888, 127 (Pozo Azul, Las Trojas, and Alajuela, Costa Rica).—CHERRIE, Expl. Zool. Merid. C. R., 1893, 53 (Palmar, Lagarto, Boruca, and Buenos Aires, s. w. Costa Rica).

## LEPTOTILA WELLSI (Lawrence).

## GRENADA DOVE.

*Adult female.*<sup>a</sup>—Forehead buffy vinaceous-white or very buffy pale vinaceous-fawn color, passing, through light mouse gray on anterior portion of crown, into dark hair brown or fuscous on occiput and nape, this into lighter grayish brown or olive-brown on hindneck; rest of upper parts plain brownish olive, faintly but distinctly glossed with bronze-green, the alulae, primary coverts, and primaries more decidedly brownish (less olivaceous); tail concolor with back, etc., the lateral rectrices passing into dull black distally, the outermost margined at tip with white; malar, suborbital, and auricular regions, foreneck, and upper chest pinkish vinaceous-buff, the rest of under parts (including chin and upper throat) white, passing into pale pinkish buff laterally, the flanks suffused or intermixed with pale buffy brown, the under tail-coverts tinged with pinkish buff, the outer webs of lateral coverts edged with buffy brown; axillars and under wing-coverts light cinnamon, the under surface of remiges similar, passing into brown terminally; bill black; iris pale buff; legs and feet pale (red in life?); wing, 124; tail, 82; exposed culmen, 16; tarsus, 32.5; middle toe, 23.<sup>b</sup>

Island of Grenada, Lesser Antilles.

- Engyptila wellsi* LAWRENCE, Auk, i, April, 1884, 180 (Grenada; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., ix, 1887, 624 (Grenada; crit.).—CORY, Auk, iv, 1887, 111 (synonymy; descr.); Birds West Ind., 1889, 212; Cat. West Ind. Birds, 1892, 10, 97, 134.—WELLS, Proc. U. S. Nat. Mus., ix, 1886, 624; List Birds Grenada, 1886, 7.—CLARK (A. H.), Proc. Bost. Soc. N. H., xxxii, 1905, 262.

[*Engyptila*] *wellsi* CORY, List Birds West Ind., rev. ed., 1886, 23.

*Leptoptila wellsi* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 559 (Grenada).

[*Leptoptila*] *wellsi* SHARPE, Hand-list, i, 1899, 87.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145.

<sup>a</sup> The adult male not seen. It is probably not materially if at all different in coloration from the adult female.

<sup>b</sup> One specimen (the type, and the only example seen).

## LEPTOTILA PLUMBEICEPS (Sclater and Salvin).

## BONAPARTE'S DOVE.

*Adult male*.—Forehead grayish white or pale bluish gray, passing, through deeper bluish gray, into slate-gray on crown, occiput, and nape, the hindneck duller or more brownish gray (usually lighter than occiput and nape); rest of upper parts plain olive-brown, sometimes inclining to warm sepia or bister, especially on back, scapulars, and wing-coverts, the extreme upper back and lower hindneck sometimes faintly glossed with purple; alulæ, primary coverts, and primaries dusky; rectrices (except middle pair) with the brown passing into dusky subterminally, the three outer pairs tipped with white, this, together with the blackish subterminal area increasing in width to the outermost rectrix; malar, suborbital, and auricular regions, lower throat, foreneck, and chest, vinaceous-buff, passing into white on chin and upper throat, more or less shaded with gray on sides of neck, and posteriorly, passing, through a more pinkish hue on breast, into white on lower abdomen, anal region, and under tail-coverts, the longer of which have the outer web more or less broadly edged or clouded with brownish gray; sides and flanks (underneath wings) light buffy olive-brown; axillars and under wing-coverts cinnamonrufous, the proximal portion of inner webs of remiges similar but paler and duller; bill black; legs and feet light brownish (red in life); length (skins), 239–284 (257); wing, 129–145 (137.8); tail, 84–98 (89.8); exposed culmen, 15–17.5 (16); tarsus, 27–32 (30); middle toe, 22.5–26.5 (24.4).<sup>a</sup>

*Adult female*.—Similar to the adult male, and perhaps not always distinguishable, but usually (?) with coloration of head, neck and chest duller, the forehead more distinctly gray (less whitish), the color of neck and chest much duller (inclining more to drab or light cinnamon-drab); length (skins), 239–261 (250); wing, 128–144 (133.6); tail, 81–96 (87.3); exposed culmen, 14.5–18 (15.5); tarsus, 27.5–31 (29.6); middle toe, 22.5–25 (23.7).<sup>b</sup>

<sup>a</sup> Sixteen specimens.<sup>b</sup> Seven specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Five adult males from Vera Cruz.....	141.5	93.1	16.5	30.8	25.4
Three adult males from Tabasco.....	136.3	88.5	16	30.3	24.5
Two adult males from British Honduras.....	133	89.5	15.7	28.5	23.2
One adult male from Honduras.....	139	88	16	29	23.5
One adult male from Nicaragua.....	141	89.5	16	30.5	25
Four adult males from Costa Rica.....	135.5	87.4	15.5	29.6	23.6
FEMALES.					
One adult female from Tabasco.....	144	96	18	31.5	24.5
Two adult females from Honduras.....	131.8	82	14.7	29	24.5
Three adult females from Costa Rica.....	128.7	87.3	15.2	30.2	23.2
One adult female from Colombia (Rio Zapata).....	140	89.5	15.5	27.5	23

Some Mexican and Guatemalan specimens are considerably darker in coloration than those from British Honduras and southward, but the series is not sufficiently large to show whether subspecific separation of a southern form is desirable. A specimen from Colombia (Rio Zapata) is, so far as I am able to see, precisely like examples from Costa Rica, Nicaragua, etc.

*Young*.—Coloration very different from that of adults. Scapulars and wing-coverts margined terminally with bright rusty or tawny, the greater and middle coverts sometimes with distal portion extensively of this color; hindneck nearly concolor with back, the sides of neck lighter brown with tawny margins to feathers (more or less distinct); foreneck and chest light tawny-olive, passing into pale buffy on posterior under parts. (Described from Mexican specimens, in which a considerable portion of the adult plumage has appeared, the crown and occiput being mostly deep gray, as in adults.)

Southeastern Mexico, in southern Tamaulipas (Tampico), Vera Cruz (Córdova; Miradór; Buena Vista; Motzorongo; Atoyác; San Andrés Tuxtla; Vega del Casadero), Mexico (Valley of Mexico), and Tabasco (Teapa; Frontera) and southward, through Guatemala (Choctúm, Vera Paz; between Cobán and Chiséc; Los Amates, Yzabál), British Honduras (Orange Walk; Cayo; near Manatee Lagoon), Honduras (San Pedro; Céiba), and Nicaragua (Rio Escondido) to western Costa Rica (Bolsón; Las Trojas; Pigres; Pirrís; El Pozo del Rio Grande); Colombia (Rio Zapata).

*Leptoptila rufacilla* (not of Richard and Bernard) BONAPARTE, Proc. Zool. Soc. Lond., 1837, 113 (Mexico; descr.).—SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz; crit.).—SALVIN and SCLATER, Ibis, 1860, 402 (tierra caliente of Guatemala).

*Leptoptila plumbeiceps* SCLATER and SALVIN, Proc. Zool. Soc. Lond., June 1, 1868, 59 ([Choctum] Vera Paz, Guatemala; coll. Salvin and Godman).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 550 (Tampico, Tamaulipas; Atoyac, and Vega del Casadero, Vera Cruz; Teapa, Tabasco; Valley of Mexico; Cayo and Orange Walk, Brit. Honduras; Choctum, Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 261, pl. 67, fig. 1 (San Pedro, Honduras; etc.).

[*Leptoptila plumbeiceps* SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 60.—LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, 1871, 16 (crit.).

[*Leptoptila plumbeiceps* GRAY, Hand-list, ii, 1870, 243, no. 9386.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 133.—GIEBEL, Thes. Orn., ii, 1875, 468.—SHARPE, Hand-list, i, 1899, 86.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 144 (Choctum, Guatemala).

*Leptoptila plumbeiceps* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 160 (Mexico).

*Leptoptila plumbeiceps* BOUCARD, Liste Ois. récol. Guat., 1878, 15 (Vera Paz).—BANGS, Bull. Mus. Comp. Zool., xxxix, 1903, 142 (Ceiba, Honduras); Proc. Biol. Soc. Wash., xxii, 1909, 29 (Bolson, n. w. Costa Rica).—DEARBORN, Pub. 125, Field Mus. N. H., 1907, 80 (Los Amates, Guatemala).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 402 (Bolson, Costa Rica).

*Peristera plumbeiceps* GIEBEL, Thes. Orn., ii, 1875, 468.

*Leptoptila bonapartii* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, Feb., 1871, 15 (Mexico; coll. U. S. Nat. Mus.).—SALVIN, Ibis, 1874, 312 (crit.=*L. plumbeiceps* Sclater and Salvin).

[*Leptoptila bonapartei* GIEBEL, Thes. Orn., ii, 1875, 468.

[*Peristera bonapartei* GIEBEL, Thes. Orn., iii, 1877, 66.

## LEPTOTILA BATTYI Rothschild.

## BATTY'S DOVE.

*Adults (sexes alike).*—Pileum and nape plain slate-gray, fading into pale gray (gull gray) on anterior portion of forehead, and passing on hindneck into more brownish gray; rest of upper parts plain deep cinnamon-brown or brussels brown to auburn, the alulae, primary coverts, and primaries dusky grayish brown, the last narrowly edged distally with paler; middle rectrices concolor with back, etc., the others brown basally, brownish black subterminally or terminally, the two or three outermost tipped with brownish white, both the terminal white and subterminal black increasing in width toward the outermost rectrix; malar, suborbital, and auricular regions, and sides of throat pale brownish drab or vinaceous-drab to dull vinaceous-gray, passing into slate-gray on sides of neck, this passing into pale brownish drab on median portion of foreneck, the chest more pinkish (pinkish ecru-drab), becoming paler and more pinkish or buffy pinkish on breast; abdomen and anal region buffy white; flanks mixed pale buffy brown and pale pinkish buff; axillars and under wing-coverts russet or light chestnut; bill black; iris light yellow or greenish yellow; legs and feet pale brownish (red in life?).

*Adult male.*—Length (skin), 253; wing, 135; tail, 83.5; exposed culmen, 18; tarsus, 33; middle toe, 26.<sup>a</sup>

*Adult female.*—Length (skin), 240; wing, 132; tail 85; exposed culmen, 15; tarsus, 30.5; middle toe, 24.<sup>a</sup>

Coiba Island, western Panamá (Pacific side).

*Leptotila battyi* ROTHSCHILD, Bull. Brit. Orn. Club, xii, no. lxxxiv, Dec. 30, 1901, 33 (Coiba Island, Panama; coll. Tring Mus.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 264 (Coiba Island).

## Genus GEOTRYGON Gosse.

*Geotrygon* GOSSE, Birds Jamaica, 1847, 316, footnote. (Type, by monotypy, *G. sylvatica* Gosse=*Columbigallina versicolor* Lafresnaye.)

Medium-sized terrestrial Pigeons (length about 265–310 mm.) with acrotarsium scutellate; bill stout, its length (from frontal feathering) equal to length of first two phalanges of middle toe; and with feathers of pileum elongated, those of forehead slightly stiffened, hairlike, those of frontal antia forming a double point (on each side of mesorhinium).

Bill stout, the exposed culmen about as long as first two phalanges of middle toe, or lateral toe (without claw), both culmen and gonyes strongly arched. Wing very concave beneath, much rounded, the longest primaries exceeding distal secondaries by a little more than length of tarsus; third and fourth primaries (from outside) longest,

<sup>a</sup> One specimen.

the second and fifth only slightly shorter, the first and sixth about equal (or the first slightly shorter), the first (outermost) strongly bowed or arched. Tail slightly less than three-fifths as long as wing, truncated at tip, the rectrices broad and rather rigid. Tarsus longer than the middle toe (without claw) by between one-fourth and one-third its length, the acrotarsium with distinct, broad, obliquely transverse scutella, the planta tarsi smooth, the tibio-tarsal joint and extreme lower end of tibia (except in front) naked; lateral toes about equal in length (but the inner one somewhat stouter than the outer); hallux incumbent, slightly longer (without claw) than basal phalanx of inner toe.

*Plumage and coloration.*—Feathers of pileum elongated (especially on nape), but broad and blended, those of the forehead hairlike, somewhat stiffened; orbital region bare; head, neck, and under parts grayish, glossed with metallic gold and purple, posterior under parts and primaries chestnut, back, scapulars and smaller wing-coverts dark maroon-purple glossed with violet, the posterior upper parts dusky glossed with bluish green or bronze; bill black.

*Range.*—Island of Jamaica, Greater Antilles. (Monotypic.)

#### GEOTRYGON VERSICOLOR (Lafresnaye).

##### CRESTED QUAIL-DOVE.

*Adult male.*—Stiffened, hairlike feathers of forehead dull black or grayish black; rest of pileum, together with nape, drab, becoming lighter and grayer (pale neutral gray) on lateral and anterior portions; hindneck and sides of neck bright metallic bronze or bronze-green (sometimes tinged with coppery bronze), the feathers grayish beneath surface; upper back and anterior scapulars semimetallic dark purple with violet reflections, changing to chestnut in certain lights, the lesser and middle wing-coverts similar but more or less tinged with chestnut, especially toward edge of wing; greater coverts dull metallic bronze, the secondaries darker and more decidedly greenish; outermost smaller coverts, outer webs of alulæ, distal half (approximately) of outer webs of primary coverts and greater part of primaries chestnut or chestnut-rufous, the primaries with terminal portion (extensively on inner webs) dusky, the extreme basal portion of outer webs also sometimes dusky; rump, upper tail-coverts, and tail semimetallic dull blackish green or olivaceous black, glossed with bronze-green; suborbital, malar, and auricular regions light cinnamon or dull cinnamon-buff, the anterior portion of malar region and upper portion of auricular region more grayish (sometimes decidedly gray); chin and throat dull pale cinnamon suffused or intermixed with light gray; sides of throat, foreneck, chest, breast, upper abdomen, and sides light neutral gray, the foreneck and chest strongly glossed with

greenish bronze to purplish bronze; flanks and under tail-coverts chestnut, the anal region and lower abdomen similar but paler; axillars and under wing-coverts rufous-chestnut or deep cinnamon-rufous; bill blackish; iris blood-red;<sup>a</sup> bare orbital space gray, the edge of eyelids scarlet;<sup>a</sup> legs and feet pale flesh color, the front of tarsus and top of toes pink;<sup>a</sup> length (skins), 268–311 (289); wing, 159–167.5 (162.3); tail, 85–103 (92.7); exposed culmen, 20–21.5 (20.9); tarsus, 34–37.5 (35.5); middle toe, 25–29.5 (26.6).<sup>b</sup>

*Adult female*.—Similar to the adult male and not always distinguishable, but usually (?) with posterior under parts paler (dull buffy cinnamon rather than chestnut), the under tail-coverts sometimes passing into pale pinkish buff on margins, smaller wing-coverts with more or less of deep grayish brown or olive intermixed with the purple and chestnut, the larger wing-coverts and secondaries deep grayish brown or olive, slightly glossed; length (skins), 266–298 (282); wing, 147–167 (156.2); tail, 82–98 (90.2); exposed culmen, 19.5–22.5 (20.5); tarsus, 34–36 (34.9); middle toe, 25.5–27.5 (26.6).<sup>c</sup>

Jamaica (Spanishtown; Moneague; Cuna Cuna; near Bath; Portland; Priestmans River; St. Anns).

*Columba cristata* (not of Gmelin, 1789)<sup>d</sup> TEMMINCK, Les Pigeons, i, fam. seconde, 1808–1811, 20, excl. syn., pl. 9 (“iles des Amis, dans la mer del Sud”).—TEMMINCK, Hist. Nat. Pige. et Gallin., i, 1813, 108.—STEPHENS, Shaw's Gen. Zool., xi, 1819, 40.

*Columba cristata* TEMMINCK, Hist. Nat. Pige. et Gallin., i, 1813, 449.

*Columba cristata* WAGLER, Syst. Av., 1827, Columba, sp. 14.

*Peristera cristata* GRAY, Gen. Birds, ii, 1845, 476, Appendix, p. 24.

*Peristera cristata* GRAY, List Birds Brit. Mus., Columbae, 1856, 56.

*Geotrygon cristata* REICHENBACH, Syn. Av., Columbariae, 1851, pl. 259, fig. 2599; Av. Syst. Nat., 1852, p. xxv; Vollst. Naturg., Columbariae, i, 1861, 33, pl. 227, figs. 2482, 2483, pl. 259, fig. 2599.

*Geotrygon cristata* MARCH, Proc. Ac. Nat. Sci., Phila., 1863, 300.—SALVIN, Ibis, 1878, 448; Cat. Strickland Coll., 1882, 551.—CORY, Auk, iv, 1887, 116 (synonymy; descr.): Birds West Ind., 1889, 218; Cat. West Ind. Birds, 1892, 10, 97, 129.—SCOTT, Auk, ix, 1892, 125 (habits).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 573 (St. Anns and Spanishtown, Jamaica).—SCLATER, Revised List Birds Jam., 1910, 19.

[*Geotrygon cristata* BONAPARTE, Compt. Rend., xi, 1855, 220; xliii, 1856, 943; Coup d'Œil Ordre Pige., 1855, 34, 58; Consp. Av., ii, 1857, 70.—GRAY, Hand-list, ii, 1870, 243, no. 9391.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—CORY, List Birds West Ind., rev. ed., 1886, 24.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.

*Starnoenas cristata* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 164.

*Columba pacifica* (not of Gmelin, 1789)<sup>e</sup> VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 347 (Iles des Amis).—LATHAM, Gen. Hist. Birds, viii, 1823, 44, part.—LESSON, Compl. Buffon, Ois., viii, 1837, 82; 2d ed., 1838, 291, part.

*Columbigallina versicolor* LAFRESNAYE, Rev. Zool., 1846, 321 (Jamaica; coll. Paris Mus.).

<sup>a</sup> Gosse, Birds of Jamaica, p. 316, footnote.

<sup>b</sup> Ten specimens.

<sup>c</sup> Six specimens.

<sup>d</sup> = *Rollulus rouloul* (Percididae).

<sup>e</sup> = *Globicera pacifica* (Gmelin) Bonaparte.



- Geophaps versicolor* DES MURS, Icon. Orn., livr. 8, March, 1847, pl. 47.—  
REICHENBACH, Syn. Av. Novit., Columbariæ, 1851, pl. 227, figs. 2482, 2483.  
[*Peristera*] *versicolor* GRAY, Gen. Birds, Index, 1849, 115.  
[*Geotrygon*] *versicolor* SHARPE, Hand-list, i, 1899, 88.  
*Geotrygon sylvatica* GOSSE, Birds Jamaica, 1847, 316 (Jamaica; habits); Illustr.  
Birds Jamaica, 1849, pl. 84; Naturalist's Soj. in Jamaica, 1851, 173.—  
ALBRECHT, Journ. für Orn., 1862, 204.—SCLATER, Proc. Zool. Soc. Lond.,  
1865, 239; List Vertebr. Anim., 5th ed., 1883, 458.—HILL, Proc. Ac. Nat. Sci.  
Phila., 1867, 130.  
[*Peristera*] *sylvatica* GRAY, Gen. Birds, Index, 1849, 111.

Genus OREOPELEIA Reichenbach.

- Oreopelia* REICHENBACH, Av. Syst. Nat., 1852, p. xxv. (Type, *Columba martinica*  
Linnæus.)  
*Oreopelia* (emendation) BONAPARTE, Ann. Sci. Nat., 1854, 140.  
*Oreopelia* (emendation) GRAY, List Spec. Birds Brit. Mus., pt. iv, Columbæ, 1856,  
51.—BURMEISTER, Syst. Ueb. Th. Bras., iii, pt. 2, 1856, 306.

Medium-sized to rather small terrestrial Pigeons (length about 190–360 mm.), resembling *Geotrygon*, but with much smaller and weaker bill, no distinct (if any) tomial notch, distinctly rounded tail, and feathers of occiput and nape not elongated, those of forehead not hairlike nor stiffened.

Bill usually small and weak, the exposed culmen but little longer than first phalanx of middle toe (except in *O. mystacea*, in which it is longer than first and second phalanges combined), the culmen and gonys slightly to moderately convex or arched; tomial notch indistinct or obsolete. Frontal antia extremely variable; in *O. caniceps*, *O. montana*, *O. martinica*, and all the continental species except *O. veraguensis* and *O. violacea*, forming a single acute angle on middle line of the mesorhinium, the apex of which is much anterior to the malar antia (in *O. montana* and *O. martinica* extending as far as or slightly beyond the mental antia); in *O. chrysis*, *O. mystacea*, and *O. violacea* forming a short obtuse point on each side of the mesorhinium and but very little in advance of the malar antia, *O. veraguensis* being similar but with the frontal antia broader, more rounded, and with the median indentation less distinct or hardly obvious. Wing moderately to rather strongly concave beneath, much rounded, the longest primaries exceeding distal secondaries by a little more than one-third to less than one-fifth the length of wing; third to fifth, or second to fifth, primaries (from outside) longest, the first (outermost) shorter than fifth, sometimes shorter than sixth or even shorter than seventh; outermost primary moderately broad, more or less strongly bowed, not attenuated terminally, but with inner web more or less distinctly incised near middle portion (except in *O. albifacies* and other large continental species, in which the cutting away of the margin is indistinct or obsolete). Tail about three-fifths as long as wing, more or less distinctly rounded, the rectrices twelve in number.

Tarsus much longer than middle toe (without claw), the latter slightly more than two-thirds to more than four-fifths (in *O. chrysia*) as long as tarsus; acrotarsium with a single row of broad, transverse scutella (those on upper portion sometimes fused), the planta tarsi usually smooth but sometimes (in *O. caniceps*, *O. chrysia*, and apparently *O. mystacea* and *O. bourcieri*) with more or less distinct small hexagonal scales; tibio-tarsal joint, including extreme lower portion of tibia (all round), bare; lateral toes about equal in length or inner one slightly longer than the outer, the claw of inner toe reaching about to base of middle claw or (in *O. montana*, *O. martinica*, *O. violacea*, and *O. veraguensis*) falling short of the latter; hallux decidedly longer than basal phalanx of middle toe.

*Plumage and coloration.*—Plumage essentially normal, but some species (*O. albifacies*, *O. chiriquensis*, and *O. bourcieri*) with feathers of neck distinctly outlined or scale-like, others (*O. caniceps* and *O. veraguensis*) with plumage of forehead rather full and dense; orbital region (more or less extensively) naked. Coloration exceedingly variable, but always plain, except head, which usually shows a dark (black or chestnut) submalar streak; some species with upper parts glossed with metallic green, purple, or violet; sexes alike (or essentially so) in most species, but very dissimilar in *O. montana* and *O. martinica*.

*Range.*—West Indies (including Bahamas), Florida Keys, and southern Mexico southward to southern Brazil, Paraguay, Bolivia, and Peru. (About 20 species.)

It is almost certain that this group, as above characterized, requires subdivision; but I have been unable to divide it satisfactorily, notwithstanding the marked differences in details of structure among the various species.

KEY TO THE SPECIES AND SUBSPECIES OF *OREOPELEIA*.<sup>a</sup>

- a. Inner webs of remiges with at least an edging of vinaceous-cinnamon or dull cinnamon-rufous on proximal portion.
  - b. Sides of head, throat, foreneck, and chest plain slate-gray; rump glossed with metallic blue. (Cuba.).....*Oreopeleia caniceps* (p. 470).
  - bb. Sides of head, throat, etc., not slate-gray; rump not glossed with metallic blue.
    - c. Tail with more or less of rufous-chestnut, or else no white stripe on side of head.
      - d. A white stripe on side of head, involving anterior portion of malar region.
        - e. Rump chestnut, glossed with metallic purple; lesser wing-coverts chestnut. (Bahamas, Cuba, and Haiti; Jamaica?; Porto Rico?; occasional on Florida Keys.).....*Oreopeleia chrysia* (p. 471).
        - ee. Rump olive or olive-brown, not glossed; lesser wing-coverts grayish-brown to olive-brown. (*Oreopeleia mystacea*.)
        - f. Under parts paler, with much white or pale buff posteriorly. (Culebra and St. Johns, Greater Antilles; Barbuda, Antigua, Montserrat, Guadeloupe, Grand Terre, Dominica, Martinique, and Santa Lucia, Lesser Antilles.).....*Oreopeleia mystacea mystacea* (p. 474).

<sup>a</sup>Based on adults only.

*ff.* Under parts darker (more tawny), with little if any white or pale buff posteriorly. (Saba, Lesser Antilles.)

***Oreopeleia mystacea sabæ*** (p. 476).

*dd.* No white stripe on side of head.

*e.* Posterior under parts not pure white; no white on axillars or under wing-coverts.

*f.* Upper parts chestnut; foreneck and chest russet-vinaceous, brownish vinaceous or vinaceous-fawn color. (*Adult males.*)

*g.* Larger (wing 141.5–159, averaging 156.1; coloration of under parts averaging much darker, more purplish anteriorly, more tawny or ochraceous posteriorly). (Guadeloupe, Dominica, Martinique, Santa Lucia, and St. Vincent, Lesser Antilles.)

***Oreopeleia martinica***, adult male (p. 476).

*gg.* Smaller (wing 131–149.5, averaging 139.7; coloration of under parts paler, less purplish anteriorly, more buffy posteriorly. (Cuba, Isle of Pines, Haiti, Jamaica, Porto Rico, Grenada, and tropical continental America, from southern Mexico to Paraguay, Bolivia, and Peru.) . . . . . ***Oreopeleia montana***, adult male (p. 478).

*ff.* Upper parts olive, olive-brown, or fuscous; foreneck and chest olive-brown to buffy brown. (*Adult females and young.*)

*g.* Larger (wing 143–159, averaging 148.3); coloration averaging darker, especially the under parts.

***Oreopeleia martinica***, adult female (p. 477).

*gg.* Smaller (wing 127–145, averaging 136.6); coloration averaging lighter, especially the under parts. . . . ***Oreopeleia montana***, adult female (p. 479).

*ee.* Posterior under parts pure white; axillars and proximal under wing-coverts white. (*Oreopeleia violacea.*)

*f.* Forehead and cheeks less vinaceous; purple or violet gloss on back less distinct. (Southern Brazil.)

***Oreopeleia violacea violacea*** (extralimital).<sup>a</sup>

*ff.* Forehead and cheeks more vinaceous; purple or violet gloss on back more pronounced. (Colombia to Nicaragua.)

***Oreopeleia violacea albiventer*** (p. 484).

*cc.* Tail without trace of rufous; a white stripe on side of head, starting at rictus (but not involving anterior portion of malar region). (Eastern Costa Rica to middle Panama.) . . . . . ***Oreopeleia veraguensis*** (p. 486).

*aa.* Inner webs of remiges without any rufous.

*b.* A black subauricular streak.

*c.* Chest bluish gray.

*d.* Pileum and nape grayish, the forehead white or buff.

*e.* Forehead buff; wing-coverts, rump, and upper tail-coverts chestnut. (Costa Rica and western Panama.) . . . ***Oreopeleia costaricensis*** (p. 487).

<sup>a</sup> *Columba violacea* Temminck, Les Pigeons, i, fam. trois., 1808–11, 67, pl. 29 (“Nouveau monde”; coll. Paris Mus.).—*Peristera violacea* Gray, List Gallinæ Brit. Mus., 1844, 55.—*P[eristera] violacea* Reichenbach, Syn. Av. Columbariae, Novit., 1851, pl. 257 b, fig. 3391 (*lege* 3386).—*[Geotrygon] violacea* Bonaparte, Consp. Av., ii, 1857, 72 (Brazil).—*O[reopeleia] ? violacea* Reichenbach, Vollst. Naturg., Columbariae, i, 1861, 33, fl. 257, fig. 3386.—*Oreopelia violacea* Pelzel, Orn. Bras., 1871, 279, 451 (Ypanema, Brazil).—*Geotrygon violacea* Salvadori, Cat. Birds Brit. Mus., xxi, 1893, 565, part (Bahia, Brazil).—*Staroenas violacea* Schlegel, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 165 (Surinam; Temminck’s type; Brazil).—*[Oropelia] violacea* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 289.

ee. Forehead white; wing-coverts, rump, and upper tail-coverts grayish brown or olive-brown. (Costa Rica and western Panama.)

*Oreopeleia lawrencei* (p. 489).

dd. Pileum and nape russet. (Middle Panama.) . . . *Oreopeleia goldmani* (p. 490).

cc. Chest cinnamon or rufous-cinnamon. (Costa Rica and western Panama.)

*Oreopeleia chiriquensis* (p. 491).

bb. No black subauricular streak; feathers of neck strongly individualized (sharply outlined and imbricated). (*Oreopeleia albifacies*.)

c. Chest more grayish (deep avellaneous or wood brown). (Southeastern Mexico to Nicaragua.) . . . . . *Oreopeleia albifacies albifacies* (p. 493).

cc. Chest more tawny or cinnamomeous. (Southwestern Mexico.)

*Oreopeleia albifacies rubida* (p. 495).

### OREOPELEIA CANICEPS (Gundlach).

#### GRAY-HEADED QUAIL-DOVE.

*Adults (sexes alike).*—Forehead grayish white, gradually deepening into dark gull gray on posterior crown, occiput, and nape, which are sometimes (in fresh plumage) very faintly glossed with metallic purple; hindneck greenish gray or grayish green, with pronounced bronze-green gloss, changing to purplish; back and scapulars metallic dark violet-purple (nearly mulberry purple), passing into dark violet-blue or bluish violet (more rarely slightly greenish blue) on rump, the upper tail-coverts deep greenish gray, more faintly glossed with greenish or bluish; anterior lesser wing-coverts similar in color to back and scapulars, the rest, together with middle coverts, mostly dark grayish brown or olive, glossed with bluish green; alulae, primary coverts, greater coverts, and secondaries dusky grayish brown or olive, without distinct, if any, metallic gloss; tail darker and less brownish (nearly deep to dark neutral gray), very faintly or not at all glossed; sides of head nearly similar in color to occiput, etc. (but without purplish gloss), fading into paler gray on chin and upper throat, deepening into darker and slightly more brownish gray (between neutral gray and dark neutral gray to nearly mouse gray) on foreneck and chest, where more or less brightly glossed with light bronze-greenish or purplish; breast, sides, and upper abdomen lighter and more bluish gray (dark gull gray laterally, paler, postero-medially) the center of lower abdomen more or less buffy; flanks, anal region, and under tail-coverts deep cinnamon, the last rather deeper (mikado brown), tipped or terminally margined with paler (light cinnamon-buffy); axillars dark slate-gray or slate color basally and terminally, pale cinnamon or cinnamon-buff subterminally; under wing-coverts pale cinnamon or deep cinnamon, the under primary coverts tipped with gray; bill carmine basally, horn color terminally; iris vermilion;<sup>a</sup> bare orbital space gray, the edge of eyelids more reddish;<sup>a</sup> legs and feet dull reddish white.<sup>a</sup>

<sup>a</sup> According to Gundlach.

*Adult male*.—Length (skins), 261–296 (276); wing, 144.5–156 (151.6); tail, 83.5–95 (90); exposed culmen, 11.5–14.5 (12.6); tarsus, 32–37 (34); middle toe, 22–25.5 (23.8).<sup>a</sup>

*Adult female*.—Length (skin), 272; wing, 155; tail, 93.5; exposed culmen, 14.5; tarsus, 35.5; middle toe, 22.<sup>b</sup>

Cuba (Remédios; Cayo Yaguajusta; San Cristóbal).

*Columba caniceps* GUNDLACH, Journ. Bost. Soc. N. H., vi, 1852, 315 (Cuba); Journ. für Orn., 1870, 282.

*Geotrygon caniceps* CABANIS, Journ. für Orn., 1856, 110 (Cuba; habits).—GUNDLACH, Journ. für Orn., 1861, 416 (crit.); 1862, 189 (crit.); 1874, 295 (habits); Contr. Orn. Cubana, 1876, 135 (habits; descr. eggs); Orn. Cubana, ed. 1895, 163 (habits; descr. eggs).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—SALVIN, Proc. Zool. Soc. Lond., 1867, 130.—CORY, Auk, iv, 1887, 118 (synonymy; descr.); Birds West Ind., 1889, 219; Cat. West Ind. Birds, 1892, 10, 97, 128.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 574 (San Cristobal, Cuba).

[*Geotrygon*] *caniceps* GUNDLACH, Journ. für Orn., 1861, 336; Rept. Fis.-Nat. Cuba, i, 1866, 300.—GRAY, Hand-list, ii, 1870, 243, no. 9399.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—CORY, List Birds West Ind., rev. ed., 1886, 24.—SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.

[*Oreopeleia*] *caniceps* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 32; ii, 1862, 165, Novit., pl. 1, fig. 7.

#### OREOPELEIA CHRYSIA (Bonaparte).

##### KEY WEST QUAIL-DOVE.

*Adult male*.—Pileum and nape cameo brown or walnut brown, but this overlaid, except on forehead, by metallic green and purple; upper hindneck metallic coppery bronze, the lower hindneck metallic green passing into blue or greenish blue on extreme lower portion; back, scapulars, and lesser wing-coverts deep reddish brown (prussian red) highly glossed with metallic purple, changing to blue or greenish blue on extreme upper back; rest of upper parts deep reddish brown (nearly prussian red), much duller (nearly buffy brown) on greater wing-coverts, proximal secondaries, and tips of primaries; a broad white stripe originating at malar antia and extending backward, beneath eye, to end of auricular region; beneath this a narrow stripe of chestnut or walnut brown; chin and upper throat white, passing into pale vinaceous-drab, tinged with pale vinaceous, on lower throat, foreneck, sides of neck, chest, and breast, fading into buffy white on abdomen, the sides and flanks tinged with brown; under tail-coverts dull buffy whitish, passing into light buffy brownish on basal portion (mostly concealed); under surface of wing cinnamon-rufous; tip of bill horn color, the basal portion carmine;<sup>c</sup> iris carmine<sup>c</sup> or orange-yellow;<sup>d</sup> eyelids carmine;<sup>c</sup> legs and feet flesh

<sup>a</sup> Six specimens.

<sup>c</sup> Audubon.

<sup>b</sup> One specimen.

<sup>d</sup> Menegaux, Rev. Franç. d'Orn., no. 2, 1909, 30.

color, the scutella carmine or lake red; length (skins), 273–311 (284); wing, 150–159 (153.7); tail, 91–102 (95.4); exposed culmen, 14.5–19.5 (16.7); tarsus, 27.5–29.5 (28.8); middle toe, 23–25.5 (23.8).<sup>a</sup>

*Adult female*.—Similar to the adult male but reddish brown sub-malar stripe somewhat duller or less intense, middle and greater wing-coverts, posterior scapulars, and edges of rectrices grayish brown, and color of under parts somewhat darker, especially on chest; length (skins), 270–299 (280); wing, 150.5–159.5 (153.8); tail, 89.5–103 (95.2); exposed culmen, 15–17.5 (16.3); tarsus, 27–30.5 (28.5); middle toe, 21–23.5 (22.7).<sup>b</sup>

*Young*.—Very different in coloration from adults. Above rufous-cinnamon or pecan brown, the scapulars, interscapulars, and wing-coverts narrowly tipped or terminally margined with cinnamon-buff, the pileum and hindneck duller (more brownish) with indistinct, very narrow lighter tips to the feathers, the forehead light grayish brown; a dull white malar-subocular stripe, as in adults; foreneck and chest grayish brown or drab, the feathers margined with dull cinnamon; rest of under parts mostly pale grayish buffy.

Bahamas (Great Bahama, Eleuthera, and New Providence islands), Cuba (Guamá; Guantánamo; Holguín; Manatél; San Diego de los Baños), Isle of Pines (Nueva Gerona; Paladito), and Haiti (Puerta Plata, Aguacate, Cuya, Cayo Levantado, and Samaná Bay, Santo Domingo); Jamaica?; Porto Rico?; occasional on Florida Keys (Key West; Sept. 15, 1889, Oct. 20, 1897, and Nov. 12, 1897).

*Columba montana* (not of Linnæus) TEMMINCK, Cat. Syst., 1807, 144; Fig. et Gallin., i, 1813, 395, 492; Les Pigeons, i, fam. trois., 1808–11, 10, pl. 4.—AUDUBON, Orn. Biog., ii, 1834, 382, pl. 167; Synopsis, 1839, 192; Birds Am., oct. ed., v, 1842, 14, pl. 282.—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 2d ed., 1840, 756.

*Zenaida montana* BONAPARTE, Geog. and Comp. List, 1838, 41.

*Columba martinica* (not of Linnæus) TEMMINCK, Les Pigeons, i, 1808–11, 12, pls. 5, 6 ("Porto Rico"); Hist. Nat. Fig. et Gallin., i, 1813, 400 ("Porto Rico").—BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 96 (Santo Domingo).

<sup>a</sup> Twelve specimens.

<sup>b</sup> Eight specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Bahamas.....	151	94.8	16.8	29	23.2
Five adult males from Cuba.....	154.4	94.6	16.4	29	23.9
Two adult males from Isle of Pines.....	152	95	17.2	28.2	24.7
Two adult males from Haiti.....	157.5	98.5	16.5	28.5	23.7
FEMALES.					
One adult female from Bahamas.....	154	92	15	30.5	23.5
Five adult females from Cuba.....	154	93.4	16.4	28.2	22.7
One adult female from Isle of Pines.....	151.5	103	17	29	23.5
One adult female from Haiti.....	155	100	16.5	27.5	21

- Columba martinica* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 493 ("America australiore").
- [*Geotrygon*] *martinica* (not *Columba martinica* Linnæus) BONAPARTE, Consp. Av., ii, 1857, 72.—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—CORY, List Birds West Ind., rev. ed., 1886, 24.
- Geotrygon martinica* CABANIS, Journ. für Orn., 1856, 108 (Cuba; habits).—GUNDLACH, Journ. für Orn., 1861, 416 (Cuba; crit.); 1874, 293 (Cuba; habits), 313 (Porto Rico); 1878, 161, 186 (Porto Rico); Contr. Orn. Cubana, 1876, 133 (Cuba; habits; descr. eggs); Anal. Soc. Esp. Hist. Nat., vii, 1878, 347; Orn. Cubana, ed. 1895, 161 (Cuba; habits; descr. eggs).—COUES, Check List, 1873, no. 376; 2d ed., 1882, no. 550.—CORY, Birds Bahama Is., 1880, 141 (New Providence I.); Birds Haiti and San Dom., 1885, 133 (Puerta Plata, Santo Domingo); Auk, iv, 1887, 119 (synonymy; descr.; range); viii, 1891, 350 (Great Bahama and Eleuthera islands, Bahamas); Birds West Ind., 1889, 220; Cat. West Ind. Birds, 1892, 10, 97 (Great Bahama, Eleuthera, and New Providence islands, Bahamas; Cuba; Isle of Pines; Jamaica; Haiti; Porto Rico).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. N. Am. Birds, 1881, no. 467.—MAYNARD, Birds Eastern N. Am., 1881, 341.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 322.—SCOTT, Auk, vii, 1890, 90 (Key West, Florida, Sept. 15, 1889).—BENDIRE, Life Hist. N. Am. Birds, (i), 1892, 153.—CHERRIE, Contr. Orn. San Dom., 1896, 24 (Aguacate, Santo Domingo).—BONHOTE, Ibis, 1899, 517 (New Providence).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Cayo Levantado, Samana Bay, Santo Domingo).
- G[Geotrygon] martinica* COUES, Key N. Am. Birds, 2d ed., 1884, 571.—RIDGWAY, Man. N. Am. Birds, 1887, 216.
- Oreopeleia martinica* BONAPARTE, Compt. Rend., xliii, 1856, 944.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858 607 (Key West, Florida); Cat. N. Am. Birds, 1859, no. 454.—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 299.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 393, excl. syn. part, pl. 58, fig. 1.
- O[oreopeleia] martinica* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 31 (not fig. 1432, err. 1531).
- [*Oreopelia*] *martinica* GRAY, Hand-list, ii, 1870, 242, no. 9376.
- [*Oropelia*] *martinica* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 285 (Cuba).
- Goura martinica* SCHLEGEL, De Dierent., 1864, 208.
- Geotrygon chrysia* BONAPARTE, Compt. Rend., xl, 1855, 100 (Florida; crit.); Consp. Gen. Av., ii, 1857, 72, in text under *G. martinica*; Compt. Rend., xl, 1855, 100; Coup d'œil Ordre Fig., 1855, 35.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 571 (Cuba; Santo Domingo).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 126; Check List, 3d ed., 1910, 151.—BREWSTER, Auk, xv, 1898, 185 (Key West, Florida, Oct. 20 and Nov. 12, 1897).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 198 (Isle of Pines).—MENEGAUX, Rev. Franç. d'Orn., i, no. 2, 1909, 30 (Guantanamo and Manatel, Cuba).
- G[Geotrygon] chrysia* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 216.
- [*Geotrygon*] *chrysia* SHARPE, Hand-list, i, 1899, 87.
- [*Geotrygon*] *chrysea* FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.
- Columba chrysia* BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 307.
- Peristera mystacea* (not *Columba mystacea* Temminck and Knip) GRAY, List Birds Brit. Mus., Columbae, 1856, 55, part (specs. a, b., Santo Domingo).
- Columba mystacea* (not of Temminck) LEMBEYE, Aves de la Isla de Cuba, 1850, 76.—GUNDLACH, Journ. für Orn., 1871, 282 (identifies *C. mystacea* of Lembede with "*C. martinica*" = *Oreopeleia chrysia*).

## OREOPELEIA MYSTACEA MYSTACEA (Temminck).

## BRIDLED QUAIL-DOVE.

*Adult male*.—Pileum and nape, together with lores and upper half of auricular region, plain grayish brown (deep hair brown to chaectura drab), darker posteriorly, where usually more or less glossed with metallic green, often paler or more brownish on forehead; hindneck (superficially) bright metallic green or bluish green, the sides of neck similar but usually more bronzy green; back, scapulars, wing-coverts secondaries, rump, upper tail-coverts, and middle rectrices olive-brown, the back glossed with dark bronzy purple, especially on upper part; alulæ, primary coverts and primaries chestnut, tipped with olive-brown, the distal secondaries chestnut basally; rectrices (except middle pair) chestnut passing into deep olive-brown terminally; a broad stripe of white extending from (and including) malar antia across side of head, beneath lores and bare orbital space, to end of auricular region; broad space beneath this, pointed anteriorly but gradually widening posteriorly, similar in color to pileum but more or less paler; chin and upper throat dull white; foreneck brown (dull snuff brown to fawn color) sometimes faintly glossed with metallic green, passing into vinaceous-fawn on upper chest, this passing, through light vinaceous-fawn on breast, into white or buffy white on abdomen and anal region; flanks dull ochraceous-buff to cinnamon-buff, intermixed with cinnamon, sayal brown or mikado brown on outer (lateral) portion; under tail-coverts deep cinnamon or sayal brown to mikado brown passing into pale cinnamon-buff terminally; axillars and under wing-coverts dull chestnut or rufous-chestnut, the under surface of remiges similar but paler, passing into grayish brown distally or terminally; bill light colored (reddish or pinkish in life?); iris yellowish white <sup>a</sup> or brown; <sup>b</sup> legs and feet pale brownish in dried skins (flesh color or reddish in life?); length (skins), 244–297 (274); wing, 156.5–170 (164.9); tail, 81–94.5 (87.2); exposed culmen, 18–20.5 (19.2); tarsus, 31–35.5 (33.5); middle toe, 24.5–27.5 (26.3). <sup>c</sup>

<sup>a</sup> W. B. Richardson (specimen from Martinique).

<sup>c</sup> Nineteen specimens.

<sup>b</sup> W. W. Brown, jr. (specimen from Santa Lucia).

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Culebra.....	168	94.5	19.5	32.5	27
One adult male from St. Croix.....	156.5	87	19.5	33	26
One adult male from Antigua.....	167	90	20	34	26.5
Ten adult males from Guadaloupe.....	165	86.1	19	33.3	26.4
Two adult males from Dominica.....	168.2	89.5	20.5	34.7	26.2
Two adult males from Martinique.....	161.2	83	19.2	33.7	25.7
Two adult males from Santa Lucia.....	166.2	84.5	18.5	33	25.7
FEMALES.					
One adult female from Guadaloupe.....			19	31	25
One adult female from Saba (type of <i>O. m. sabæ</i> ).....	166	89	20.5	32	26



*Adult female*.—Similar to the adult male, and apparently not always distinguishable, but usually (?) with coloration slightly duller; length (skin), 275; wing, (defective); tail, (defective); exposed culmen, 19; tarsus, 31; middle toe, 25.<sup>a</sup>

Lesser Antilles (Barbuda<sup>b</sup>; Antigua; Montserrat<sup>b</sup>; Guadeloupe; Grand Terre<sup>b</sup>; Dominica; Martinique; Santa Lucia) and Culebra and St. Croix of Greater Antilles.

*Columba mystacea* TEMMINCK, Les Pigeons, i, fam. seconde, 1808-11, 124, pl. 56 ("America"; coll. Leyden Mus.); Hist. Nat., Fig. et Gallin., i, 1813, 275.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 355.—SHAW, Gen. Zool., xi, 1819, 56.—LESSON, Compl. Buffon, Ois., viii, 1837, 62; 2d ed., 1838, 286.—GULLIVER, Proc. Zool. Soc. Lond., 1844, 10 (blood-corpuscles); 1875, 489 (blood-corpuscles).—BURMEISTER, Syst. Ueb. Th. Bras., ii, 1856, 307.

*Col[umba] mystacea* HEARNE, Proc. Zool. Soc. Lond., 1834, 110 ("Port au Prince, Haiti").

*C[olumba] mystacea* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 473 ("America australi").

*Col[umba] mystacea* BONAPARTE, Compt. Rend., xl, 1855, 40 (Santa Lucia; crit.).

*P[eristera] mystacea* GRAY, Gen. Birds, ii, 1845, 476.—REICHENBACH, Syn. Av. Novit., Columbariae, 1851, pl. 257b, fig. 3387 (err. lege 3382).

*[Geotrygon] mystacea* BONAPARTE, Compt. Rend., xl, 1855, 100, part (Santa Lucia), 220; xliii, 1856, 943; Consp. Av., ii, 1857, 71 (Santa Lucia; "Bogota").—GRAY, Hand-list, ii, 1870, 243, no. 9394.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—CORY, List Birds West Ind., rev. ed., 1886, 24 (Guadeloupe; Santa Lucia).—SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.

*Geotrygon mystacea* SCLATER, Proc. Zool. Soc. Lond., 1855, 163 ("Santa Fe de Bogota"); 1871, 267 (Santa Lucia); 1879, 765 (Montserrat).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 460 (Guadeloupe), 487 (Guadeloupe).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).—CORY, Ibis, 1886, 475 (Grand Terre); Auk, iv, 1887, 96 (Martinique), 117 (synonymy; descr.; range); viii, 1891, 47 (Antigua), 48 (St. Croix); Birds West Ind., 1889, 218; Cat. West Ind. Birds, 1892, 10, 97 (Barbuda; Antigua; Montserrat; Guadeloupe; Grand Terre; Dominica; Martinique; Santa Lucia).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 572 (Guadeloupe; Montserrat).—VERRILL (G. E.), Trans. Conn. Ac. Arts and Sci., viii, 1892, 325 (Dominica; habits).—CLARK (A. H.), West Ind. Bull., xi, no. 3, 1911, 183 (Santa Lucia).

*O[reopeleia] mystacea* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 32, part, pl. 257b, fig. 3382 (Santa Lucia; "Santa Fe de Bajota").

*Starnoenas mystacea* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 164 ("St. Dominique"; type of *Columba mystacea* Temminck).

*Geotrygon* sp. inc. GRISDALE, Ibis, 1882, 492 (Montserrat; habits).

<sup>a</sup> One specimen.

<sup>b</sup> Specimens from these islands not seen by me.

## OREOPELEIA MYSTACEA SABÆ (Riley).

## SABA QUAIL-DOVE.

Similar to *O. m. mystacea* but under parts much more deeply colored, the foreneck and upper chest rufescent brown (between roods brown and verona brown), the under parts of body almost wholly buffy cinnamon, only the center of the abdomen pale buffy; color of pileum and nape much browner, and suborbital stripe, as well as chin and upper throat, light buff instead of white.

*Adult female*.—Length (skin), 287; wing, 166; tail, 89; exposed culmen, 20.5; tarsus, 32; middle toe, 26.<sup>a</sup>

Island of Saba, Lesser Antilles.

*Geotrygon sabæ* RILEY, Proc. Biol. Soc. Wash., xvi, Feb. 21, 1903, 13 (island of Saba, Lesser Antilles; coll. U. S. Nat. Mus.).

## OREOPELEIA MARTINICA (Linnæus).

## MARTINIQUE QUAIL-DOVE.

Similar to *O. montana*, but much larger and coloration darker, especially on chest.

*Adult male*.—Upper parts deep chestnut or brick red, deepening into rich purplish chestnut on back, scapulars, hindneck, and occiput, where faintly glossed with metallic purple, passing into vinaceous-fawn color on forehead, the posterior portions somewhat lighter chestnut; sides of head with a line or narrow stripe of dull chestnut along lower edge of bare orbital space and an elongated patch of vinaceous-chestnut involving posterior half (approximately) of malar region and lower portion of auricular region, the space between, extending from anterior portion of malar region to upper portion of auricular region, buff-pinkish—these markings not sharply defined, and sometimes rather indistinct; chin and throat deep pinkish buff or light pinkish cinnamon, passing into russet-vinaceous or deep brownish vinaceous (more rarely deep vinaceous-fawn color) on foreneck and chest, the remaining under parts ochraceous-cinnamon to ochraceous-buff, the under tail-coverts cinnamon or sayal brown, margined terminally with paler; axillars and under wing-coverts deep rufous-tawny to hazel; bill yellowish horn color (red or reddish in life); iris yellow,<sup>b</sup> golden,<sup>b</sup> orange,<sup>c</sup> or brown;<sup>d</sup> legs and feet red (in life); length (skins), 222–282 (264); wing, 144.5–157

<sup>a</sup> One specimen (the type).

<sup>b</sup> F. A. Ober.

<sup>c</sup> A. H. Verrill.

<sup>d</sup> W. W. Brown, jr., and H. S. Branch.

(151.6); tail, 76-89 (82.1); exposed culmen, 10.5-16.5 (13.4); tarsus, 30-36.5 (33.5); middle toe, 24-30 (27.5).<sup>a</sup>

*Adult female*.—Forehead (extensively) sayal brown or mikado brown; rest of upper parts olive-brown to nearly clove brown, faintly glossed with greenish bronze, the superciliary and supra-auricular regions tinged with color of forehead; chin and throat pale buff or dull pale ochraceous-buff; foreneck and chest light olive-brown to dull buffy brown, passing into buff, cinnamon-buff, or buffy cinnamon on rest of under parts, usually more or less intermixed with pale grayish brown or olive, especially on under tail-coverts, which sometimes incline toward light rufous-cinnamon; length (skins), 230-277 (251); wing, 143-159 (148.3); tail, 73.5-91 (82); exposed culmen, 12-15 (13.4); tarsus, 29.5-36 (32.9); middle toe, 24.5-30 (26.2).<sup>b</sup>

Central Lesser Antilles (Guadeloupe, Dominica, Martinique, Santa Lucia, and St. Vincent).

[*Columba*] *martinica* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 283 (Martinique; based on *Columba violacea martinicana* Brisson, Orn., i, 129, pl. 12, fig. 1).—GMELIN, Syst. Nat., i, pt. 2, 1789, 781.—LATHAM, Index Orn., ii, 1790, 595.

*Columba martinica* VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 399.

*Goura martinica* STEPHENS, Shaw's Gen. Zool., xi, 1819, 132, part.

(?) *Peristera martinica* SELBY, Jardine's Naturalists' Libr., v, Pigeons, 1835, 209, pl. 25 (West Indies).

(?) *Oreopeleia martinicana* REICHENBACH, Av. Syst. Nat., 1852, p. xxv.

[*Geotrygon*] *martinica* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—SHARPE, Hand-list, i, 1899, 87.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145 (Fonds St. Jacques, Santa Lucia).

<sup>a</sup> Seventeen specimens.

<sup>b</sup> Eleven specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Guadeloupe.....	155	85	13.2	33	27.7
Seven adult males from Dominica.....	151.7	82	12.9	32.9	27
Two adult males from Martinique.....	149.2	78	15	33.5	27.2
Four adult males from Santa Lucia.....	150.6	83.1	13.5	35	27.9
One adult male from St. Vincent.....	150	78	13.5	33	26
FEMALES.					
Two adult females from Guadeloupe.....	153	80.5	14.7	33	26.2
Five adult females from Dominica.....	147.6	81.2	12.9	31.9	26.5
Two adult females from Martinique.....	146.2	82	14.2	33.7	27
Two adult females from Santa Lucia.....	147.5	79	12.5	34.2	26
Two adult females from St. Vincent.....	139	75	11.7	29	24

The type of *Geotrygon martinica digressa* Bangs, from Guadeloupe, is an exceptionally large specimen and unusually pale-breasted, though in the latter respect it is exactly matched by one from Dominica. It is almost certainly an adult male (not a female, as determined by the collector), and two other adult males from Guadeloupe are in every respect similar to specimens from Martinique, Dominica, and other islands.

- Geotrygon martinica* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 570 (Guadeloupe; Dominica; Santa Lucia; Martinique).
- G[eotrygon] martinica martinica* BANGS, Proc. Biol. Soc. Wash., xviii, June 9, 1905, 153, in text.
- Columba cuprea* WAGLER, Syst. Av., 1827, Columba, sp. 76 (Martinique; based on *Columba violacea martinicana* Brisson, Orn., i, 129, pl. 12, fig. 1; Pl. Enl., pl. 162; etc.).
- P[eristera] cuprea* SELBY, Jardine's Naturalists' Libr., v, Pigeons, 1835, pl. xxv.—GRAY, Gen. Birds, ii, 1845, 476.—(?) REICHENBACH, Syn. Av., 1847, fig. 1439.
- Columba montana* (not of Linnæus, 1758) LESSON, Compl. Buffon, Ois., viii, 1837, 6, part; 2d ed., 1838, 270.
- P[eristera] montana* GRAY, Gen. Birds, ii, 1845, 476.
- Geotrygon montana* LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 67 (Dominica; habits; descr. eggs), 196 (St. Vincent; habits); i, 1879, 360 (Martinique; habits), 487 (Guadeloupe; Dominica; Martinique; St. Vincent).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 169 (Santa Lucia).—CORY, Ibis, 1886, 473 (St. Vincent); Auk, iv, 1887, 96 (Martinique); viii, 1891, 48 (Guadeloupe); Birds West Ind., 1889, 219, part; Cat. West Ind. Birds, 1892, 97 (Guadeloupe; Dominica; Martinique; Santa Lucia; St. Vincent).—SCLATER, Proc. Zool. Soc. Lond., 1889, 395 (Santa Lucia).—VERRILL (G. E.), Trans. Conn. Ac. Arts and Sci., viii, 1892, 324 (Dominica; habits; descr. nest and eggs; fresh colors of unfeathered parts).—CLARK (A. H.), Auk, xx, 1905, 262, part (extinct on St. Vincent); Proc. Bost. Soc. N. H., xxxii, 1905, 263, part (St. Vincent); West Ind. Bull., xi, no. 3, 1911, 183 (Santa Lucia).
- Geotrygon martinica digressa* BANGS, Proc. Biol. Soc. Wash., xviii, June 9, 1905, 153 (Guadeloupe Island, Lesser Antilles; coll. E. A. and O. Bangs).

### OREOPELEIA MONTANA (Linnæus).

#### RUDDY QUAIL-DOVE.

Similar to *O. martinica*, but decidedly smaller and lighter in color.

*Adult male*.—General color of upper parts chestnut or rufous-chestnut, fading into cinnamon-rufous on forehead, the wings somewhat lighter and more cinnamonaceous, especially on distal portion of primaries, the hindneck and back (sometimes nape and occiput also) faintly glossed with metallic reddish purple; a broad stripe of pinkish cinnamon (more or less deep), involving anterior portion of malar region and extending beneath bare orbital space, to (sometimes across) auricular region; beneath this (except anteriorly) a broad stripe or elongated patch of chestnut or rufous-chestnut, confluent posteriorly with the similar color of the hindneck; chin and throat light pinkish cinnamon, the former paler, sometimes buffy whitish; fore-neck and chest vinaceous-fawn color to mikado brown (more rarely), fading, through light vinaceous-cinnamon or buff-pink on breast, into warm buff (more or less deep) on more posterior under parts, the sides and flanks tinged more or less with buffy cinnamon or clay color, the under tail-coverts paler buffy cinnamon or dull cinnamon-buff, fading into buff on margins; axillars and whole under side of wing dull light cinnamon-rufous or pecan brown; bill purplish red to blood red, the tip brownish or dusky; bare orbital space, legs, and

feet purplish red to pale lake red; iris ocher yellow, orange, dusky orange, brownish orange, or reddish brown; length (skins), 207-278 (229); wing, 131-149.5 (139.7); tail, 64.5-89 (77); exposed culmen, 10-13.5 (12.3); tarsus, 26-31 (27.9); middle toe, 19-26 (23.8).<sup>a</sup>

*Adult female.*—Very different in coloration from the adult male. Upper parts light olive-brown or deep drab to dark brownish olive or deep sepia brown, becoming much paler and more rufescent (wood brown to dull cinnamon) on forehead and superciliary region, the back, etc., faintly glossed with greenish bronze (at least in fresh plumage); suborbital and auricular regions and anterior portion of malar region similar in color to forehead and superciliary region, darkening below into darker cinnamon-brownish, forming a more or less distinct elongated patch; chin and throat buffy white to deep pinkish buff or pale cinnamon-buff; foreneck and chest dull cinnamon to deep cinnamon, buffy wood brown, dull snuff brown, or bister, fading into buff (more or less deep) on abdomen, the flanks more or less suffused or intermixed with color of chest; under tail-coverts dull buffy, passing into paler buff or buffy white on margins, often with a deeper buff mesial streak; axillars and under wing-coverts mostly light dull buff to cinnamon-buff, the under surface of remiges rufous-cinnamon or light mikado brown, passing into light grayish brown terminally; length (skins), 187-260 (229); wing, 127-145 (136.6); tail, 65-84 (73.7); exposed culmen, 8-13.5 (11.2); tarsus, 25-29.5 (27.4); middle toe, 21-25.5 (23.2).<sup>b</sup>

<sup>a</sup> Eighty-six specimens.

<sup>b</sup> Fifty-five specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Ten adult males from Cuba.....	142.1	79.5	11.6	27.7	23.9
Three adult males from Isle of Pines.....	143.2	78.3	11.8	27.8	23.5
Nine adult males from Haiti.....	142.2	79.9	11.1	29.1	23.9
Ten adult males from Jamaica.....	142.2	77.9	11.3	29.1	24.6
Six adult males from Porto Rico.....	140.2	77.2	11.5	27.9	24.2
Four adult males from Grenada.....	143	75.1	11.7	29.5	24.4
One adult male from tierra caliente of Mexico (Vera Cruz?)....	146	82	11	26.5	22
One adult male from Tabasco.....	141	73	13	28.5	24
One adult male from Sinaloa.....	143	86	11	29	26
Three adult males from Guatemala.....	140.7	76.7	11.2	28	23.7
Seven adult males from British Honduras.....	138.6	74.7	11.4	27.9	23.2
Four adult males from Nicaragua.....	138.5	74.9	11.6	29	24.7
Six adult males from Costa Rica.....	137.2	72.6	11	28.5	23.8
Seven adult males from Panama.....	136.8	72.1	11.2	28	24
Five adult males from Colombia.....	135.2	72.2	11.9	27.4	23.3
Two adult males from Venezuela.....	137.2	72.5	10.7	28	23.2
Five adult males from Brazil.....	135.8	76.4	10.5	27.4	23.1
One adult male from western Ecuador.....	131	70.5	10.5	26	19
One adult male from Bolivia.....	136	74.5	.....	27	23.5

*Young male*.—Very different in coloration from adults. Pileum, hindneck, back, scapulars, rump, upper tail-coverts, tail, and remiges olive-brown, paler and slightly cinnamomeous on forehead; inter-scapulars, scapulars, and proximal secondaries with a terminal, broadly triangular spot of rufous-cinnamon or mikado brown, margined anteriorly by a more or less distinct bar of darker olive-brown, or dusky; upper tail-coverts and rectrices tipped with rufous-cinnamon, the former with a subterminal bar of dusky; wing-coverts rufous-cinnamon or mikado brown, passing into olive-brown basally; remiges edged, more or less distinctly, with rufous-cinnamon; under parts mostly pale brownish buff, the chest dull rufous-cinnamon or mikado brown.

*Young female*.—Upper parts, including wing-coverts, dark olive-brown or brownish olive, faintly glossed with bronze-greenish; wing-coverts tipped with light russet or mikado brown, producing a conspicuous transverse spotting, the scapulars more narrowly tipped

(Footnote continued from page 479.)

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
FEMALES.					
One adult female from Cuba.....	135.5	75	12	26.5	22.5
Three adult females from Isle of Pines.....	137.2	75.3	11.8	27	23.5
Nine adult females from Haiti.....	138.9	73.6	10.2	27.9	23.6
Five adult females from Jamaica.....	140.2	77	11.8	27.7	23.3
One adult female from Porto Rico.....	139	81	12	23	23.5
Four adult females from Grenada.....	139.4	75.1	11.9	28.4	24.7
Two adult females from Vera Cruz.....	137.5	72.7	10.2	26.7	23.2
One adult female from Tabasco.....	141	76	11	27	24.5
One adult female from Guatemala.....	137	71.5	11	27.5	24
Two adult females from British Honduras.....	136	75.2	10.7	26	21.7
Five adult females from Nicaragua.....	133.9	72.1	11.3	27.3	22.9
Twelve adult females from Costa Rica.....	135.2	72.2	11.1	27.4	23.2
Three adult females from western Panama.....	136.2	71.5	9.3	26.7	22.3
Three adult females from Colombia.....	135.2	72.2	11.1	27.4	23.2
One adult female from Venezuela.....	132	79	12	26.5	22
Two adult females from Bolivia.....	128.5	70.5	.....	26	21.5

While convinced that subdivision of this species, to a greater or less extent, will eventually be required, I am not able, even with a very considerable amount of material, to make out satisfactorily any well-defined forms. Few other land birds have so extensive a geographic range; for, while many species inhabit practically the whole extent of continental tropical America, this occurs also in many of the West India islands. The series examined is, however, very meager from certain parts of the range of the species, and many more specimens from such localities will be necessary to determine the question of subspecific division. The individual variation, both in measurements and coloration, is very considerable in any locality, and this, of course, must be taken into account. As may be seen from the above measurements, specimens from British Honduras and southward average decidedly smaller than those from Mexico and the West Indies.

with the same; under parts pale brownish buff to dull buffy white, the foreneck and chest grayish brown, with feathers more or less distinctly tipped (broadly) with pale cinnamon or pale russet.

Greater Antilles and whole of continental tropical America. Cuba (San Diego de los Baños; Hato Jicarito; Trinidad; Monte Verde; Guamá; San Pablo; San Cristóbal; Figuabas; Guantánamo). Isle of Pines (La Vega; Pasadita; Callebonita). Haiti (Puerta Plata, La Vega, Samaná, Sanchez, Catare, Almercén, and La Cañita, Santo Domingo). Jamaica (near Spanishtown; Moneague; Trelawney; St. Anns; New Castle; Metcalf Parish; Priestman's River). Porto Rico (Maricao; Caguas; Aibonito). St. Thomas. Vera Cruz (Córdova; Jalapa; Orizaba; Vega del Casadero; Potrero, near Córdova; Miradór; Motzorongo). Sinaloa (Arroyo de Limones, 3500 ft.). Tabasco (Teapa). Yucatan (Temáx). British Honduras (Orange Walk; Toledo District; Manatee River; near Manatee Lagoon). Guatemala (Choctúm; Savana Grande; near Puerto Bárrío). Nicaragua (Volcán de Chinandega; La Vizáguá; Chontales; Peña Blanca; Rio Coco; La Libertád; Savalá and Tuma, Matagalpa). Costa Rica (Angostura; Orósi; San Carlos; Birris de Cartago; Cerro de Santa Maria; El General; Volcán de Miravalles; Cenosta Mana; Savanilla de Pirris; Pozo Azul de Pirris; El Pozo del Rio Grande; El Pozo de Térraba; Boruca; Buenos Aires; Tenório). Panamá (Volcán de Chiriquí; Boquerón, Boquete, and Dívala, Chiriquí; Veragua; Cana and San Pablo Station, Canal Zone). Colombia (Bogotá; near Honda, Tolima; Rio Lima, near Pavas; Bonda, Don Diego, Don Amo, La Tigera, and Las Vegas, Santa Marta). Venezuela (upper Rio Cáura; Lagunita de Aroa; San Julian; Margarita Island). British Guiana (Demerara; Bartica Grove; Camacusa; Merumé Mts.; Roraima, 3500 ft.). Dutch Guiana (Surinám). French Guiana (Cayenne). Trinidad. Brazil (Rio Capím; Pará; Diamantina, near Santarém; Pernambuco; Tara, Rio Amazonas; Humaytha, Rio Madeira; Rio Purús; upper Rio Negro; Mucurí; Caravellas; Belmonte; Porto Seguro; Mariabatanas; Bahia; Chapada, Matto Grosso; Santa Catarina; Taquara, Rio Grande do Sul; São Paulo, Iguapa, Cantogallo and Novo Friburgo, São Paulo). Paraguáy (upper Rio Paraná). Bolivia (lower Rio Beni). Peru (Rio Ucayali; Apollo; Tilotilo; Monterico; Coccocho; Tarma; Rio Cadena; Sañaca). Ecuadór (Guayaquil; Valle de Zamora; Valle del Rio Santiago; Foreste del Rio Peripa).

[*Columba montana* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 163 (Jamaica; based on *Columba minor fulva* Edwards, Nat. Hist. Birds, 119, pl. 119; Sloane, Jamaica, ii, 304, pl. 261, fig. 1; *Perdix montana* Ray Aves., 183); ed. 12, i, 1766, 281.—GMELIN, Syst. Nat., i, pt. 2, 1789, 772.—LATHAM, Index Orn., ii, 1790, 594.

- Columba montana* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 395 (Jamaica; Cayenne).—BONNATERRE, Tabl. Enc. Méth., i, 1790, 231, pl. 76. fig. 2.—VIEILLOR, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 396 (Santo Domingo; Jamaica).—MAXIMILIAN, Beitr. Naturg. Bras., iv, 1832, 479.—D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 178 (large ed., p. 131).—BRYANT, Journ. für Orn., 1866, 191 (Porto Rico); Proc. Bost. Soc. N. H., x, 1866, 257 (Porto Rico); xi, 1867, 96 (Santo Domingo).
- [*Columba*] *montana* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 492 ("America calidiora").
- Goura montana* STEPHENS, Shaw's Gen. Zool., xi, 1819, 130.
- Peristera montana* GRAY, List Gallinæ Brit. Mus., 1844, 15; List Birds Brit. Mus., Columbæ, 1856, 55 (Jamaica; Santo Domingo; Mexico; South America).—HARTLAUB, Index Azara's Apunt., 1847, 20.—REICHENBACH, Syn. Av. Novit., Columbaria, 1847, fig. 1432.—LÉOTAUD, Ois. Trinidad, 1866, 375.
- [*Peristera*] *montana* CABANIS, in Schomburgk's Reis. Brit. Guiana, iii, 1848, 744.
- Geotrygon montana* GOSSE, Birds Jamaica, 1847, 320; Naturalist's Soj. Jamaica, 1851, 173.—BONAPARTE, Compt. Rend., xl, 1855, 100 (s. U. S.; Bahamas; "Bermuda"; Porto Rico).—CABANIS, Journ. für Orn., 1856, 109 (Cuba; habits).—SCLATER, Proc. Zool. Soc. Lond., 1856, 309 (Cordova, Vera Cruz); 1857, 19 (Bogota, Colombia); 1859, 368 (Jalapa, Vera Cruz); 1861, 80 (Jamaica); Rev. List Birds Jamaica, 1910, 19.—SALLÉ, Proc. Zool. Soc. Lond., 1857, 235 (Santo Domingo; habits).—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).—TAYLOR, Ibis, 1864, 171 (Porto Rico; habits).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 198 (Rio Ucayali, e. Peru); 1867, 591 (upper Rio Negro and Para, Brazil), 753 (e. Peru); 1873, 306 (e. Peru); 1879, 640 (Appollo and Tilotilo, Bolivia); Exotic Orn., pt. v, 1867, 78, 79.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 135 (Angostura, Costa Rica); Proc. U. S. Nat. Mus., i, 1879, 276 (Grenada; descr. nest and eggs), 487, part (Grenada).—FRANTZIUS, Journ. für Orn., 1869, 371 (Orosi, Costa Rica).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 560 (tierra caliente of Vera Cruz).—SALVIN, Ibis, 1870, 217 (Volcan de Chiriqui, Panama); 1886, 174 (Bartica Grove, Camacusa, Merume Mts., and Roraima, 3500 ft., Brit. Guiana).—BERLEPSCH, Journ. für Orn., 1874, 248 (Santa Catarina, s. Brazil; synonymy; crit.); 1887, 124 (Paraguay); Novit. Zool., xv, 1908, 296 (Cayenne).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 556 (Monterico, centr. Peru); 1882, 48 (Cococho, n. e. Peru); Orn. du Pérou, iii, 1886, 260.—GUNDLACH, Journ. für Orn., 1874, 294 (Cuba; habits); Contr. Orn. Cubana, 1876, 135 (Cuba; habits; descr. eggs); Orn. Cubana, ed. 1895, 162 (habits; descr. eggs).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (San Carlos, Costa Rica).—BERLEPSCH and IHERING, Zeitschr. Orn., 1885, 178 (Taquara, etc., Rio Grande do Sul, s. Brazil).—CORY, Birds Haiti and San Dom., 1885, 132 (Puerta Plata and Samana, Santo Domingo); Auk, iv, 1887, 118 (synonymy; descr.); Birds West Ind., 1889, 219; Cat. West Ind. Birds, 1892, 97, part (Cuba; Isle of Pines; Jamaica; Porto Rico; Haiti; Grenada).—WELLS, Proc. U. S. Nat. Mus., ix, 1887, 625 (Grenada; habits; descr. nest and eggs).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Angostura and Birris de Cartago, Costa Rica).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 106 (lower Rio Beni, Bolivia); v, 1893, 149 (Chapada, Matto-grosso, Brazil); xiii, 1900, 128 (Bonda, Santa Marta, Colombia).—SCOTT, Auk, vi, 1889, 160 (Key West, Florida, Dec. 10, 1888); ix, 1892, 124 (Jamaica;



- descr. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, vii, 1890, 62; Check List, 2d ed., 1895, no. 322.1; 3d ed., 1910, 151.—RIKER and CHAPMAN, Auk, viii, 1891, 162 (Diamantina, lower Amazon).—BENDIRE, Life Hist. N. Am. Birds (i), 1892, 154.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 293 (San Pablo, s. Cuba; habits); iv, 1894, 74 (Trinidad).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 567 (Vega del Casadero, Vera Cruz; Temax, Yucatan; Orange Walk, Brit. Hond.; Choctum and Savana Grande, Guatemala; Chinandega and La Libertad, Nicaragua; Volcan de Chiriquí, Panama, and San Pablo Station, Panama; San Cristobal, Cuba; Jamaica; La Vega and Puerta Plata, Santo Domingo; Grenada; numerous South American localities).—CHERRIE, Contr. Orn. San Dom., 1896, 24.—KOENIGSWALD, Journ. für Orn., 1896, 391 (São Paulo, s. Brazil).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica).—IHERING, Revista Mus. Paul., iii, 1899, 404 (Iguapa, São Paulo); iv, 1900, 163 (Cantogallo and Novo Fribourgo, São Paulo), 283 (descr. eggs); vi, 1904, 342 (Paraguay).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1900, 86 (Valle del Zamora and Valle del Rio Santiago, e. Ecuador; Foreste del Rio Peripa, w. Ecuador).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 23 (Boquete, Panama, 4,000 ft.); Auk, xxiv, 1907, 292 (Boruca and El Pozo de Terraba, Costa Rica).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1902, 44 (Tarma, centr. Peru); Ornith., xiii, 1906, 125 (Rio Cadena and Sañaca, Peru).—SALVIN and GODMAN, Biol. Centr.-Am., Aves., iii, 1902, 265 (Key West, Florida; Mirador, Vega de Casadero, Cordova, Jalapa, and Potrero, Vera Cruz; Temax, Yucatan; Orange Walk, Brit. Honduras; Choctum and Savana Grande, Guatemala; La Libertad and Chinandega, Nicaragua; Angostura, Orosi, Savanilla de Pirris, San Carlos, Birris de Cartago, and Volcan de Miravalles, Costa Rica; Divala, Boquete, Volcan de Chiriquí, and San Pablo Station, Panama; Ecuador; Amazonia; Guiana; Brazil; West Indies).—GOELDI, Ibis, 1903, 479, in text, 499 (Rio Capim, n. e. Brazil).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 197 (Isle of Pines).—CLARK (A. H.), Auk, xx, 1905, 262 (extinct on St. Christopher); Proc. Bost. Soc. N. H., xxxii, 1905, 263, part (Grenada; habits; descr. nest and eggs).—MILLER (W. De W.), Bull. Am. Mus. N. H., xxi, 1905, 343 (Arroyo de Limones, s. Sinaloa).—HELLMAYR, Novit. Zool., xiv, 1907, 407 (Humaytha, Rio Madeira, Brazil).—SNETHLAGE, Journ. für Orn., 1908, 22 (Rio Purus, w. Brazil); Boll. Mus. Goeldi, v, 1908, 68 (Rio Purus).—MENEGAUX, Rev. Franç. d'Orn., i, no. 2, 1909, 30 (Figuabas and Guantanamo, e. Cuba).—VERRILL (A. E. and A. H.), Proc. Ac. Nat. Sci. Phila., 1909, 357 (Santo Domingo; habits).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 404 (Pozo Azul, Buenos Aires, Tenorio, El General, Cerro Santa Maria, El Pozo de Terraba, and Boruca, Costa Rica, crit.; habits; descr. nest).—DABBENE, Orn. Argent., 1910, 410 (upper Rio Parana).
- [*Geotrygon*] *montana* BONAPARTE, Consp. Av., ii, 1857, 72.—GUNDLACH, Journ. für Orn., 1861, 336 (Cuba); 1874, 313 (Porto Rico); 1878, 161 (Porto Rico).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—CORY, List Birds West Ind., rev. ed., 1886, 24.—SHARPE, Hand-list, i, 1899, 87.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 145 (Mexico; Jamaica; Cayenne; Bahia, Brazil).
- [*Geotrygon*] *montana* RIDGWAY, Man. N. Am. Birds, 1887, 217.
- Geotrygon montanus* SALVIN and SCLATER, Ibis, 1860, 401 (Vera Paz, Guatemala).
- Oreopeleia montana* REICHENBACH, Av. Syst. Nat., 1852, p. xxv.—PELZELN, Orn. Bras., 1870, 279 (crit. in footnote), 451.

- [*Oreopeleia*] *montana* REICHENBACH, Vollst. Naturg., Columbariae, i, 1861, 31, pl. 266, figs. 2882, 2883 (Jamaica; Cuba; Key West; localities in Brazil); ii, 1862, 165.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 393.
- [*Oreopeleia*] *montana* GRAY, Hand-list, ii, 1870, 242, no. 9374.
- Oreopelia montana* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 306.—CABANIS, Journ. für Orn., 1874, 230 (Brazil).
- [*Oropelia*] *montana* HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 285 (Rio Grande do Sul, s. Brazil; Cuba).
- Starnoenas montana* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 165 (Surinam; Brazil).
- [*Columba martinicana*]  $\beta$  GMELIN, Syst. Nat., i, pt. 2, 1789, 781, part.
- (?) *Columba martinica* (not Linnæus?) TEMMINCK and KNIP, Pigeons, i, fam. trois., 1808-11, pls. 5, 6.—TEMMINCK, Pige. et Gallin., i, 1813, 400, 433.
- (?) *Columba martinica* LICHTENSTEIN, Verz. Doubl., 1823, 66.
- Geotrygon cayennensis* BONAPARTE, Compt. Rend., xl, 1855, 100 (St. Thomas; crit.).
- (?) *Starnoenas cuprea* (not *Columba cuprea* Wagler, 1827) SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 165 (Maribitanas, Brazil; Demerara; Surinam).
- Geotrygon* ———? SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 370 (Panama).

#### OREOPELEIA VIOLACEA ALBIVENTER (Lawrence).

##### WHITE-BELLIED QUAIL-DOVE.

Similar to *O. v. violacea*,<sup>a</sup> but color of forehead and cheeks more vinaceous and purple or violet gloss on back more pronounced.

*Adult male*.—Forehead pale ecru-drab, tinged with pinkish or vinaceous; crown, occiput, and nape dark purple-drab glossed with purple-bronze, passing into vinaceous-gray laterally and anteriorly; hindneck deep brownish brightly glossed with metallic purple or violet, the back deep chestnut or chestnut-brown glossed with metallic purple or violet; rest of upper parts, including remiges and tail, chestnut-brown, bay, or dull chestnut, the primaries rather lighter or clearer chestnut; sides of head dull vinaceous-grayish, much paler and more vinaceous (like color of forehead) anteriorly and beneath bare orbital space, passing into dull vinaceous-lilac on foreneck and chest, the remaining under parts immaculate buffy white, becoming more pinkish buffy anteriorly; axillars and proximal wing-coverts white, or mostly white, the distal under wing-coverts dull chestnut or deep vinaceous-russet, the under surface of remiges wholly clear vinaceous-russet; bill brownish (in dried skins); legs and feet pale brownish (in dried skins); length (skins), 213-235 (224); wing, 136-

<sup>a</sup> See p. 469. Specimens of the South American form have not been available for comparison, and the differential character are therefore taken from Messrs. Salvin and Godman, in Biol. Cent.-Am., Aves, iii, 265.

150 (142); tail, 72-92 (79.9); exposed culmen, 14-15.5 (14.8); tarsus, 25-27 (26); middle toe, 21.5-23 (22.1).<sup>a</sup>

*Adult female*.—Similar to the adult male but coloration much duller; scapulars, greater wing-coverts, alulae, primary coverts, and terminal portion of primaries olive-brown instead of chestnut; metallic gloss on back much less distinct, sometimes coppery bronze instead of purple or violet; crown, occiput, and hindneck decidedly brown, with metallic gloss very faint or altogether absent; foreneck and chest dull buffy grayish, with little if any vinaceous tinge, and distal under wing-coverts brown instead of vinaceous-russet; length (skins), 210-245 (227); wing, 135-146 (139.7); tail, 73.5-85 (79.5); exposed culmen, 13.5-14.5 (14); tarsus, 25-26.5 (25.8); middle toe, 21-21.5 (21.2).<sup>b</sup>

*Young*.—Above olive-brown, passing into dull chestnut on upper tail-coverts and tail, the interscapulars, scapulars, at least some of the wing-coverts, and proximal secondaries, rather broadly tipped or terminally margined with russet or cinnamon and with a subterminal bar of dusky; crown, occiput, and nape dusky brown, the first, at least, with rusty brown tips to the feathers; foreneck and chest grayish brown or brownish gray, the feathers broadly tipped with cinnamon and with a rather broad subterminal bar of darker grayish brown, or dusky; otherwise, much as in adult female; bill brownish; iris brown.<sup>c</sup>

Nicaragua (Peña Blanca), Costa Rica (Tenorio; Volcán de Miravalles; Angostura, in valley of Rio Reventazón, 2,000 ft.), Panamá (Lion Hill; Cerro Azul, 1,000 ft), and Colombia (Cacagualito and Don Diego, Santa Marta).

*Geotrygon violacea?* (not *Columba violacea* Temminck and Knip, 1808-11) LAWRENCE, ANN. LYN. N. Y., vii, 1872, 477 (Lion Hill Panama; crit.; descr. adult male).

*Geotrygon violacea* SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 565, part (Panama).—UNDERWOOD, Ibis, 1896, 447 (Volcan de Miravalles, Costa Rica; habits).

<sup>a</sup> Five specimens.

<sup>b</sup> Three specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
One adult male from Nicaragua (Peña Blanca).....	142	77	15	26	22.5
Three adult males from Costa Rica.....	144	81	14.7	26.3	22
One adult male from Panama (Lion Hill?).....	136	79.5	15	25	22
FEMALES.					
One adult female from Costa Rica.....	138	80	14	26	21
One adult female from middle Panama (Cerro Azul).....	135	73.5	13.5	25	21.5
One adult female from Colombia (Don Diego, Santa Marta).....	146	85	14.5	26.5	21

<sup>c</sup> Mrs. H. H. Smith.

- [*Geotrygon*] *violacea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134, part.—SHARPE, Hand-list, i, 1899, 87, part (Costa Rica).
- Geotrygon albiventer* LAWRENCE, Proc. Ac. Nat. Sci. Phila., 1865, 108 ([Lion Hill] Panama; coll. G. N. Lawrence); Ann. Lyc. N. Y., ix, 1868, 135 (Angostura, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 371 (Costa Rica).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 265 (Angostura and Volcan de Miravalles, Costa Rica; Lion Hill, Panama).—BANGS, Proc. Biol. Soc. Wash., xxii, 1909, 30 (Tenorio, Costa Rica).
- [*Oreopeleia*] *albiventer* GRAY, Hand-list, ii, 1870, 242, no. 9377.
- G[eotrygon] v[iolacea] albiventer* HELLMAYR, Novit. Zool., xiii, 1906, 384, in text (crit.).
- Geotrygon violacea albiventer* CARRIKER, Ann. Carnegie Mus., vi, 1910, 404 (Tenorio and Miravalles, Costa Rica; crit.).
- G[eotrygon] albiventris* SCLATER and SALVIN, Exotic Orn., pt. v, 1868, 78, in text (Panama).

### OREOPELEIA VERAGUENSIS (Lawrence).

#### VERAGUA QUAIL-DOVE.

##### Lighter phase.

*Adults (sexes alike).*—Forehead white, passing into gray on middle of crown, this into dark purplish gray (vinaceous-slate) on occiput and nape, which are faintly glossed with purple; hindneck and rest of upper parts dark olive-brown, becoming more grayish posteriorly (the tail and primaries deep brownish gray), the hindneck and back faintly glossed with bronze (more brightly on hindneck), the extreme upper back glossed with purplish; a broad white stripe extending from beneath the lores to end of auricular region; a broad malar stripe of dark brownish gray, merging posteriorly into the olive of sides of neck; chin and median portion of throat white, more or less tinged with brown posteriorly; rest of neck, together with chest, plain olive or deep brownish gray, glossed (most strongly on sides of neck) with bronze or bronzy purple, the color of chest passing gradually into light brownish gray on breast and anterior portion of sides; flanks and posterior portion of sides light buffy cinnamon, the abdomen and anal region pale cream-buff to buffy white; under tail-coverts deep brownish gray, broadly tipped with pale buffy cinnamon or cinnamon-buff; axillars and under wing-coverts buffy cinnamon; bill black; iris straw-yellow to pale gray; bare orbital space "purplish blood red"; legs and feet pinkish blood red.

##### Dark phase.

Similar to the lighter phase, but coloration much darker, the forehead buffy to light pinkish cinnamon, the flanks, etc., deep cinnamon or sayal brown, the whole neck, chest, and breast strongly glossed with purple.

*Adult male*.—Length (skins), 209–245 (230); wing, 127–135 (132); tail, 71–76.5 (74.5); exposed culmen, 15.5–18 (16.8); tarsus, 34–37 (35.6); middle toe, 23–26.5 (25.1).<sup>a</sup>

*Adult female*.—Length (skins), 213–217 (215); wing, 130–131 (130.5); tail, 66–70 (68); exposed culmen, 17.5–18 (17.8); tarsus, 33–36 (34.5); middle toe, 25.5–26.5 (26).<sup>b</sup>

Eastern Costa Rica (El Hogár; Cuábree; Rio Reventazón; Talamanca) and western and middle Panamá (Verágua; Montaña de Vermejo; Agua Dulce; Cascajal, Coclé; Puerto Bello).

*Geotrygon veraguensis* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, 1867, 349 (Veragua; coll. J. K. Merritt).—SCLATER and SALVIN, Exotic Orn., 1869, 78.—SALVIN, Ibis, 1874, 328 (crit.), pl. 12.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 575 (Montaña de Vermejo and Agua Dulce, Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 267 (Talamanca, Costa Rica; Agua Dulce and Montaña de Vermejo, Panama).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 405 (Rio Reventazon, Cuabre, and El Hogar, Costa Rica; crit.; habits).

[*Geotrygon*] *veraguensis* GRAY, Hand-list, ii, 1870, 243, no. 9401.—SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.

*Geotrygon rufiventris* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., xi, 1875, 90 (Talamanca, e. Costa Rica; coll. U. S. Nat. Mus.;=dark phase).—ROWLEY, Orn. Misc., iii, pt. xii, 1878, 77, 78, pl. 92.—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, pl. 70.

### OREOPELEIA COSTARICENSIS (Lawrence).

#### COSTA RICAN QUAIL-DOVE.

*Adults (sexes alike)*.—Forehead buff or pinkish buff; crown, occiput, and nape deep slate-gray, tinged with olive-greenish, becoming paler and more bluish gray anteriorly (next to buff of forehead) and

<sup>a</sup> Seven specimens.

<sup>b</sup> Two specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Three adult males from Costa Rica .....	131.5	74.5	16.5	35.2	25
One adult male (?) from Costa Rica (type of <i>Geotrygon rufiventris</i> Lawrence).....	133	72	.....	35.5	25.5
One adult male from Veragua, western Panama (type of <i>G. veraguensis</i> ).....	127	72	16	35	25
One adult male from Cascajal, Coclé, middle Panama.....	135	72	17.5	37	24
One adult male from Puerto Bello, middle Panama.....	134.5	72	18	36	26
FEMALES.					
One adult female from Costa Rica .....	130	66	18	33	25.5
One adult female from Cascajal, Coclé, Panama.....	131	70	17.5	36	26.5

on supra-auricular region; hindneck more greenish than pileum, with a soft gloss of bronze-green in certain lights; rest of upper parts deep reddish brown, deeper (hessian brown) on back, scapulars, rump, and upper tail-coverts, lighter (between prussian red and cameo brown) on middle and greater wing-coverts, the primaries and distal secondaries grayish dusky; four middle rectrices dark reddish brown, the remainder grayish dusky or dusky gray (darker subterminally) tipped with dull light gray; malar and suborbital regions white, tinged with buff anteriorly, passing into gray on auricular region; beneath this white and gray area a conspicuous line of black, extending from side of middle throat to beneath lower end of auricular region; chin and upper throat dull white; foreneck, sides of neck, and chest deep gull gray slightly darker, and tinged with semi-metallic olive-green laterally, fading into paler gray on breast; median portion of lower breast, abdomen, and anal region very pale buff, the under tail-coverts similar but with basal portion of the feathers brownish gray or grayish brown; sides olive-brown, the flanks light buffy grayish brown; axillars and under wing-coverts grayish brown; bill dusky, the basal portion of tomia and mandible carmine; <sup>a</sup> iris dark brown; <sup>a</sup> bare orbital space carmine; <sup>a</sup> legs and feet carmine, soles of toes whitish.<sup>a</sup>

*Young*.—Conspicuously different in coloration from adults. Forehead dull whitish, more or less tinged with rusty brown or cinnamon; crown, occiput, and hindneck dusky gray, faintly glossed with bluish green or bronze-green; back, scapulars, rump, upper tail-coverts, proximal secondaries, and some of wing-coverts dull chestnut or bay, indistinctly though rather broadly barred with dusky, the feathers sometimes narrowly tipped with cinnamon or pale rusty; foreneck and chest distinctly barred with dusky brownish gray and pale cinnamon or dull cinnamon-buff, the remaining under parts also more or less vermiculated, or freckled, with cinnamon-buff predominating on center of abdomen.

*Adult male*.—Length (skins), 240–285 (251); wing, 136–145 (140.5); tail, 72–82.5 (78.6); exposed culmen, 12–15.5 (13.3); tarsus, 38–43 (40.6); middle toe, 28–32 (30.2).<sup>b</sup>

<sup>a</sup> José C. Zeledón, manuscript.

<sup>b</sup> Twelve specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Nine adult males from Costa Rica.....	141.9	79.6	13.4	40.6	30.2
Three adult males from western Panama (Chiriqui).....	136	75.5	13	40.8	30.3

*Adult female*.—Length (skins), 247; wing, 137; tail, 79; exposed culmen, 17.5; tarsus, 41.5; middle toe, 28.<sup>a</sup>

Highlands of Costa Rica (Burgos de Irazú; La Estrella de Cartago; Azahár de Cartago; Cerro de la Candelária; Las Cruces de Candelária, 3,000–4,000 feet; Escazú; Rancho Redondo; Carrillo; Turrialba; Cariblanco de Sarapiquí; Cordillera de Talamanca, 7,000 feet; Tenório; Cachí) and western Panamá (Boquete; Volcán de Chiriquí, 7,000–10,000 feet).

*Geotrygon costaricensis* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., ix, 1868, 136 (Costa Rica; coll. U. S. Nat. Mus.).—FRANTZIUS, Journ. für Orn., 1869, 371 (Las Cruces de Candelaria, Costa Rica).—ROWLEY, Orn. Misc., iii, pt. xi, 1877, 43–46, pl. 87.—BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (Cerro de la Candelaria, Costa Rica, 3,000–4,000 ft.; habits).—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 498 (Volcan de Irazu, Costa Rica), 502 (San Jose, Costa Rica).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (Rancho Redondo, Costa Rica).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 24 (Boquete and Volcan de Chiriqui, 7,000–10,000 ft., Panama); Proc. Biol. Soc. Wash., xix, 1906, 102 (Volcan de Chiriqui, Panama; crit.).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 577 (La Candelaria, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 267 (San Jose, Las Cruces de Candelaria, Candelaria Mts., Volcan de Irazu, Azahar de Cartago, La Estrella de Cartago, Turrialba, Carrillo, and Rancho Redondo, Costa Rica).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 406 (Burgos, La Estrella, Volcan de Turrialba, Cachi, Irazu, Escazu, Cariblanco de Sarapiquí, and Cordillera de Talamanca, 7,000 ft., Costa Rica; crit.).

[*Geotrygon*] *costaricensis* GRAY, Hand-list, ii, 1870, 243, no. 9400.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.

*Geotrygon costaricensis* SALVIN, Ibis, 1874, 328, in text (crit.).

*Geotrygon lawrencii* (not of Salvin, 1874) SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 266, part (Boquete and Volcan de Chiriqui, Panama).

### OREOPELEIA LAWRENCEI (Salvin).

#### LAWRENCE'S QUAIL-DOVE.

Resembling *O. costaricensis*, but forehead grayish white (instead of buffy), hindneck duller and more grayish green, back dull dark purple (anthracene purple) instead of purplish hessian brown, and wing-coverts, rump, and upper tail-coverts olive-brown (instead of chestnut-brown).

*Adults (sexes alike)*.—Forehead very pale bluish gray or grayish white anteriorly passing, through deeper bluish gray, into greenish deep neutral gray on occiput and nape; hindneck and extreme upper back semimetallic deep olive, abruptly defined against a dark purplish brown (semimetallic anthracene purple) triangular area covering the interscapular region; scapulars, rump, and proximal secondaries plain deep grayish olive, the wing-coverts similar but more brownish (olive-brown), the upper tail-coverts both darker and browner; alulae,

<sup>a</sup> One specimen (from western Panama).

primary coverts, primaries, and distal secondaries grayish dusky, the longer primaries narrowly and indistinctly edged with paler beyond their emarginations; four middle rectrices nearly concolor with upper tail-coverts, the remainder deep neutral gray, crossed by a broad subterminal band of darker; malar and suborbital regions, chin, and throat grayish white to pure white; a line or narrow stripe of black extending beneath suborbital and auricular regions, and a shorter and less conspicuous one from anterior margin of bare orbital space to rictus; foreneck and chest clear bluish gray (deep gull gray) becoming lighter and more bluish on breast; abdomen very pale buff or buffy white; flanks buffy brown or wood brown, becoming somewhat darker on sides and axillars; under wing-coverts grayish brown; bill red basally (in life), black terminally, with a broad pale streak on gonys; iris red; legs and feet reddish (in life).

*Young*.—Very different in coloration from adults. Above dark olive, the interscapulars, scapulars, wing-coverts, etc., margined terminally with pale wood brown and with a narrow subterminal bar or crescentic line of dusky, the pileum narrowly barred with the same; foreneck, chest, and breast distinctly barred with light buffy brown or wood brown and dusky; otherwise, much as in adults.

*Adult male*.—Length (skin), 258; wing, 141; tail, 80; exposed culmen, 13.5; tarsus, 43; middle toe, 27.5.<sup>a</sup>

*Adult female*.—Length (skin), 253; wing, 141; tail, 81; exposed culmen, 13; tarsus, 39; middle toe, 28.<sup>a</sup>

Costa Rica (Cariblanco de Sarapiquí; Tenório; Carrillo) and western Panamá (Calobre and Sante Fe, Veragua).

*Geotrygon veraguensis* (not of Lawrence) SALVIN, Proc. Zool. Soc. Lond., 1867, 159 (Veragua).

*Geotrygon lawrencei* SALVIN, Ibis, 3rd ser., iv, Oct., 1874, 329, pl. 12 (Calobre, Veragua; coll. Salvin & Godman<sup>b</sup>).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 576 (Calobre, Veragua, Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 266, part pl. 69 (Santa Fe and Calobre, Veragua, Panama).—CARRIKER, Ann. Carnegie Mus., iv, 1908, 302 (Carrillo, Costa Rica).—BANGS, Proc. Biol. Soc. Wash., xxii, 1909, 30 (Tenorio, n. w. Costa Rica).

[*Geotrygon*] *lawrencei* SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.

*Geotrygon lawrencei* CARRIKER, Ann. Carnegie Mus., vi, 1910, 406 (Cariblanco de Sarapiquí, Tenorio, and Carrillo, Costa Rica).

### OREOPELEIA GOLDMANI (Nelson).

#### GOLDMAN'S QUAIL-DOVE.

Somewhat resembling *O. lawrencei*, but pileum and nape deep russet-brown (paler on forehead), broad malar-suborbital stripe buff instead of white, hindneck brown instead of grayish green, and upper parts except back) browner.

<sup>a</sup> One specimen.

<sup>b</sup> Type now in collection of the British Museum.



*Adult male*.—Crown, occiput, and nape deep russet-brown, passing into fawn color or light mikado brown on forehead, where the feathers are white basally; hindneck grayish brown, faintly glossed with purple and bronze; interscapulars dark semimetallic purplish brown (nearly anthracene purple); rest of upper parts olive-brown to natal brown, the alulæ, primary coverts, and primaries grayish dusky; a broad malar-suborbital-auricular stripe light pinkish cinnamon or cinnamon-buff, the auricular portion suffused or intermixed with brown; beneath this (except anteriorly) a line or narrow stripe of black; chin and throat white, passing into clear bluish gray (between deep gull gray and light neutral gray) on foreneck, chest, and breast; abdomen white to pale buff, minutely freckled with grayish, the feathers grayish beneath surface; axillars, sides, and flanks light olive-brown; under tail-coverts gray or brownish gray, minutely freckled with darker, sometimes indistinctly margined terminally with paler; under wing-coverts deep grayish brown; bill black (in dried skins); legs and feet brownish (in dried skins); length (skins), 269–285 (278); wing, 139–144.5 (142.1); tail, 81–90 (85.5); exposed culmen, 13–15 (14); tarsus, 38–43.5 (40.5); middle toe, 30–31.5 (30.9).<sup>a</sup>

*Adult female*.—Similar to the adult male and perhaps not always distinguishable, but usually (?) with the gray of foreneck, chest, and breast duller (sometimes nearly mouse gray); length (skins), 269–279 (274); wing, 141–145 (143); tail, 84–88 (85.8); exposed culmen, 15–17 (15.7); tarsus, 39.5–40 (39.8); middle toe, 29.5–31.5 (30.7).<sup>b</sup>  
Eastern Panamá (Mount Pirri, at 5,000 feet; Cana).

*Geotrygon goldmani* NELSON. Smithsonian Miscellaneous Coll., vol. 60, no. 3, Sept. 27, 1912, 2 (Mount Pirri, 5,000 feet, e. Panamá; coll. U. S. Nat. Mus.).

### OREOPELEIA CHIRIQUENSIS (Sclater).

#### CHIRIQUI QUAIL-DOVE.

*Adult male*.—Pileum slate-gray, darker (nearly slate color) posteriorly and medially, paler (deep gull gray) laterally, the forehead still paler, at least anteriorly; general color of upper parts auburn or dull chestnut, darker and faintly glossed with purplish on upper back, duller on hindneck, the lower portion of which is usually somewhat olivaceous and faintly glossed with greenish; alulæ, primary coverts, and primaries dull blackish brown or dusky, the primaries more brownish, sometimes tinged with chestnut, the distal quills indistinctly edged with paler beyond their emarginations; a broad stripe on side of head, extending from (and including) malar antia beneath bare orbital space to beyond end of auricular region, cinnamon to pale cinnamon-buff anteriorly, paler cinnamon to dull whitish

<sup>a</sup> Four specimens.

<sup>b</sup> Three specimens.

in middle portion, light grayish on auricular region, the post-auricular narrow and pointed extremity white, this stripe margined along lower edge (except anteriorly) by a line or narrow stripe of black, the anterior end of which is nearly beneath anterior angle of bare orbital space; chin and upper throat dull buffy white to pale cinnamon-buff deepening into deep rufous-cinnamon (mikado brown to pecan brown) on foreneck, chest, and sides, this passing on abdomen into pale cinnamon-buff or dull pinkish buff, the flanks and under tail-coverts light snuff brown to cinnamon-brown; axillars and under wing-coverts brown, more or less tinged with chestnut; under surface of remiges grayish brown; bill black;<sup>a</sup> iris brownish orange;<sup>a</sup> bare orbital space red;<sup>a</sup> legs and feet purplish red;<sup>a</sup> length (skins), 269–308 (283); wing, 137.5–159 (149.2); tail 83–92.5 (87.8); exposed culmen, 13.5–15 (14); tarsus, 40–43.5 (41.5); middle toe, 29.5–32.5 (31.3).<sup>b</sup>

*Adult female*.—Similar to the adult male and often not distinguishable, but usually with color of chest slightly darker and gray of pileum very slightly duller; length (skins), 262–319 (285); wing, 141–155 (150.2); tail, 75–95 (87.8); exposed culmen, 13.5–16 (14.8); tarsus, 39–43 (41); middle toe, 29.5–32.5 (30.6).<sup>c</sup>

*Young*.—General color of upper parts (including pileum) vandyke brown, the crown and occiput darker, the wing-coverts sometimes more rufescent; wing-coverts and scapulars with a subterminal broad bar or transverse spot of dusky; under parts much as in adults but foreneck, chest, and sides broadly barred with dull black or dusky.

Costa Rica (Cervantes; La Estrella de Cartago; Azahár de Cartago; El Zarcero de Alajucla; Volcán de Irazú; Ujarrás de Térraba; Cerro de Santa Maria; La Candelária; Tarrazú, Dota Mts.) and western Panamá (Boquete, Volcán de Chiriquí, David, and Boquerón, Chiriquí; Chitra, Castillo, Calovévora, and Calobre, Verágua).

*Geotrygon chiriquensis* SCLATER, Proc. Zool. Soc. Lond., 1856, 143 (David, Chiriquí, w. Panamá; coll. P. L. Sclater); 1858, 99 (crit.).—REICHENBACH, Tauben, ii, 1862, 165, part.—SALVIN, Proc. Zool. Soc. Lond., 1867, 159 (David, Panamá); 1870, 217 (Castillo, Calovevora, Calobre, and Volcan de Chiriqui, w. Panamá).—SCLATER and SALVIN, Exotic Orn., pt. viii, 1868, 123, 124, pl. 62.—

	<sup>a</sup> M. A. Carriker.		<sup>b</sup> Eleven specimens.		<sup>c</sup> Ten specimens.	
Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.	
MALES.						
Three adult males from Costa Rica .....	149.7	84.5	14	42.8	32	
Eight adult males from western Panamá .....	149	89	14	40.9	31	
FEMALES.						
Six adult females from Costa Rica .....	152.1	89.4	14.5	41.5	31.1	
Four adult females from western Panamá .....	147.5	85.5	15.4	40.2	29.9	

- BOUCARD, Proc. Zool. Soc. Lond., 1878, 43 (Volcan de Irazu and La Candelaria, Costa Rica; habits).—ZELEDÓN, Anal. Mus. Nac. C. R., i, 1888, 127 (El Zarcero de Alajuela and La Candelaria, Costa Rica).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 579 (Castillo, Calovevora, and Volcan de Chiriqui, Panama).—BANGS, Proc. New Engl. Zool. Club, iii, 1902, 24 (Boquete and Volcan de Chiriqui, Panama, 4500-10000 ft.); Proc. Biol. Soc. Wash., xxii, 1909, 30 (Cerro Santa Maria, n. Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 270 (Cervantes, El Zarcero de Alajuela, La Candelaria, Volcan de Irazu, and Tarrazu, Costa Rica; David, Castillo, Calovevora, Calobre, Volcan de Chiriqui, and Boquete, Panama).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 407 (La Estrella de Cartago, Cerro Santa Maria, and Ujurras de Terraba, Costa Rica; crit.; range; habits; descr. nest and eggs).
- G[eotrygon] chiriquensis* LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 148, 149 (crit.).
- [Geotrygon] chiriquensis* GRAY, Hand-list, ii, 1870, 243, no. 9395.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.
- Geotrygon cœruleiceps* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., ix, 1868, 136 (Cervantes, Costa Rico; coll. U. S. Nat. Mus.); ix, 1869, 148 (crit.).—SALVIN, Ibis, 1869, 317, 319 (crit.).—FRANTZIUS, Journ. für Orn., 1869, 371 (Cervantes, Costa Rica).

### OREOPELEIA ALBIFACIES ALBIFACIES (Sclater).

#### WHITE-FACED QUAIL-DOVE.

Resembling *O. chiriquensis*, but without any trace of black line across cheeks and with color of chest lighter and more grayish.

*Adults (sexes alike).*—Forehead dull white, or grayish white, passing, through pale gray on crown, into deeper gray (dark gull gray) on occiput and sides of nape, the median portion of the latter (sometimes of occiput also) darker and more brownish; hindneck brown (cinnamon-brown or prouts brown), the sides of neck similar, but feathers with paler tips, the extreme lower hindneck faintly glossed with olivaceous bronze; rest of upper parts chestnut, the back (especially upper portion) more or less strongly glossed with bluish violet; alulae, primary coverts, and primaries dusky grayish brown or dark fuscous; lateral rectrices with a faintly indicated darker subterminal band and paler tip; malar and suborbital regions pale grayish buff, deepening into buffy avellaneous on sides of neck, where the feathers are wood-brown except at tips, the chin and throat pale buff; lower foreneck deep grayish buff deepening into avellaneous or wood-brown on chest and upper breast, which are more or less tinged or suffused, superficially, with buffy grayish; sides and flanks light buffy cinnamon, intermixed with sayal brown on outer edge, passing, through lighter dull light cinnamon-buff into pale buff or buffy white on center of abdomen; under tail-coverts dull cinnamon-buff; axillars light brown, the under wing-coverts more rufescent (nearly russet); under surface of remiges grayish brown; bill black; iris orange or red; legs and feet lake red or rosy red.

*Young*.—Above deep brown (nearly mars brown), the wing coverts more rufescent, nearly everywhere (except on primaries, etc.) broadly barred with dusky, the back, however, sometimes uniform brown; pileum lighter brown, becoming still paler on forehead, sometimes narrowly barred or lunulated with dusky; sides of neck, foreneck, chest, and sides tawny-brown (saya brown) narrowly barred with dusky; otherwise much as in adults.

*Adult male*.—Length (skins), 280–361 (311); wing, 144.5–161 (151.2); tail, 89–106 (95.3); exposed culmen, 14–15.5 (14.6); tarsus, 40–44 (41.2); middle toe, 29–33 (30.7).<sup>a</sup>

*Adult female*.—Length (skins), 280–307 (293); wing, 140–157.5 (148.7); tail, 80.5–102.5 (91.2); exposed culmen, 13–16.5 (14.8); tarsus, 39–44 (40.7); middle toe, 29.5–33.5 (31.2).<sup>b</sup>

Southeastern Mexico, in States of Vera Cruz (Jalapa; Coátepec; Misantla; Cuesta de Misantla; Córdoba; Potrero, near Córdoba; Orizaba; Miradór), Oaxaca (Latani; Totóntepec; Mount Zempoáltepec), and Chiapas (Tumbalá), and southward through Guatemala (Rio de la Cuesta and El Rincón, San Marcos; San Martín, Atilán, Savana Grande, Volcán de Fuego, and Choctúm, Vera Paz; Sierra de las Minas), and Honduras (Danli) to northern Nicaragua (Ocotál; Janli; Matagalpa; Rio Coco; San Rafael del Norte; Peña Blanca).

*Peristera mexicana* GRAY, List Specimens of Birds Brit. Mus., part iii, 1844, 15 (Mexico; *nomen nudum*.)

*Peristera albifacies* GRAY, List Birds Brit. Mus., Columbæ, 1856, 55 (Mexico; *nomen nudum*.)

<sup>a</sup> Twelve specimens.

<sup>b</sup> Eight specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Tarsus.	Middle toe.
MALES.					
Five adult males from Vera Cruz.....	151.3	96.8	14.9	40.9	31.6
One adult male from Guatemala.....	151	106	14.5	44	32
Six adult males from Nicaragua.....	149.3	92.7	14.4	41	29.7
Four adult males from Guerrero ( <i>O. a. rubida</i> ).....	155.7	100.2	15	40.6	30.6
FEMALES.					
Two adult females from Vera Cruz.....	148.5	96.5	16.2	40.7	31
Two adult females from Oaxaca.....	155	92.2	(15)	41.7	33.2
One adult female from Chiapas.....	140	80.5	13	39	31
Three adult females from Nicaragua.....	146.3	87.2	14.3	40.5	30.2
Two adult females from Guerrero ( <i>O. a. rubida</i> ).....	152.2	98.2	15.2	40.2	29.5

The series examined indicates the probable expediency of further subdivision of this species. All the specimens from Guatemala and Nicaragua differ from those from Vera Cruz, Oaxaca, and Chiapas in having the occiput and nape (except laterally) distinctly brown, as in *O. a. rubida*, the brown darker than in the latter, however; but the Guatemalan specimens are more deeply colored than those from Nicaragua. A considerably larger series of specimens is necessary, however, to decide the question.

- Geotrygon albifacies* SCLATER, Proc. Zool. Soc. Lond., 1858, 98 (Jalapa, Vera Cruz; coll. Verreaux); 1859, 391 (Latani, Oaxaca).—SALVIN and SCLATER, Ibis, 1860, 401 (Vera Paz, Guatemala).—REICHENBACH, Tauben, i, 1862, 165.—SCLATER and SALVIN, Exotic Orn., 1868, 123, 124, pl. 62.—SALVIN, Ibis, 1870, 114 (crit.); 1892, 328 (Nicaragua).—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 581, part (Jalapa, Coatepec, and Misantla, Vera Cruz; Pie de la Cuesta and El Rincon in San Marcos, San Martin, Atitlan, Savana Grande, Volcan de Fuego, and Choctum, Vera Paz, Guatemala).—LANTZ, Trans. Kansas Ac. Sci. for 1896-7 (1899), 219 (Coatepec, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 268 (Mirador, Cordova, Orizaba, Jalapa, Coatepec, and Cuesta de Misantla, Vera Cruz; Latani, Oaxaca; Choctum, Vera Paz, Volcan de Fuego, Savana Grande, Pie de la Cuesta, El Rincon, San Martin, Atitlan, and Sierra de las Minas, Guatemala; Danli, Honduras; Janli, Matagalpa, and San Rafael del Norte, Nicaragua).
- [*Geotrygon*] *albifacies* GRAY, Hand-list, ii, 1870, 243, no. 9396.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—SHARPE, Hand-list, i, 1899, 88.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 146.
- G[eotrygon] albifacies* RIDGWAY, Man. N. Am. Birds, 1887, 217.
- Starnoenas albifacies* SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 164 (Volcan de Fuego, Guatemala).
- Geotrygon caniceps* (not of Gundlach) BONAPARTE, Compt. Rend., xliii, 1856, 943, 949, part.
- Geotrygon chiriquensis* (not of Sclater) BONAPARTE, Compt. Rend., xliii, 1856, 943 (Jalapa, Vera Cruz), 949.—SCLATER, Proc. Zool. Soc. Lond., 1857, 206 (Jalapa, Vera Cruz).—SCLATER and SALVIN, Exotic Orn., pt. v, 1867, 77, pl. 39.

### OREOPELEIA ALBIFACIES RUBIDA (Nelson).

#### GUERRERO QUAIL-DOVE.

Similar to *O. a. albifacies* but color of foreneck and chest much more cinnamomeous (between cinnamon and clay color), without any grayish tinge or suffusion; nape and occiput (except laterally) much more brownish (deep snuff brown or bister); chestnut of rump and upper tail-coverts duller and somewhat lighter, and gloss on back more purplish than bluish or greenish.

*Adult male*.—Length (skins), 324–350 (337); wing, 148.5–160 (155.7); tail, 91–106 (100.2); exposed culmen, 14–16 (15); tarsus, 38.5–42 (40.6); middle toe, 29–33 (30.6).<sup>a</sup>

*Adult female*.—Length (skin), 326; wing, 151–154 (152.5); tail, 95.5–101 (98.2); exposed culmen, 15–15.5 (15.2); tarsus, 39.5–41 (40.2); middle toe, 28.5–30.5 (29.5).<sup>b</sup>

Southwestern Mexico, in State of Guerrero (Omiteme; Chilpancingo).

*Geotrygon albifacies* (not of Sclater, 1858) SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 581, part (Chilpancingo, Guerrero, 4600 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, iii, 1902, 268, part (Chilpancingo).

*Geotrygon albifacies rubida* NELSON, Proc. Biol. Soc. Wash., xvi, Nov. 30, 1903, 151 (Omiteme, Guerrero; coll. U. S. Nat. Mus.).

<sup>a</sup> Four specimens.

<sup>b</sup> Two specimens.

## Genus STARNÆNAS Bonaparte.

*Starnænas* BONAPARTE, Geog. and Comp. List, 1838, 41. (Type, by monotypy, *Columba cyanocephala* Linnæus.)

*Starnænas* (emendation) GRAY, Gen. Birds, ii, 1845, 479.

*Sternocenas* (emendation) REICHENBACH, Syn. Av., 1847, figs. 1445, 1446.

*Perdicopelia* VAN DER HOEVEN, Handb. der Zool., ed. 2, ii, 1855, 680. (Type, *Columba cyanocephala* Linnæus.)

Medium-sized ground pigeons resembling *Oreopeleia* but with tarsus covered, all round, with hexagonal scales (instead of transverse scutella, in front and smooth behind), relatively stouter tarsus and toes, and very differently colored head.

Bill relatively small and weak, the exposed culmen much less than half as long as tarsus, the culmen and gonyes moderately arched. Wing relatively small, very concave beneath, much rounded, the longest primaries exceeding distal secondaries by decidedly more than length of tarsus; second, third, and fourth primaries (from outside) longest, the first (outermost) intermediate between fifth and sixth, strongly bowed or arched. Tail less than three-fifths as long as wing, slightly rounded, the rectrices rather broad, rounded at tips, and rather rigid. Tarsus more than one-fourth its length longer than middle toe (without claw), stout, covered, all round, with rather small hexagonal scales, these larger in front, the tibio-tarsal joint and extreme lower portion of tibia (except in front) naked; lateral toes of equal length, reaching, with their claws, to base of middle claw, or slightly beyond; hallux rather short, about equal in length to first phalanx of middle toe; toes with prominent scales and conspicuous, scalloped, pads.

*Plumage and coloration.*—Plumage in general quite normal (much as in the species of *Oreopeleia*, but the feathers rather more distinctly outlined), except on sides of head and on neck, those of the suborbital and malar regions, chin, and upper throat small and short, those of sides of neck longer and scale-like (imbricated); frontal antia extending forward beyond middle of nasal operculi, forming a single obtuse point on mesorhinium; orbital region naked. Coloration plain brown above, more rufescent or vinaceous-brown below; pileum dull blue; throat, foreneck, and median portion of chest black, the posterior portion bordered by a line of white; a white stripe on side of head, from chin beneath eyes to occiput.

*Range.*—Cuba, Jamaica (where now extirpated), and Florida Keys. (Monotypic.)

## STARNÆNAS CYANOCEPHALA (Linnæus).

## BLUE-HEADED QUAIL-DOVE.

*Adults (sexes alike).*—Pileum plain grayish blue (nearly parula blue) bordered by a band of black, this broadest from immediately behind the eye around occiput, narrower and less distinct on sides of forehead; hindneck brownish drab, passing into a more vinaceous hue on posterior sides of neck; rest of upper parts plain deep buffy brown, becoming slightly olivaceous posteriorly, the distal wing-coverts with indistinct and not sharply defined paler (sometimes slightly cinnamonaceous) margins; primary coverts and primaries deep brownish gray (nearest deep mouse gray), the outer webs of the latter narrowly (sometimes indistinctly) edged with pale cinnamon; middle pair of rectrices concolor with upper tail-coverts, etc., the rest of tail much darker, with inner webs more grayish; a broad white stripe, involving the chin and anterior portion of malar region and extending thence beneath lores and eyes across auricular region to sides of nape, where much narrower; beneath this a line of black, growing broader anteriorly and confluent with a large black area covering throat and foreneck, ending on median portion of upper chest in a rounded outline bordered with white, the feathers of this white border narrowly tipped with black, those on sides of foreneck (or anterior portion of sides of neck) broadly tipped with grayish blue; chest and upper breast dull vinaceous-lilac medially passing into buffy brownish laterally and into wood brown on sides and flanks, the lower breast and abdomen more nearly fawn color; under tail-coverts deep buffy brown, or light olive-brown, indistinctly margined terminally with paler; axillars and under wing-coverts mostly light fawn color or cinnamon; bill coral red basally, light blue or grayish blue terminally; iris deep or dark brown; legs and feet dull pinkish white or pinkish, the scales of tarsi deeper reddish, the scutella of toes purplish or purplish red.

*Adult male.*—Length (skins), 288–345 (309); wing, 142–146.5 (144.6); tail, 99–107 (101.7); exposed culmen, 13–14.5 (13.7); tarsus, 33–35 (34.1); middle toe, 23–24.5 (23.8).<sup>a</sup>

*Adult female.*—Length (skins), 291–337 (313); wing, 144–147 (145.5); tail, 99.5–102.5 (100.8); exposed culmen, 13–14.5 (13.8); tarsus, 31–34 (32.3); middle toe, 23.5–25 (24).<sup>b</sup>

Cuba (Guantánamo; Bemba; San Diego de los Baños; Bayate, Santiago de Cuba); Isle of Pines; formerly found in Jamaica (where

<sup>a</sup> Five specimens.

<sup>b</sup> Three specimens.

introduced from Cuba?), but exterminated by the mungoos; accidental or occasional in Florida Keys.

- [*Columba*] *cycnocephala* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 163 ("America"; based on *Turtur jamaicensis* Albin, Av. 2, p. 45, 49); ed. 12, i, 1766, 282.—GMELIN, Syst. Nat., i, pt. 2, 1789, 778.—LATHAM, Index Orn., ii, 1790, 608.—*Columba cycnocephala* BONNATERRE, Tabl. Enc. Méth., i, 1790, 235, pl. 74, fig. 3.—HAYES, Portraits of rare and cur. Birds, i, 1794, pl. 4.—TEMMINCK, Cat. Syst., 1807, 141; Hist. Nat. Fig. et Gallin., i, 1813, 390; Les Pigeons, i, fam. trois., 1808-11, 8, pl. 3.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 397.—AUDUBON, Orn. Biog., ii, 1834, 411, pl. 172.—LESSON, Compl. Buffon, Ois., viii, 1837, 5; 2d ed., 1838, 270.—D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 174 (large ed., p. 128).—NUTTALL, Man. Orn. U. S. and Can., Land Birds, 2d ed., 1840, 769.
- [*Columba*] *cycnocephala* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 419.—WAGLER, Syst. Av., 1827, *Columba*, sp. 112.
- Co[*lumba*] *cycnocephala* BONAPARTE, Compt. Rend., xl, 1855, 102.
- Columba (Lophyrus) cycnocephala* LESSON, Traité d'Orn., 1831, 476.
- Goura cycnocephala* STEPHENS, Shaw's Gen. Zool., xi, 1819, 125.—SCHLEGEL, De Dierent., 1864, 208.
- Geophilus? cycnocephala* SELBY, Naturalists' Libr., Pigeons, 1835, 216, pl. 27.
- Sternænas cycnocephala* BONAPARTE, Geog. and Comp. List, 1838, 41,—GRAY, List Birds Brit. Mus., Columbe, 1856, 58.—GOSSE, Birds Jamaica, 1847, 324, footnote.—COUES, Check List, 1873, no. 377.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 395, pl. 58, fig. 5.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886 (and 2d ed., 1895), no. 323; 3d ed., 1910, 151.—CORY, Auk, iv, 1887, 120 (synonymy; descr.; range); Birds West Ind., 1889, 221 (Cuba); Cat. West Ind. Birds, 1892, 10, 98, 139.—SALVADORI, Cat. Birds Brit. Mus., xxi, 1893, 613 (Cuba).—SCOTT, Auk, ix, 1892, 125 (Jamaica; introduced from Cuba?).—BANGS and ZAPPEY, Am. Nat., xxxix, 1905, 199 (Isle of Pines).
- St[arno]cnas cycnocephala* REICHENBACH, Vollst. Naturg., Columbaria, i, 1861, 30, pl. 257; fig. 1431, pl. 266, figs. 2879-2881.
- [*Sternænas*] *cycnocephala* GRAY, Hand-list, ii, 1870, 244, no. 9412.—COUES, Key N. Am. Birds, 1872, 227.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 134.—CORY, List Birds West Ind., rev. ed., 1886, 24.—SHARPE, Hand-list, i, 1899, 91.—FORBES and ROBINSON, Bull. Liverp. Mus., ii, 1900, 147.
- [*Sternocnas*] *cycnocephala* GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 299.
- [*Sternocnas*] *cycnocephala* COUES, Key N. Am. Birds, 2d ed., 1884, 571.—RIDGWAY, Man. N. Am. Birds, 1887, 217.
- [*Sternocnas*] *cycnocephala* BONAPARTE, Compt. Rend., xl, 1855, 102, 220; Coup d'Œil Ordre Fig., 1855, 34, 58; Consp. Av., ii, 1857, 69.—GUNDLACH, Journ. für Orn. 1861, 336, (Cuba).
- Sternocnas cycnocephala* CABANIS, Journ. für Orn., 1856, 108 (Cuba; habits).—BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 308 ("Venezuela"; "Brazil").—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 608; Cat. N. Am. Birds, 1859, no. 455.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—ALBRECHT, Journ. für Orn., 1862, 204 (Jamaica).—PELZELN, Orn. Bras., 1870, 451.—SCHLEGEL, Mus. Pays-Bas, iv, no. 35 (Columbae), 1873, 166 (Cuba).—GUNDLACH, Journ. für Orn., 1874, 291 (Cuba; habits); Contr. Orn. Cubana, 1876, 132 (habits; descr. eggs); Orn. Cubana, ed. 1895, 159 (habits; descr. eggs).—MAYNARD, Birds, E. N. Am., 1881, 343; 2d ed., 1896, 248.



- Sternænas cyanocephala* AUDUBON, Synopsis, 1839, 193; Birds Am., oct. ed., v, 1842, 23, pl. 284.
- S*[*tarnænas*] *cyanocephala* GRAY, Gen. Birds, ii, 1845, 479.
- Sternænas cyanocephalus* COUES, Check List, 2d ed., 1882, no. 551.
- Sternænas cyanocephala* REICHENBACH, Syn. Av., 1847, figs. 1445, 1446; Novit. Suppl., 1851, pl. 266, figs. 2879-2881; Av. Syst. Nat., 1852, p. xxv.
- Sturnænas cyanocephala* SCHMIDT, Proc. Zool. Soc. London., 1880, 314 (Duration of life).
- Perdicopelia cyanocephala* VAN DER HOEVEN, Handb. Zool., ed. 2, ii, 1855, 680.
- Geotrygon cyanocephala* GIEBEL, Thes. Orn., ii, 1875, 255.
- [*Columba*] *tetraoides* SCOPOLI, Ann. I, Hist. Nat., 1769, 125, no. 180.—GMELIN, Syst. Nat., i, pt. 2, 1789, 772.—LATHAM, Index Orn., ii, 1790, 594.
- Columba tetraoides* BONNATERRE, Tabl. Enc. Méth., i, 1790, 245.—VIEILLOT, Nouv. Dict. d'Hist. Nat., xxvi, 1818, 345.—DESMAREST, Dict. Sci. Nat., xl, 1826, 370.



## ADDENDA.

Page 9.—Add to references under *Cuculus canorus telephonus*, after CLARK (A. H.):

THAYER and BANGS, Proc. New Engl. Zool. Club, v. 1914, 36 (Kolyma region, e. Siberia).

Page 17.—Add to references under *Coccyzus americanus americanus*:

ALLEN (G. M.), Auk, xxx, 1913, 25 (Essex Co., Massachusetts, May 23 and June 14, 1884, 1901, one pair breeding; Aug. 20, 1903; May 17, 1906).—VISHER, Auk, xxx, 1913, 568 (Sanborn Co., South Dakota, breeding).

Page 21.—See critical notes concerning *Coccyzus euleri* Cabanis (= *C. julieni* Lawrence) by Hellmayr, in Novitates Zoologicae, xx, 1913, 252.

Page 31.—Add to synonymy of *Coccyzus minor vincentis*:

*Coccyzus m[inor] vincentis* [lapsus] RIDGWAY, Proc. Biol. Soc. Wash., xxviii, 1915, 105, in text.

Page 35.—Add to references under [*Coccyzus*] *ferrugineus*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 40.

Page 41.—Add to references under *Coccyzus erythrophthalmus*:

VISHER, Auk, xxx, 1913, 568 (Sanborn Co., South Dakota).

Page 50, immediately preceding first line.—Insert:

(?) *Cuculus cayanus* (not of Linnæus) WAGLER, Isis, 1831, 524 (Mexico).

Page 51.—Add to citations of *Piaya cayana thermophila*:

PETERS, Auk, xxx, 1913, 373 (Camp Mengel and Xcopen, Quintana Roo).

Page 55.—Add to citations of [*Hyetornis*] *pluvialis*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 43.

Page 57.—Add to references under [*Hyetornis*] *feldi*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 43.

Page 59.—Add to references under [*Saurothera*] *bahamensis*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 43.

Page 60.—Add to references under [*Saurothera*] *andria*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 43.

Page 61.—Add to references under [*Saurothera*] *merlini*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 42 (Cuba).

Page 63.—Add to references under [*Saurothera*] *vieillotii*:

CORY, List Birds West Ind., 1885, 18.—FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 43.

Page 64.—Add to references under [*Saurothera*] *vetula*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 42 (Spanishtown, Jamaica).

Page 65.—Add to references under [*Saurothera*] *dominicensis*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 42 (Las Cañetas, i. e. Las Cañitas, Santo Domingo).

Page 73.—Insert after *Geococcyx erythropygius*, etc.:

[*Morococcyx*] *erythropygius* FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 45.

Insert after [*Morococcyx*] *erythropygius*, etc.:

*M[orococcyx] e[rythropygius] erythropygius* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 105, in text.

Pages 75, 80.—Change *Geococcyx affinis* Hartlaub to *Geococcyx velox* (A. Wagner). It has been shown by Hellmayr (Novit. Zool., xx, 1913, 253) that the bird named, in 1836, *Cuculus velox* by A. Wagner is the same species as that named eight years later by Dr. Hartlaub *Geococcyx affinis*, and not the same as *G. californianus*. Consequently, the citation of *Cuculus velox*, etc., on p. 79 should be transferred to p. 82, immediately preceding references to *Geococcyx affinis*.

Page 79.—Add to references under *Geococcyx californianus*:

BUNKER, Kansas Univ. Sci. Bull., vii, 1913, 148 (s. w. Kansas).—BERGTOLD, Auk, xxx, 1913, 434 (bird recorded by Cooke, Auk, xxvi, 1909, 412, was a liberated specimen.).

Page 80.—Add to references under [*Geococcyx*] *mexicanus*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 45 (Nicasio, California; Laredo, Texas; Colorado).

Page 83.—Add to references under [*Geococcyx*] *affinis*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 45 (Ducñas, Guatemala).

Page 85.—Add to references under [*Neomorphus*] *salvini*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 45.

Page 90.—Add to references under *Dromococcyx phasianellus*, following BANGS, Proc. New Engl., etc.:

Auk, xxiv, 1907, 292 (Boruca, Costa Rica).

Add to references under [*Dromococcyx*] *phasianellus*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 46 (Brazil).

Page 93.—To references under [*Crotophaga*] *major* add:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 46 (Para, Brazil; Yquitos, e. Peru; Sarayacu, e. Ecuador).

To citation of *Crotophaga major* TEMMINCK, etc., add:

Note (App.), p. 11.

Page 96.—Add to references under *Crotophaga sulcirostris*:

BUNKER, Kansas Univ. Sci. Bull., vii, 1913, 148 (near Emporia, Kansas, Nov., 1904).—PETERS, Auk, xxx, 1913, 373 (Santa Lucia, Yucatan; Camp Mengel, Quintana Roo).

Page 97.—Add to references under [*Crotophaga*] *sulcirostris*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 46 ("San Domingo"; Retalhuleu, Guatemala; La Palma, Costa Rica; Acajutla, Salvador; Honduras; Valparaiso, Chile).

Page 99.—Add to references under [*Crotophaga*] *ani*:

FORBES and ROBINSON, Bull. Liverp. Mus., i, no. 2, 1898, 46 (Metcalf Parish, Jamaica; Santa Lucia; Medellin, Antioquia, Colombia; Para, Brazil).

Page 102.—Add to references under *Crotophaga ani*:

DABBENE, Anal. Mus. Nac. Hist. Nat. Buenos Aires, xxiii, 1912, 298.

Page 122, footnote *a*.—Add, after references to *Ara militaris*:

*A[ra] m[ilitaris] militaris* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106, in text.

Page 158.—Add to synonymy of *Aratinga holochlora*:

*[onurus] h[olochlorus] holochlorus* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106, in text.

Page 163, in Key to the Species and Subspecies of *Eupsittula*.—Another form of *E. pertinax*, from Colombia, has been described under the name *Aratinga æruginosa occidentalis* (Todd., Proc. Biol. Soc. Wash., xxviii, April 13, 1915, 81) (Rio Hacha, Colombia; coll. Carnegie Mus.). The name should be emended to *Eupsittula pertinax occidentalis* (Todd.).

In *Novitates Zoologicae*, vol. xix, 1912, pp. 84, 85, are some interesting critical notes by Count Salvadori on the forms of *E. pertinax*, of which (excluding *E. ocularis*) seven forms are recognized, all these being accorded specific rank.

Page 181, following *Grammopsittaca lineola*.—Insert:

*[Grammopsittaca] [lineola] lineola* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 106, in text.

Page 189, footnote *a*.—Change *Psittacula* to *P[sittacula]* in citation of Cabanis, and prefix *Psittacula modesta* to citation of Ridgway, Proc. U. S. Nat. Mus., etc. Add to citations of *Psittacula sclateri*: Berlepsch and Hartert, *Novit. Zool.*, ix, 1902, 108 (La Union, Rio Cauca, Venezuela); Salvadori, *Ibis*, 1906, 463 (crit.).—*Psittacula modesta sclateri* Allen, *Auk*, xx, April, 1903, 213, in text (crit.).

Page 190.—Another form of *P. passerina* has been separated as *Psittacula passerina cyanophanes* (Todd, Proc. Biol. Soc. Wash., xxviii, April 13, 1915, 81), from the Rio Hacha, eastern Colombia (type in coll. Carnegie Mus.).

Page 208.—Colombian specimens of *Pionus sordidus* have been separated as *Pionus sordidus saturatus* by Todd (Proc. Biol. Soc. Wash., xxviii, April 13, 1915, 81 (Cincinnati, Santa Marta, Colombia; coll. Carnegie Mus.).

Page 224.—Add to citations of *Psittacus violaceus*:

BECHSTEIN, *Latham's Uebers. Vögel*, i, 1793, 228, 707.—*Psittacus violaceus* KÜHL, *Consp. Psitt.*, 1820, 96 (Guadeloupe).

Page 252.—After citations of [*Psittacus*] *barbadensis* insert:  
*Psittacus barbadensis* BECHSTEIN, Latham's Uebers. Vögel, i, 1793, 240, 709.  
*Psittacus barbadensis* BECHSTEIN, Kurze Uebers., 1811, 97.

Page 265.—After citation of [*Amazona*] *vittata* add:  
*A[amazona] v[itata] vittata* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915,  
 106, in text.

Page 269.—Delete citation of *Psittacus gutturalis* MÜLLER, etc.  
 This belongs under *Amazona leucocephala leucocephala* where it is cor-  
 rectly placed on page 272.

Page 286, footnote a.—Emend first reference to read:  
*Columba rufina* Temminck, Les Pigeons, i, 1808-11, 59[123], pl. 24 (French  
 Guiana; "Cuba;" "St. Domingue;" "Jamaica"), and add: *C[olumba] ruffina*  
 Temminck, Hist. Nat. Fig. et Gallin., i, 1813, 467 (Guiana).

Page 287, footnote a.—Before *Ch[loroenas] sylvestris* Reichenbach,  
 insert:

[*Chloroenas*] *sylvestris* BONAPARTE, Consp. Gen. Av., ii, 1857, 52.

Page 298.—To citations of *Chloroenas inornata* add:  
 GUNDLACH, Contr. Orn. Cubana, 1876, 128, part (Cuba; habits, etc.); Orn. Cubana,  
 ed. 1895, 155, part (Cuba; habits; descr. eggs).

Correct citation of *Ch[loroenas] inornata* REICHENBACH to read:  
 Vollst. Naturg., Columbariae, 1861, 62, pl. 222, fig. 2582 ("Soll einsam leben in  
 Mexiko, Rio Grande und Matamoras bei Camargo-Victoria").

Following this, insert:

*C[hloroenas] i[nornata] inornata* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27,  
 1915, 107, in text.

Insert before *Chloroenas inornata exigua* (last line):

*C[hloroenas] i[nornata] exigua* RIDGWAY, Proc. Biol. Soc. Wash., May 27, 1915, 107, in  
 text (*nomen nudum*; no locality).

Page 311.—Sixteenth line from bottom, insert after SCHLEGEL:  
 Dierent. Amsterdam, 1872, 208.

Page 312.—Add to citations of *Patigoenas leucocephala* GUNDLACH:  
 Orn. Cubana, ed. 1895, 156 (Cuba; habits; descr. eggs).

Insert after *Patagioenas leucocephala* SCLATER, etc.:

*Patagioenas laucocephala* GUNDLACH, Contr. Orn. Cubana, 1876, 129 (Cuba; habits).

Page 314.—Add to citations of *Patagioenas corensis* GUNDLACH:  
 Contr. Orn. Cubana, 1876, 131 (Cuba; habits; descr. eggs); Orn. Cubana, ed. 1895,  
 158 (Cuba; habits; descr. eggs).

Page 337.—To citations of *Ectopistes migratoria* under GUNDLACH  
 add:

Contr. Orn. Cubana, 1876, 140 (Cuba; two records); Orn. Cubana, ed. 1895, 170  
 (Cuba; two records).

After citation of MEARNS, Bull. Essex Inst., etc., add:

Repaged ed., 1881, 94.

Page 339.—*Turtur migratorius* SCHLEGEL. Page should be 205 instead of 305, and date of publication 1872 instead of 1864.

Page 339.—The earliest publication of *Zenaidura* BONAPARTE is Comptes Rendus, xxxix, 1854, 871.

Page 343.—To citations of *Zenaidura macroura* add:

GUNDLACH, Orn. Cubana, ed. 1895, 168 (Cuba; habits; descr. eggs).

To citations of *Columba carolinensis* add:

TEMMINCK, Les Pigeons, i, 1808–11, 111[175], pl. 50, part (Porto Rico; Santo Domingo); Hist. Nat. Fig. et Gallin., i, 1813, 355, part (Porto Rico; Santo Domingo), and insert below: *C[olumba] carolinensis* TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 487, part.

Add to citations of *Perissura carolinensis* GUNDLACH:

Contr. Orn. Cubana, 1876, 139 (Cuba; habits).

Page 346.—Correct citations of *Columba carolinensis* TEMMINCK to read as follows:

Les Pigeons, i, 1808–11, 111[175], pl. 50, part (Carolina); Hist. Nat. Fig. et Gallin., i, 1813, 355, part (Carolina).

To citations of *C[olumba] carolinensis* add:

TEMMINCK, Hist. Nat. Fig. et Gallin., i, 1813, 487, part (“America septentrionali”)

Page 347.—To citations of *Z[enaidura] carolinensis* add, as first reference:

REICHENBACH, Vollst. Naturg., Columbariae, 1861, 19, pl. 249, figs. 1380, 1382.

To citation of MEARNS, Bull. Essex Inst., etc., add:

Repaged ed., 1881, 94.

Correct citation of *Turtur carolinensis* SCHLEGEL, De Dierent. to read: 1872 instead of 1864.

Page 350.—Insert, before last line:

*Zenaidura marginella* BONAPARTE, Compt. Rend., xl, 1855, 96 (California; crit.).

Insert after last line:

*Z[enaidura] marginella* REICHENBACH, Vollst. Naturg., Columbariae, 1861, 20 (“Kalifornien von Juarez”).

Page 359.—To citations of *Zenaida zenaida* add:

GUNDLACH, Orn. Cubana, ed. 1895, 167 (Cuba; habits; descr. eggs).

Page 360.—To citations of *Zenaida amabilis* under GUNDLACH add:

Contr. Orn. Cubana, 1876, 138 (Cuba; habits; descr. eggs).

Page 387.—Below *Turtur risoria* insert:

*Turter risoria* CORY, List Birds West Ind., revised ed., 1886, App. (Cuba; Jamaica; St. Bartholomew; introduced).

Page 389.—The name *Columba squammata* Lesson (Traité d'Orn., 1831, 474) having priority over *Scardafella ridgwayi* Richmond (1896), a fact which was unfortunately overlooked when this page was being printed, obviously necessitates changes of nomenclature for both forms of the South American species, *S. ridgwayi ridgwayi*

becoming *S. squammata ridgwayi* and *S. ridgwayi brasiliensis* becoming *S. squammata squammata*, as correctly given by Hellmayr in 1908 (Novit. Zool., xv, 92, 93.)

Page 396, footnote *c*.—Insert as second reference, *Ch[amæpelia] griseola* Bonaparte, Compt. Rend., xl, 1855, 21 (Brazil; Paraguay; crit.). Insert, after next citation: *Goura griseola* Schlegel, De Dierent., 1872, 208. *P[yrgitoenas] griseola* Reichenbach, Vollst. Naturg., Columbariæ, 1861, 15, pl. 256, figs. 1422, 1423 (Paraguay; Brazil; Guiana; Cumana, Venezuela).

Page 397, footnote *a*.—Insert in synonymy:

*Columba minuta* TEMMINCK, Les Pigeons, i, 1808-11, 28[62], pl. 16 (Paraguay; Rio de la Plata); Hist. Nat. Pig. et Gallin., i, 1813, 432, part.—*Columba minuta* TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 498 (South America).

Insert after *Ch[amaepelia] amazilia* Bonaparte:

Compt. Rend., xl, 1855, 21 (Peru).

Insert, as last references, *P[yrgitoenas] amazilia* Reichenbach, Vollst. Naturg., Columbariæ, 1861, 15 (Peru). *Cham[æpelia] rachidialis* BONAPARTE, Compt. Rend., xl, 1855, 21 (crit.).

In footnote *c* insert:

*Chamæpelia talpiloti* SELBY, Jardine's Naturalists' Libr., v, 1835, 200, pl. 22.

Page 398, in footnote.—Insert:

[*Chamæpelia*] *cinnamomina* and *Ch[amæpelia] cinnamomina* BONAPARTE, Compt. Rend., xl, 1850, 22.—*Talpacotia cinnamomea* BONAPARTE, Compt. Rend., xl, 1855, 22.—*Ch[amæpelia] godina* BONAPARTE, Compt. Rend., xl, 1855, 22, part (includes *C. rufipennis*).

Insert, before *Chamæpelia godina* Pelzeln:

*Ch[amaepelia] godina* REICHENBACH, Vollst. Naturg., Columbariæ, 1861, 16 (Brazil; Bolivia).

Page 431, footnote *a*.—Insert, before last reference:

*Columba geoffroyi* TEMMINCK, Hist. Nat. Pig. et Gallin., i, 1813, 476 (Brazil).

Page 449.—Insert, following references to *Leptotila verreauxi*:

*L[eptotila] v[erreauxi] verreauxi* RIDGWAY, Proc. Biol. Soc. Wash., xxviii, May 27, 1915, 107, in text.

Page 469, footnote.—Insert, as last reference:

*Geotrygon violacea violacea* HELLMAYR, Novit. Zool., xiii, 1906, 384 (Prata, Pará, Brazil; crit.).



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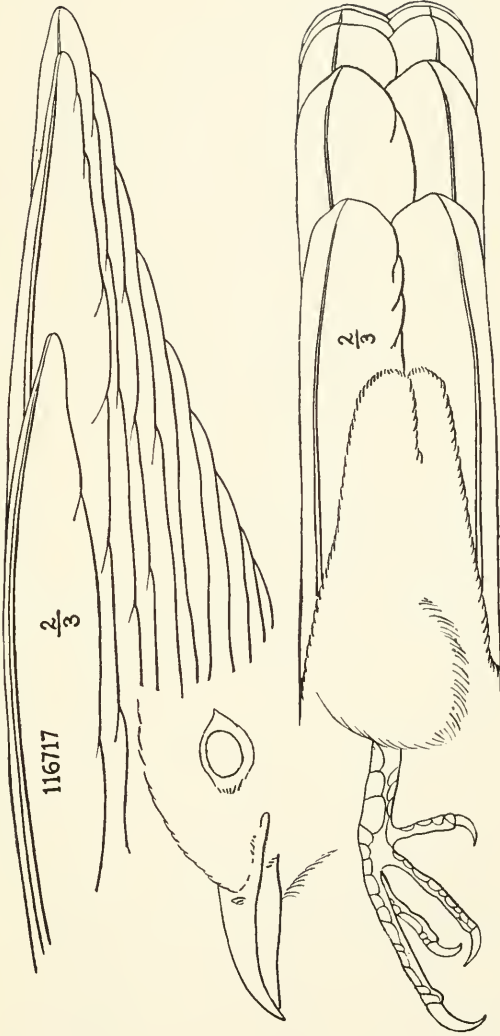
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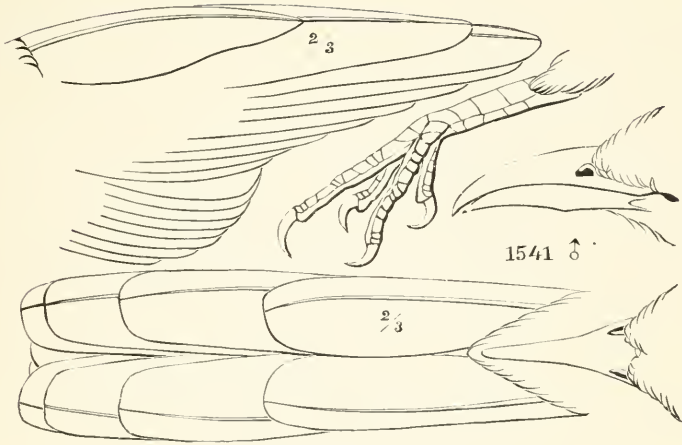




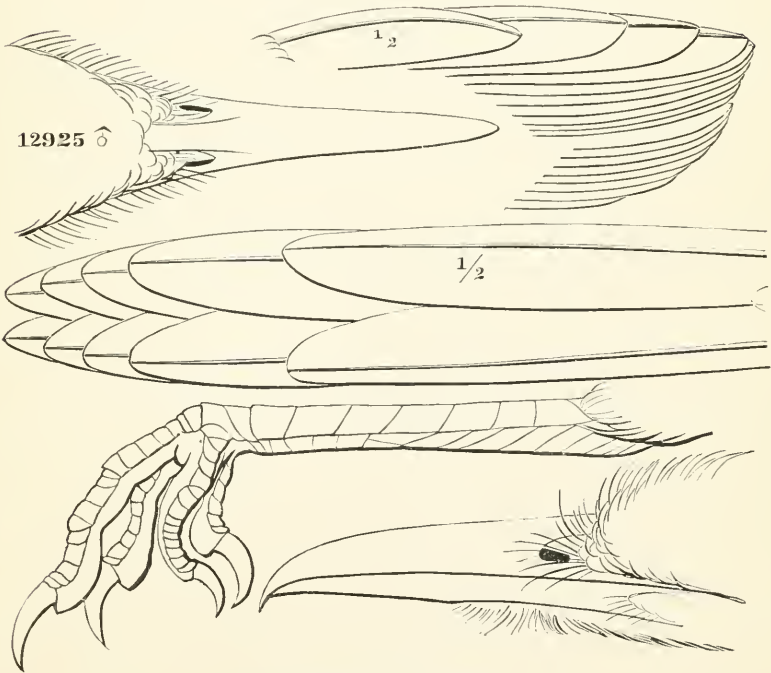
I. CUCULUS canorus.





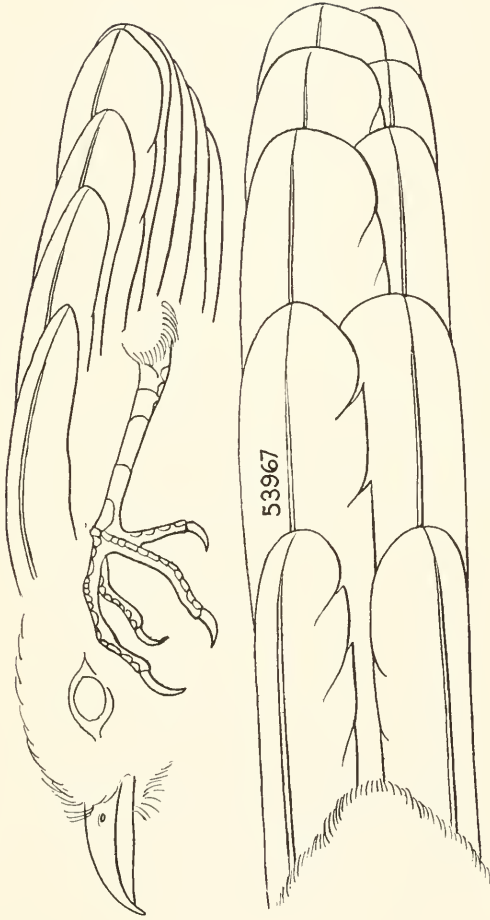


1. COCCYZUS americanus.



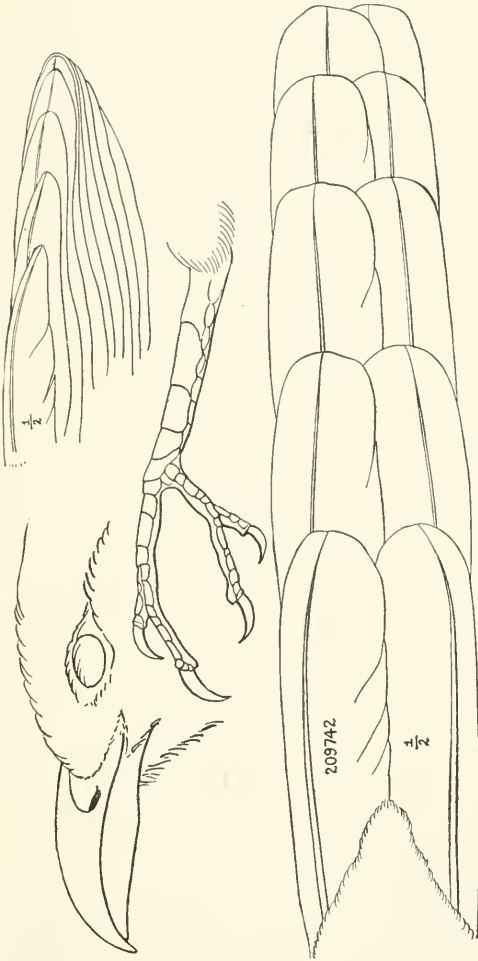
2. GEOCOCYX californianus.





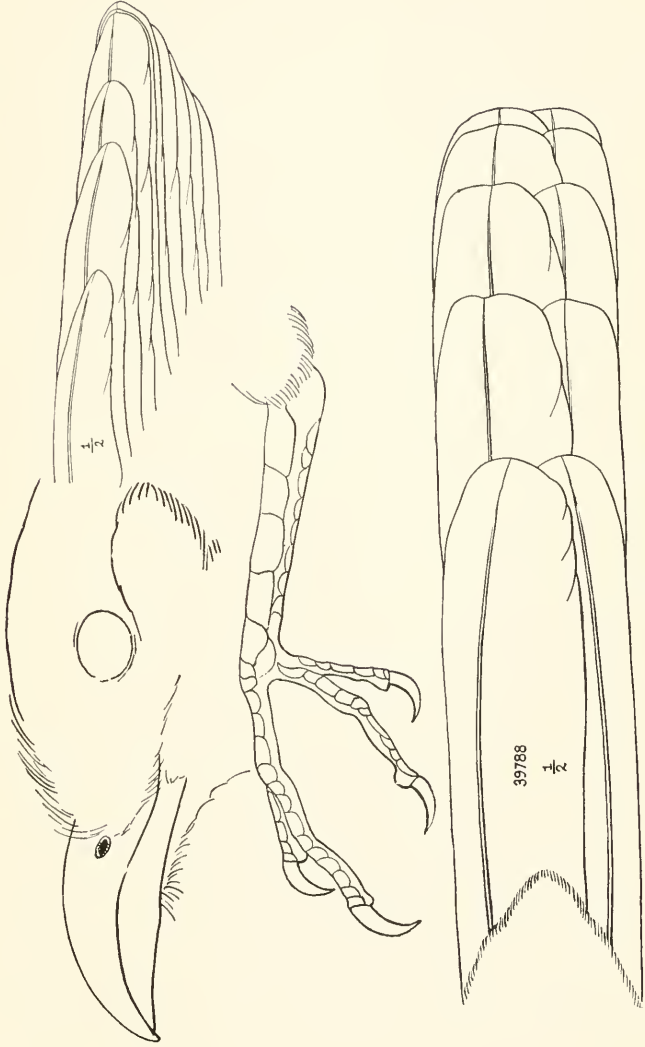
I. COCCYCUA panamensis.





I. *PIAYA thermophila*.

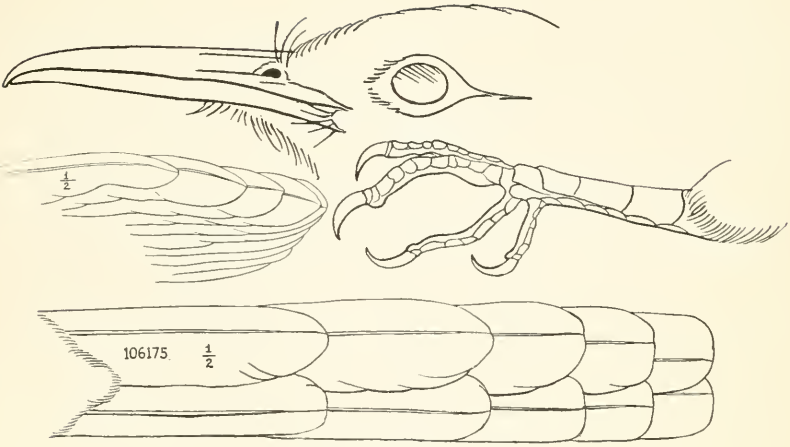




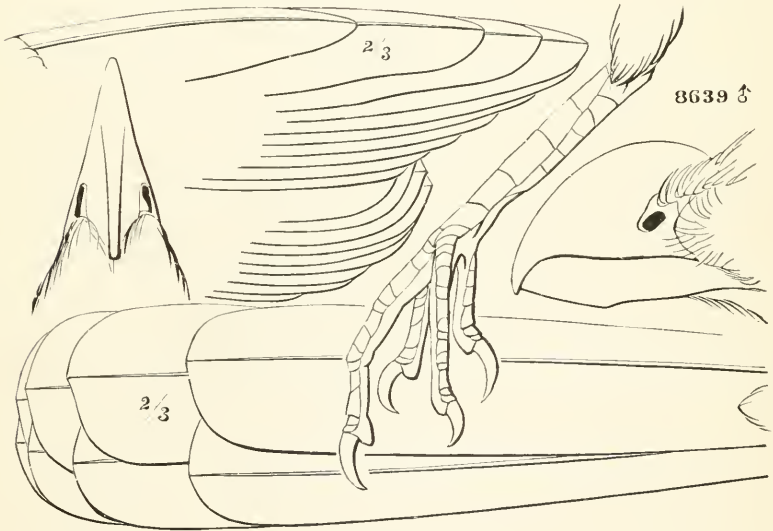
1. *HYETORNIS pluvialis*.





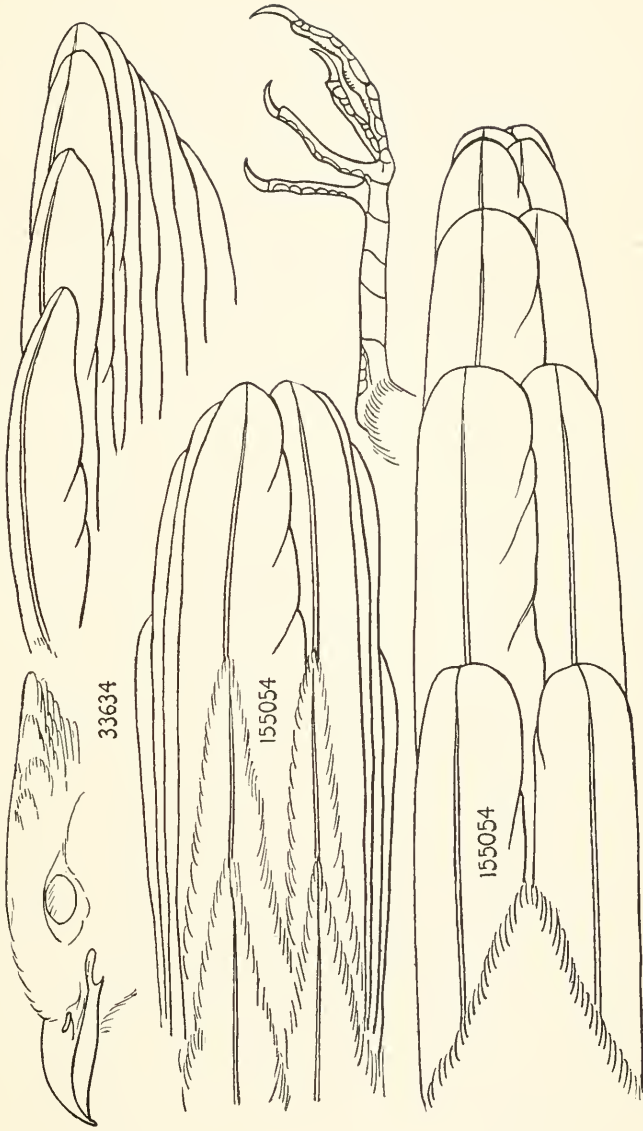


1. SAUROTHERA vieilloti.



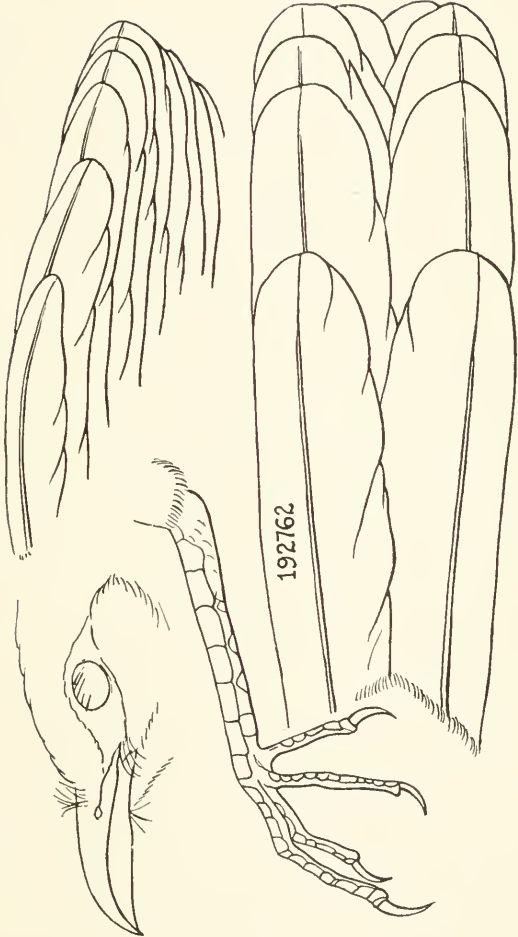
2. CROTOPHAGA ani.





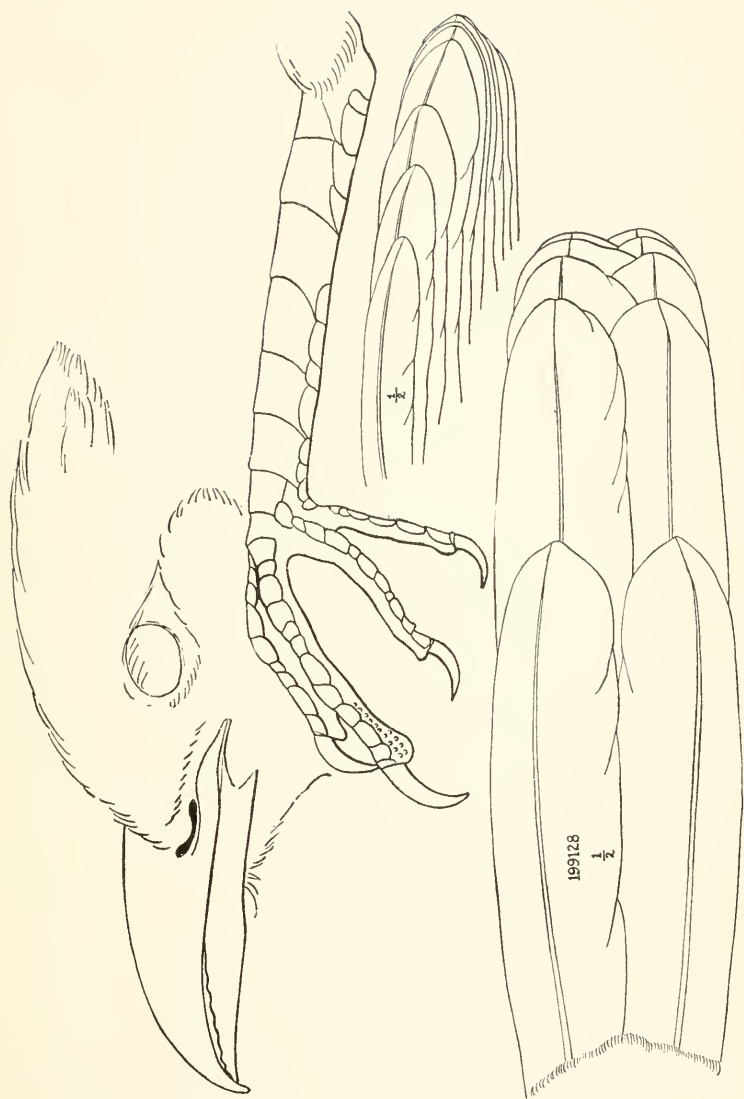
I. *TAPERA excellens*.





I. MOROCOCCVX erythroptygus.





1. *NEOMORPHUS salvini*.

199128  
 $\frac{1}{2}$

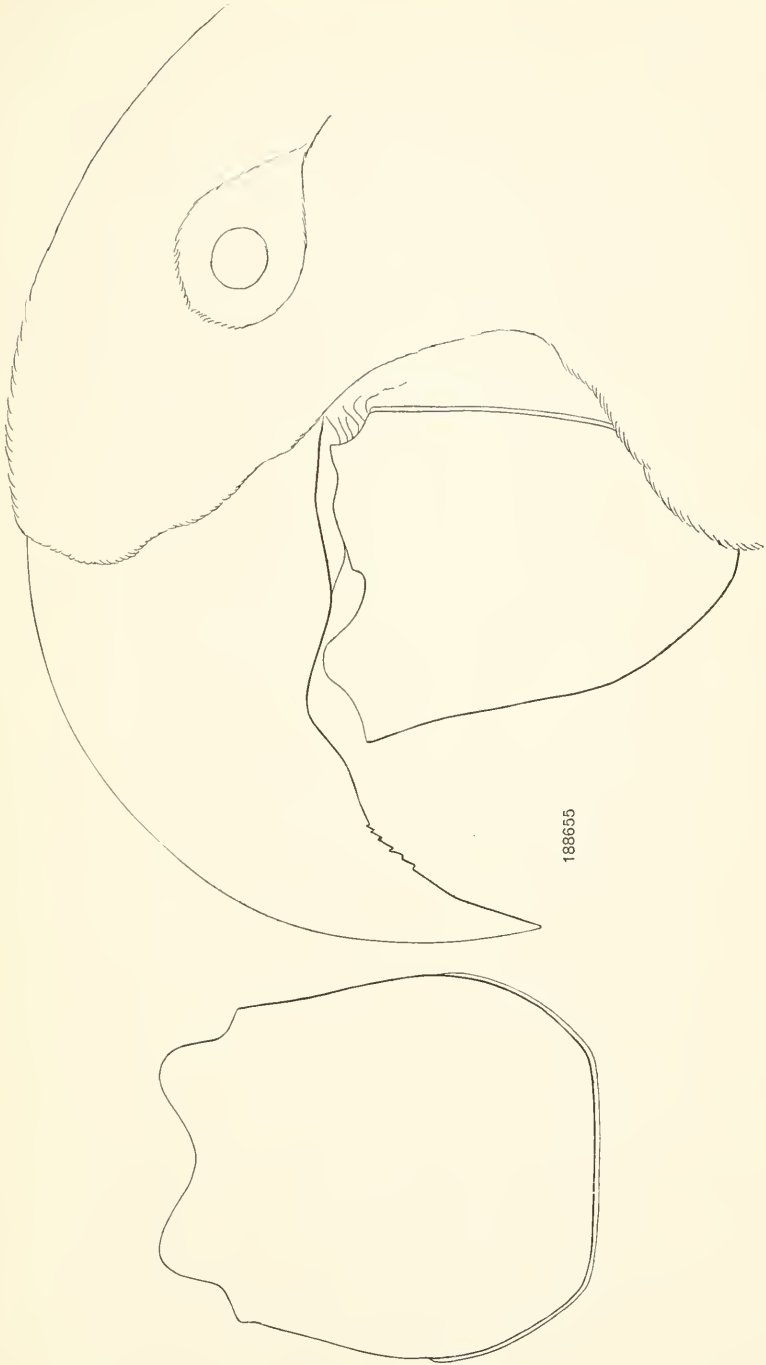






1. *DROMOCOCCYX phasianellus*.

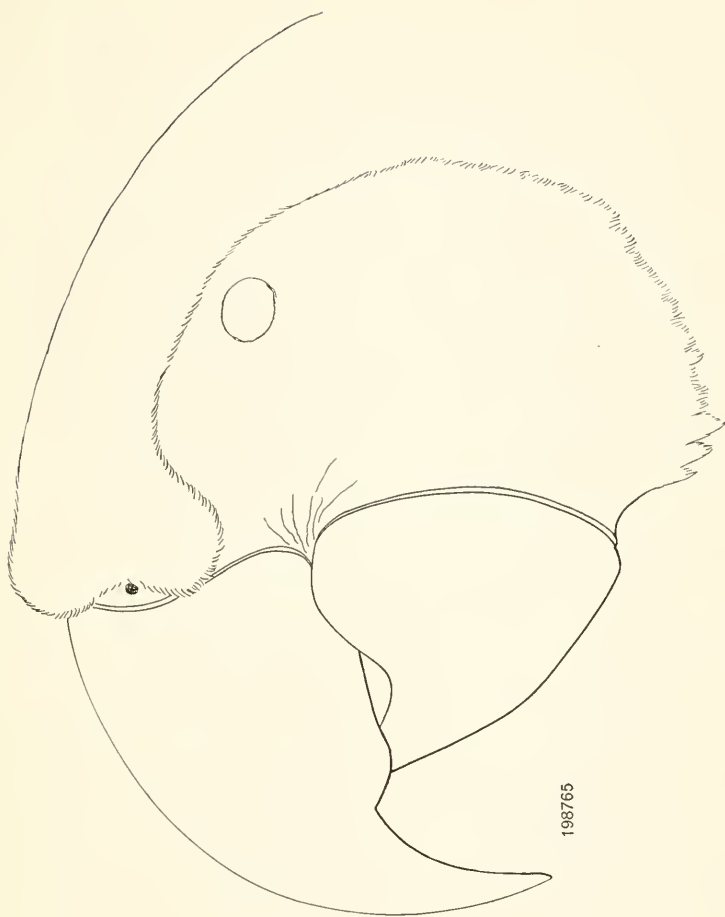




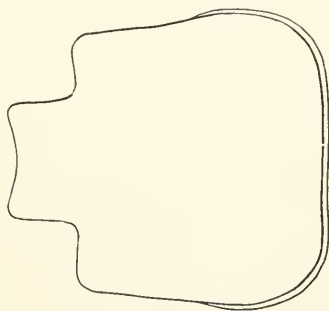
188655

I. ANODORHYNCHUS hyacinthinus.



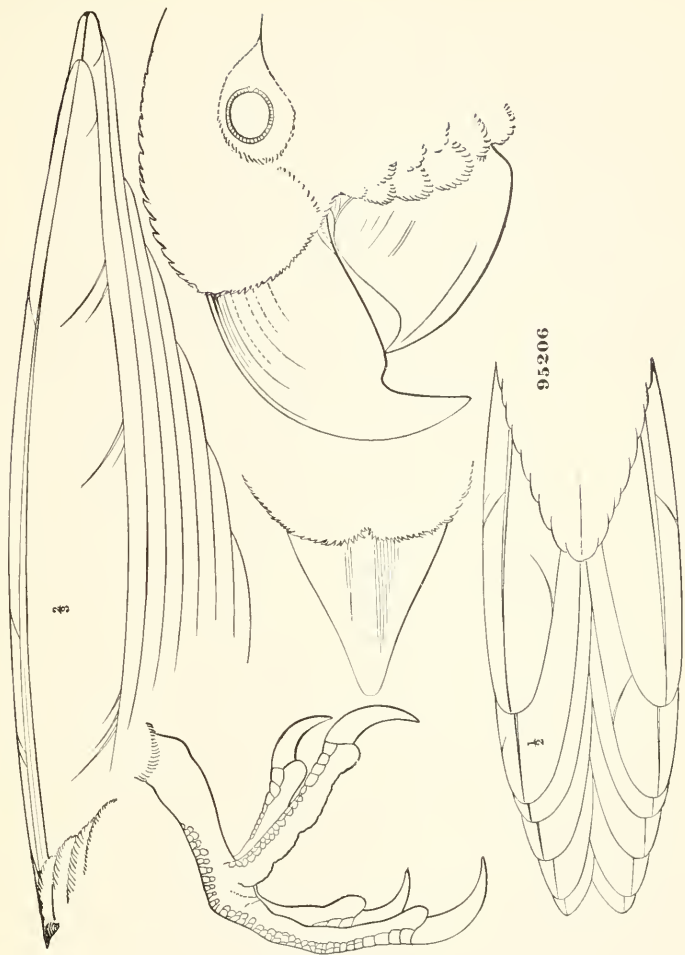


198765

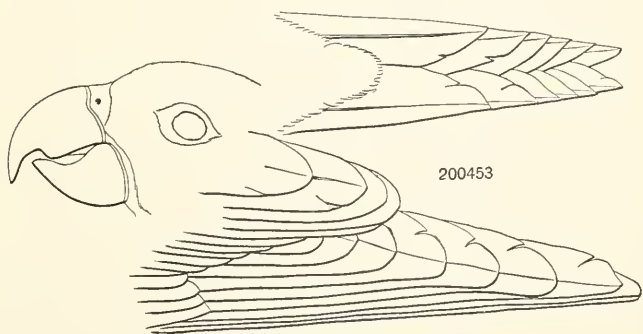


I. *ARA macao*.





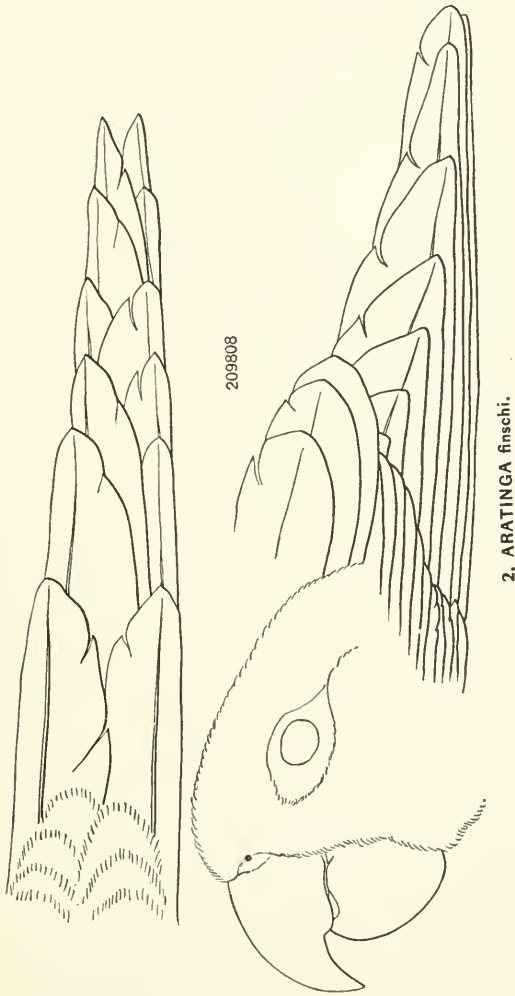
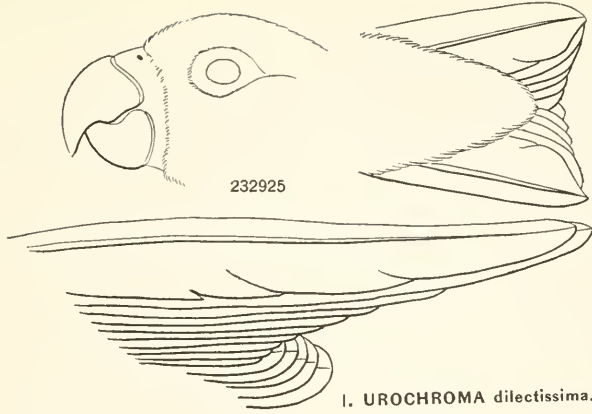
1. *RHYNCOPSITTA pachyrhyncha*.



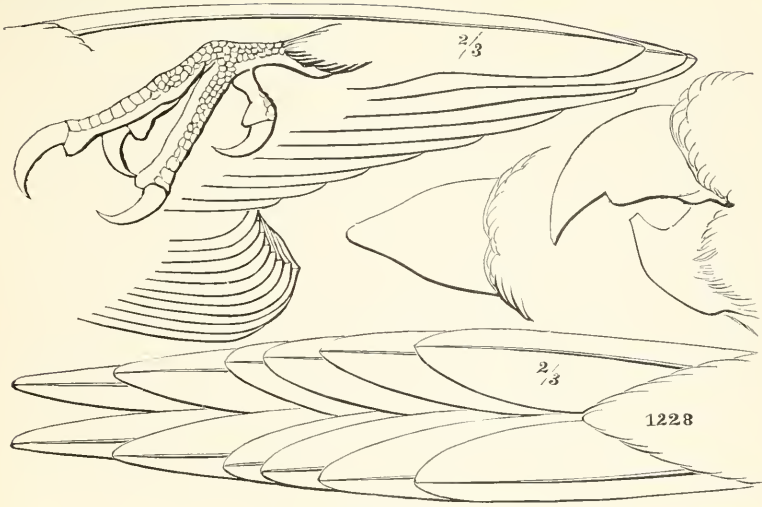
2. *BROTOGERIS jugulatis*.



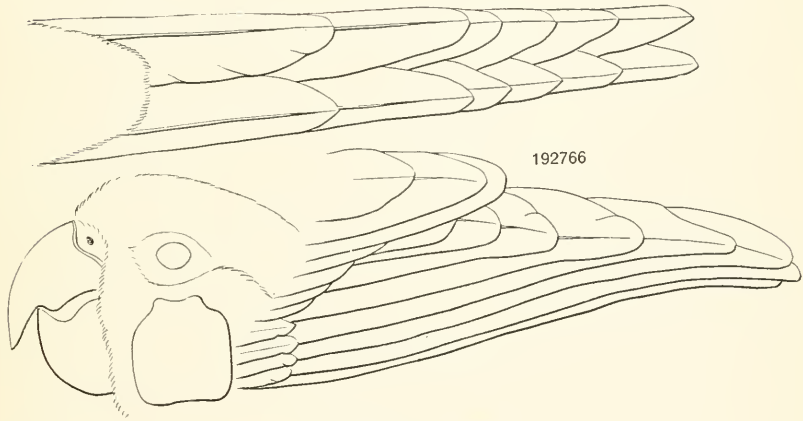




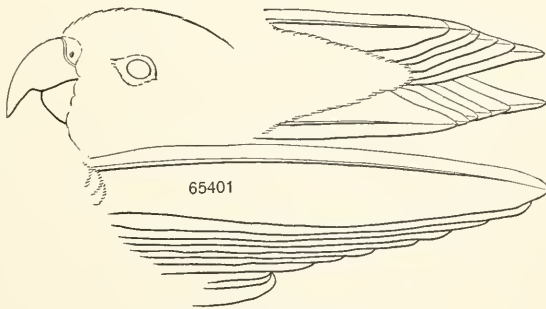




1. *CONUROPSIS carolinensis*.

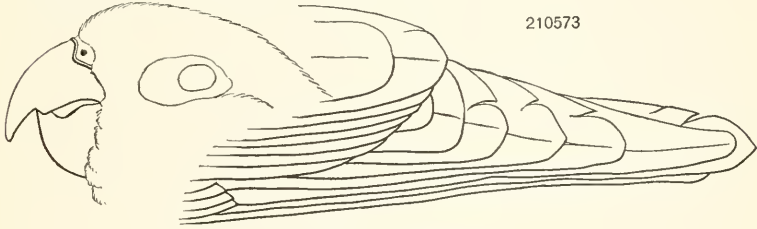
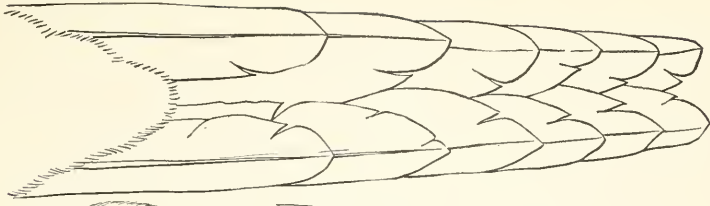


2. *EUPSITTULA astec*.



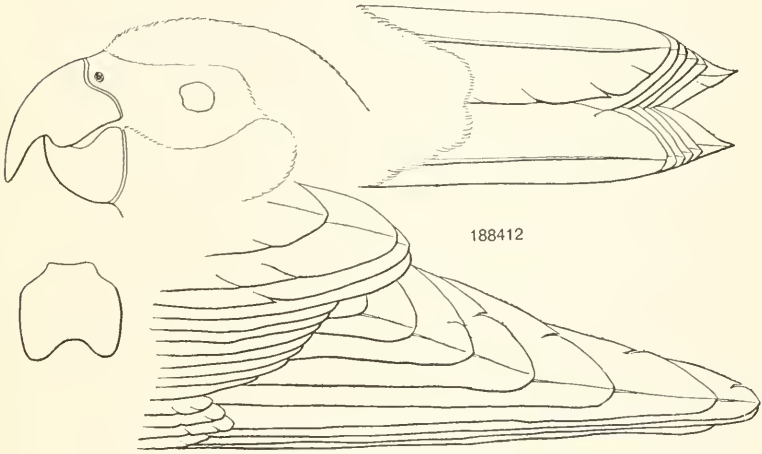
3. *BOLBORHYNCHUS lincola*.





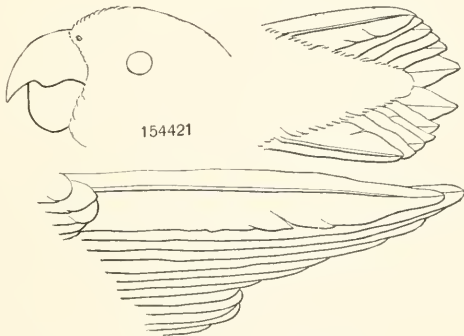
210573

1. *PYRRHURA hoffmanni*.



188412

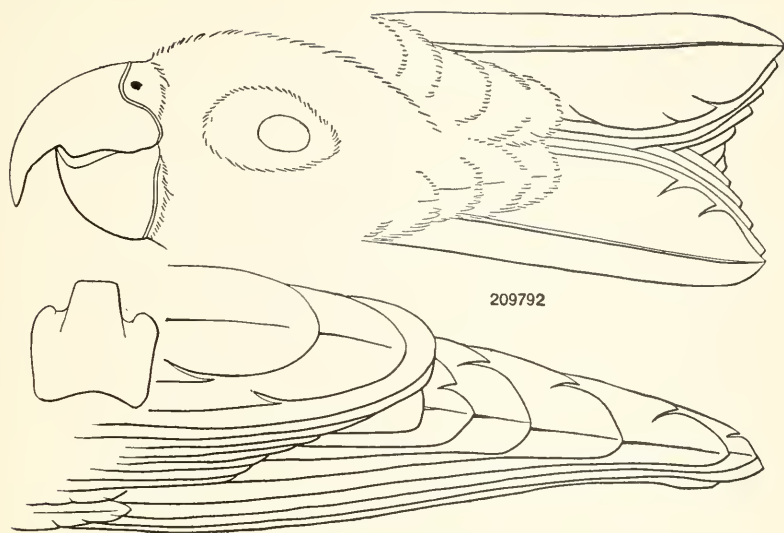
2. *PYRILIA hæmatotis*.



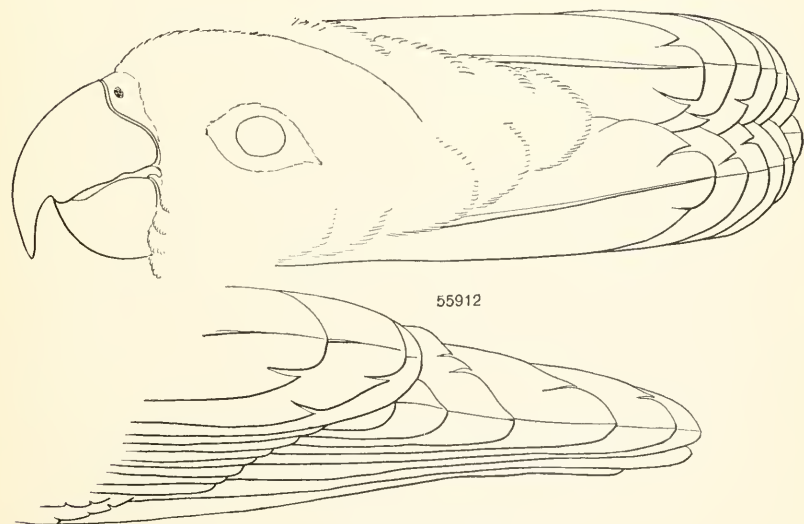
154421

3. *PSITTACULA cyanopygia*.





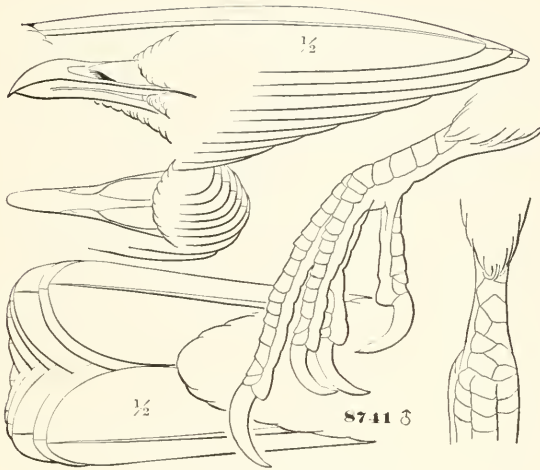
1. *PIONUS menstruus*.



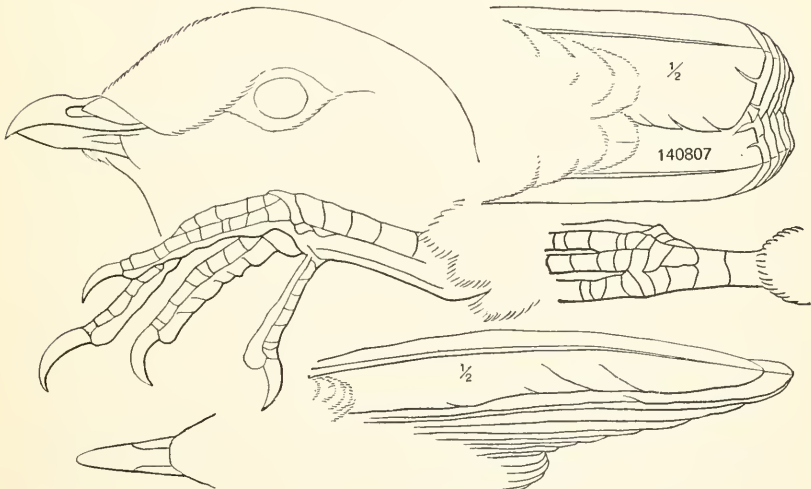
2. *AMAZONA albifrons*.





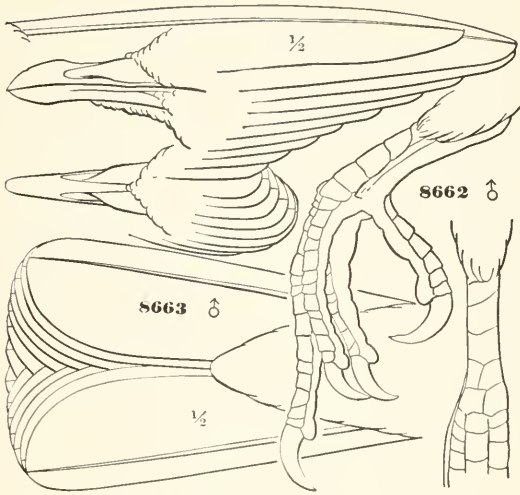


1. *CHLORÆNAS fasciata*.

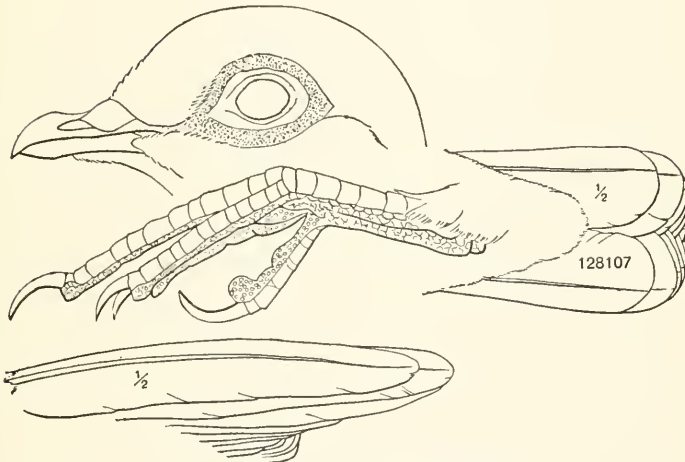


2. *CHLORÆNAS (?) flavirostris*.

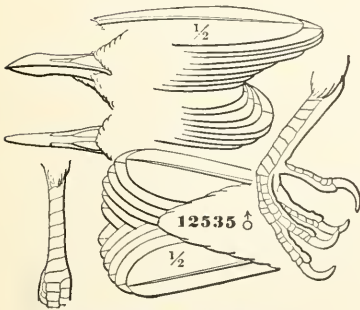




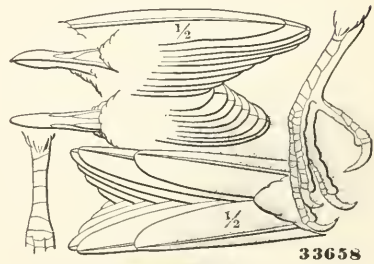
1. PATAGIENAS leucocephala.



2. CROSSOPHTHALMUS gymnophthalmos.

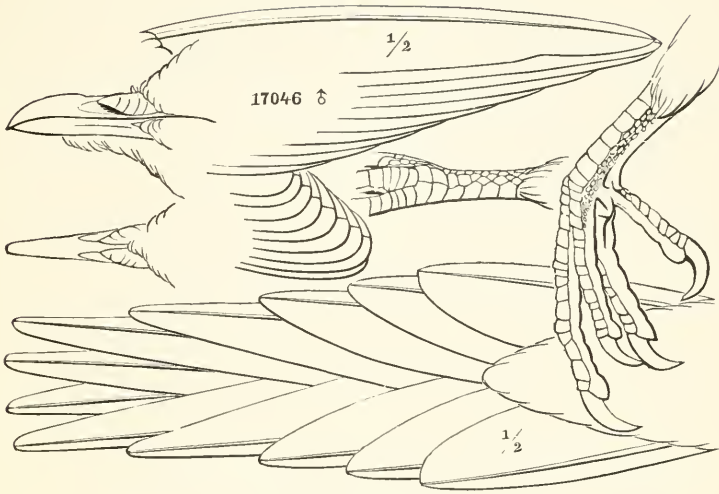


3. CHÆMEPELIA passerina.

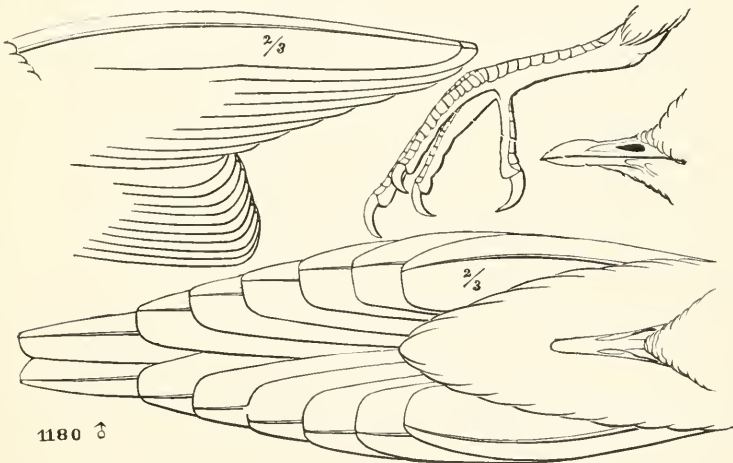


4. SCARDAFELLA inca.



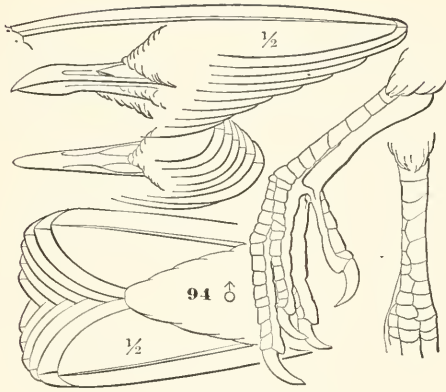


1. *ECTOPISTES migratorius*.

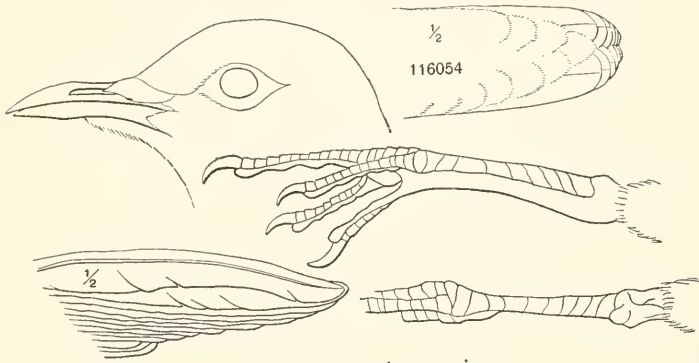


2. *ZENAIIDURA carolinensis*.

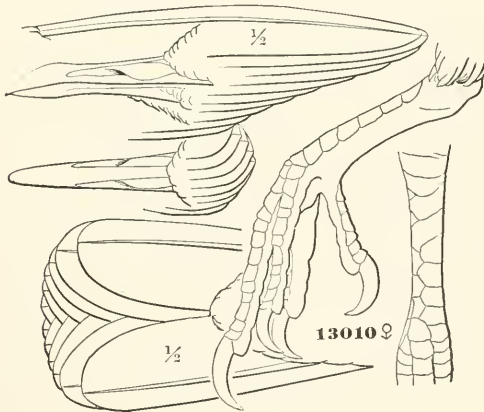




1. ZENAIIDA zenaida.



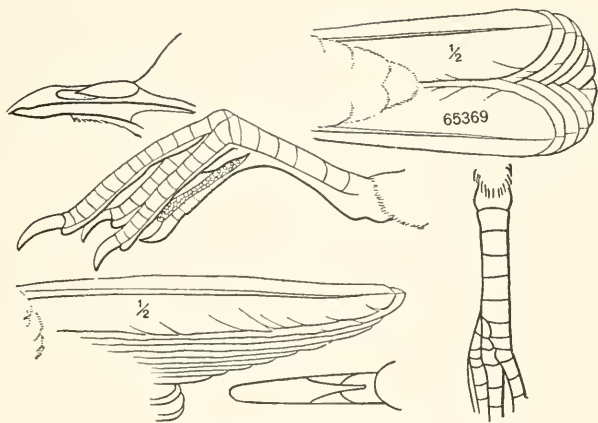
2. NESOPELIA galapagoensis.



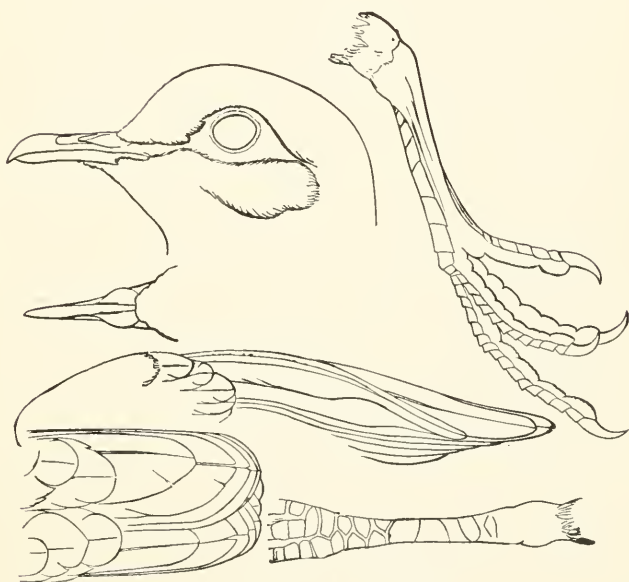
3. MELOPELIA asiatica.





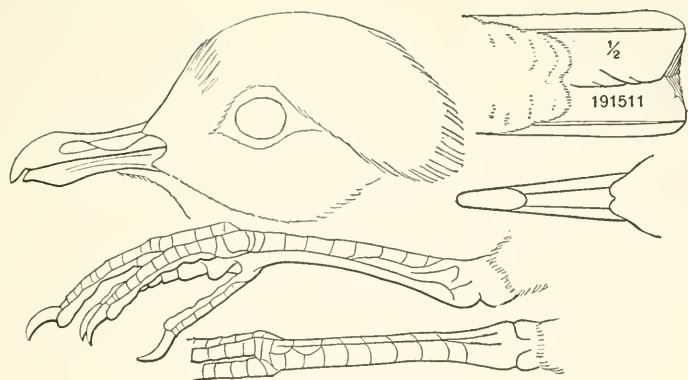


1. *STREPTOPELIA risoria*.

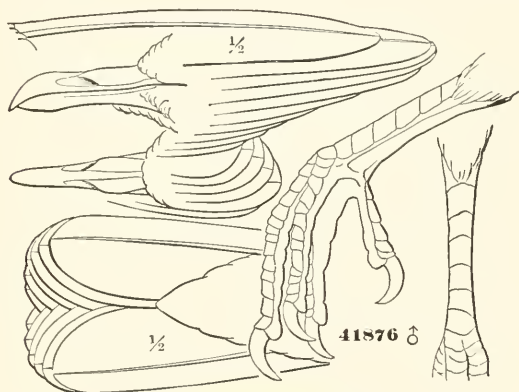


2. *LEPTOTILA brachyptera*.

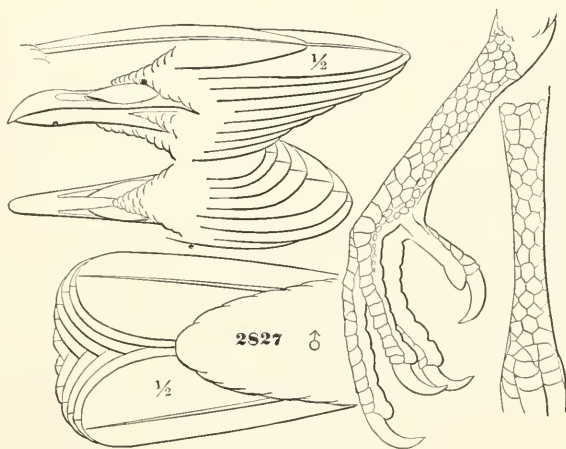




1. *GEOTRYGON* *versicolor*.



2. *OREOPELEIA* *chrysia*.



3. *STARNCENAS* *cyanocephala*.















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