

A REVISION OF THE SUBSPECIES OF THE WHITE-
COLLARED KINGFISHER, SAUROPATIS
CHLORIS (BODDAERT).

By HARRY C. OBERHOLSER,

Of the Biological Survey, United States Department of Agriculture.

The present revision of the races of *Sauropatis chloris* is based primarily on the collection of the United States National Museum, chiefly specimens contributed by Dr. W. L. Abbott. In addition, the writer is indebted for the loan of material to the Academy of Natural Sciences of Philadelphia, through Dr. Witmer Stone; the Museum of Comparative Zoölogy at Cambridge, Massachusetts, through Mr. Outram Bangs; the American Museum of Natural History, through Dr. F. M. Chapman; and also to Mr. J. H. Fleming, of Toronto, Ontario, Canada.

The total number of specimens examined is 386, representing very satisfactorily most of the recognizable subspecies. Several of the races, apparently valid, it has not been possible to verify, but we have, however, included these for the sake of completeness.

The names of colors of which use is here made are based on Mr. Ridgway's "Color Standards and Color Nomenclature." Measurements are all in millimeters, and have been taken as explained in the author's paper on *Butorides virescens*.¹ By far the greater part of the specimens examined will be found duly entered in the tables of measurements; in fact, *Sauropatis chloris collaris* is the only form of which practically all are not so listed. Furthermore, those not used in the diagnostic measurement averages are indicated.

The literature pertaining to *Sauropatis chloris* is not so extensive as would be expected for so well-known and difficult a group. The most important references are:

BLANFORD, W. T.—The Fauna of British India, Birds, vol. 3, 1895, pp. 135-137.
SHARPE, R. B.—Catalogue of the Birds in the British Museum, vol. 17, 1892, pp. 272-283.

HARTERT, ERNST.—Novitates Zoologicae, vol. 11, No 1, March 25, 1904, pp. 197-199.

This species is commonly placed in the genus *Halcyon* Swainson, but it is without doubt to be segregated from that group, as already

¹ Proc. U. S. Nat. Mus., vol. 42, 1912, p. 533.

done by Mr. G. M. Mathews¹ and the writer.² Its proper generic name will therefore become *Sauropatis* Cabanis and Heine,³ of which the type is *Halcyon sanctus* Vigors and Horsfield, by subsequent designation of Sharpe.⁴ This genus differs from *Halcyon* Swainson (type, *Alcedo senegalensis* Linnaeus) in having the culmen practically straight instead of convex; the commissure curved downwards; the gonys convex instead of practically straight; and the first primarily (counting from the outermost) nearly as long as the second and third which are about the same length, and the longest reaching very much beyond the fifth and sixth, instead of being much shorter.

From the genus *Entomothera* Horsfield (type, *Alcedo coromanda* Latham), *Sauropatis* may be distinguished by relatively longer wings; wider, more oval (less linear) and more exposed nostrils; and by the relative lengths of the primaries as from *Halcyon*.

In the genus *Sauropatis*, then, *Sauropatis chloris* (Boddaert) belongs to a group of rather closely allied species, which includes, among others, *Sauropatis sancta* (Vigors and Horsfield), *Sauropatis occipitalis* (Blyth), *Sauropatis sacra* (Gmelin), and *Sauropatis owstoni*⁵ (Rothschild), which last, indeed, may prove to be a subspecies of *Sauropatis chloris*.

With *Sauropatis chloris* are included a considerable number of forms, some of which have been treated as subspecies, some as distinct species. They present a difficult problem, one of the most difficult in the family Alcedinidae, as all who have studied them are doubtless prepared to admit, chiefly because of the great amount of variation, sexual, seasonal, and, individual, in both size and color. This variation has been hitherto too little understood or allowed for, and considerable confusion as well as some useless synonyms have been the result. A good series must be had finally to establish the characters of the forms, for comparisons need to be made with birds of the same sex, age, and condition of plumage. These characters are, in this species, principally in the dimensions of bill, wing, tail, and tarsus; the width and conspicuousness of the blackish nuchal band; the presence or absence of buffy suffusion on the white cervical collar and under parts; the bluish, greenish, or brownish colors of the upper parts, including the wings; the presence or absence of a superciliary stripe; the size of the white concealed occipital patch, and of the light supra-loral spot.

These differences between the various forms of *Halcyon chloris* are in most instances not more than average. and even in those races that

¹ Austral Avian Record, vol. 1, No. 5, Dec. 24, 1912, pp. 108-109.

² Proc. U. S. Nat. Mus., vol. 52, Feb. 8, 1917, p. 189.

³ Mus. Hein., pt. 2, January, 1860, p. 158.

⁴ Mon. Alced., vol. 1, 1871, introduction.

⁵ Bull. Brit. Ornith. Club, vol. 15, No. CIX, Nov. 1, 1904, p. 6 (Marlante Islands).

are separated by water barriers from their nearest relatives, are bridged by individual variation so completely that notwithstanding the attempt of some authors to maintain several distinct species, it is quite certain that all of the recognizable forms are but subspecies of *Sauropatis chloris*. Furthermore, probably none of the races are migratory, so that the supposed occurrences of one race within the range of another are to be explained by intergradation or individual variation.

In most cases the females are distinguishable from the males by duller, more greenish upper parts, more extensively blackish auriculars, and sometimes lack of buff on the sides and flanks; but there appears to be more difference in some races than in others. There are in some cases other characteristics of the female, though no difference of size, so far as we have been able to discover.

The juvenal plumage differs from that of the adult in having the pileum more brownish; remaining upper parts duller and more greenish and more or less tinged with brownish; black nuchal band often more conspicuous; back just below the white cervical collar more or less blackish; tail and wings duller, less bluish (more greenish or brownish); white cervical collar more buffy, and its feathers edged with dusky; supraloral spot more buffy; ear-coverts more blackish (less greenish); and breast feathers margined with dusky.

Immature birds of the first winter, as compared with adults, are duller and more brownish or greenish on the upper surface, like the adult female, but even darker, though more like the adult than is the juvenal plumage, and have the feathers of the breast, the white cervical collar, the sides of neck and of body slightly edged with dusky; also the feathers of the forehead margined with buffy white. The greenish shade of the upper surface persists after other immature features have disappeared, so that very bluish birds are apparently old individuals. Adult birds in worn plumage are likewise decidedly more bluish above than when in fresh condition, though this does not seem materially to affect the wing-quills; have the black nuchal band broader, less washed with greenish, and the ear-coverts more blackish. On the other hand, freshly molted adults have often, if not always, a few slight dusky tips on the lower parts and on the white cervical collar. These soon wear off, however, leaving the parts pure white or buffy as the case may be.

The molt of the juvenal plumage into that of the first winter takes place between the first of September and the middle of January, chiefly during October and November. Apparently, however, the full adult dress is not acquired until the bird is at least a year and a quarter old, possibly even more. The adult molts but once a year, between the middle of September and the middle of January.

A single example of *Sauropatis chloris cyanesceus*, No. 180518, U.S.N.M., from the island of Banka, taken, May 21, 1904, shows some evidences of molt at even that late date.

Individual variation concerns chiefly the length of wing; size of bill; width and distinctness of the black nuchal band; the amount of greenish or bluish on the auriculars; and the greenish, bluish, or brownish shade of the upper parts, including the wings and tail.

The faunal distribution of *Sauropatis chloris* as a species lies principally in the Australian and Oriental regions, but one form, *Sauropatis chloris abyssinica*, reaches the northeastern part of the Ethiopian Region. The geographic range extends north to the Philippine Islands, Siam, India, and Abyssinia; west to Abyssinia; south to western India, Java, middle western and northern Australia; and east to the Fiji Islands, the Solomon Islands, and the Pelew Islands.

The number of subspecies here recognized is 24; and it is interesting to note that of these only six, including three found in Australia, are continental in distribution; while these continental forms, excepting the three in Australia, occupy widely separated ranges. The subspecies of *Sauropatis chloris*, with their type localities, are as follows:

Name.	Type locality.
<i>Sauropatis chloris chloris</i>	Buru Island, Molucca Islands.
<i>Sauropatis chloris terakoi</i>	Pelew Islands.
<i>Sauropatis chloris forsteni</i>	Gorontalo, northern Celebes.
<i>Sauropatis chloris myeri</i>	Togian Islands.
<i>Sauropatis chloris enigma</i>	Salibabu Island, Talaut Islands.
<i>Sauropatis chloris collaris</i>	Manila, Luzon Island, Philippine Islands.
<i>Sauropatis chloris cyanesceus</i>	Pulo Taya, off the southeastern coast of Sumatra.
<i>Sauropatis chloris palmeri</i> ¹	Goenoeng Boender, Mount Salak, Java.
<i>Sauropatis chloris armstrongi</i>	Siam.
<i>Sauropatis chloris davisoni</i>	Aberdeen, South Andamans.
<i>Sauropatis chloris azela</i> ²	Engano Island, Barussan Islands, western Sumatra.
<i>Sauropatis chloris chloroptera</i> ³	Sibabo Bay, Simalur Island, Barussan Islands, western Sumatra.
<i>Sauropatis chloris amphiryta</i> ⁴	Lifau, Nias Island, Barussan Islands, western Sumatra.
<i>Sauropatis chloris vidali</i>	Kelsi Creek, South Konkan, western India.
<i>Sauropatis chloris abyssinica</i>	Coast of Red Sea, Abyssinia.
<i>Sauropatis chloris anachoreta</i>	Hermit Islands, in the western Admiralty Islands, off northeastern New Guinea.
<i>Sauropatis chloris solomonis</i>	Ugi Island, Solomon Islands.
<i>Sauropatis chloris hyperpantia</i> ⁵	Havannah Harbor, Vatié Island, New Hebrides Islands.
<i>Sauropatis chloris svensis</i>	Suva Island, Fiji Islands.
<i>Sauropatis chloris colonus</i>	Egum Island, Louisiade Archipelago, off southeastern New Guinea.
<i>Sauropatis chloris grayi</i>	Aru Islands.
<i>Sauropatis chloris colcloughi</i>	Mud Island, near Brisbane, Queensland, Australia.
<i>Sauropatis chloris sordida</i>	Cape York, northern Queensland, Australia.
<i>Sauropatis chloris mcwilliamsi</i>	Melville Island, Northern Territory, Australia.

¹ New subspecies, see p. 369.

² New subspecies, see p. 377.

³ New subspecies, see p. 379.

⁴ New subspecies, see p. 382.

⁵ New subspecies, see p. 386.

All the races of *Sauropatis chloris* seem to be strictly resident. They inhabit chiefly, if not entirely, the coast regions along the seashore or tidal waters, and rarely wander far inland, though they ascend streams, occasionally even to an altitude of 4,500 feet. They are noisy, conspicuous birds, and therefore usually not hard to

find. Their food consists mostly of crabs and other crustaceans, together with small fishes, lizards, insects, and centipedes.

SAUROPATIS CHLORIS CHLORIS (Boddaert).

Alcedo Chloris BODDAERT, Tabl. Planch. Enlum. d'Hist. Nat., 1783, p. 49 (based on *Martin-Pêcheur à tête verte du Cap de Bonne Esperance*, d'Aubenton, Planch. Enlum., pl. 783, fig. 2; also on *Le Martin-Pêcheur a Tête Verte*, Buffon, Hist. Nat. des Oiseaux [ed. Montbeillard], vol. 13, 1780, p. 279; and the *Green-headed Kingfisher*, Latham, Gen. Synop. Birds, vol. 1, pt. 2, 1782, p. 620).

Alcedo chlorocephala GMELIN, Syst. Nat., vol. 1, pt. 1, 1788, p. 454 (Buru Island, Molucca Islands).

Halcyon chloris keiensis BERLEPSCH, Abhandl. Senckenb. Naturf. Gesell., vol. 34, Heft. 4, 1913, p. 494 (Warka, Great Kei Island, Kei Islands).

Subspecific characters.—Size large; auriculars usually blackish, with little green; a wide, black nuchal band; upper parts rather dark, distinctly greenish, and in the female, particularly on the head, somewhat brownish; exposed surface of wing-quills, especially the primaries, deep blue; sides and flanks with little or no buffy suffusion.

Description.—Adult male. Pileum dull green; back and scapulars dark green; a large, almost concealed patch of white on the occiput; a broad, black nuchal band; a broad, white cervical collar; lower back, rump, and upper tail-coverts green, more bluish than the interscapulum; wings fuscous, the exposed portions of wing-quills deep blue, the remainder of upper surface of wings more greenish; tail bluish green or greenish blue; lores black; supraloral spot creamy white; a narrow line over the eye and a spot on lower eyelid white; remainder of sides of head greenish, except auriculars which are mostly or wholly blackish; entire lower surface white.

Measurements.—Male¹: Wing, 112.5 mm.; tail, 73; exposed culmen, 44; tarsus, 16.3.

Female²: Wing, 103–110.5 (average, 106.8) mm.; tail, 67.5–69 (68.2); exposed culmen, 42.3–45.5 (44.3); tarsus, 15.5–17 (16.2).

Both sexes: Wing, 103–112.5 (average, 108.3) mm.; tail, 67.5–73 (69.4); exposed culmen, 42.3–45.5 (44.2); tarsus, 15.5–17 (16.2)³. Wing, 108–120 (111.4).⁴

Type locality.—Buru Island, Molucca Islands.⁵

Geographic distribution.—East India Islands: north to the Molucca Islands, west to the Molucca Islands, and in the Lesser Sunda Islands to Lombok Island; south to Lombok Island, Timor Island, Sermata Island, and the Timorlaut Islands; and east to the Timorlaut, Kei, and Molucca islands.

¹ One specimen, from the Molucca Islands.

² Three specimens, from the Molucca Islands.

³ Four specimens, from the Molucca Islands.

⁴ Ten specimens, measured by Hartert.

⁵ See p. 356.

While there is a considerable range of individual variation in this race, particularly in size, the average characters are sufficiently marked to separate it readily from *Sauropatis chloris cyanescens* and *Sauropatis chloris collaris* on the one hand, and from *Sauropatis chloris solomonis* on the other. Dr. Hartert has already pointed out¹ most of these characters and outlined the general range of *Sauropatis chloris chloris*.

The adult female of this race differs from the adult male in having the auriculars even more uniformly blackish, with scarcely a trace of green, and the upper parts, including the exposed surface of wings and tail, duller and more greenish. The adult female is also slightly washed with pale buffy on the supraloral spot, flanks, breast, and white cervical collar.

The juvenal female has a stronger tinge of buff on the supraloral spot, sides, flanks, and white cervical collar than has the adult of the same sex, with also a slight wash of greenish on the black ear-coverts.

Boddaert was the first author to give this kingfisher a binomial name, and he christened it *Alcedo chloris*,² basing this on the *Martin-Pêcheur à tête verte du Cap de Bonne Esperance* of d'Aubenton³; *Le Martin-Pêcheur à Tête Verte* of Buffon⁴; and the *Green-headed Kingfisher* of Latham.⁵ Buffon states⁴ that the locality, Cape of Good Hope, given on d'Aubenton's plate, is erroneous, and that the bird really came from the island of Buru, in the Molucca group. Latham,⁶ too, gives Buru Island as the locality of his "green headed kingfisher." It is thus clear that the type locality should be Buru Island, as Dr. E. Hartert has already explained.⁷ Furthermore, Doctor Hartert at the same time definitely fixed Buru as the type locality,⁷ so that even if we disregard the remarks of Buffon, as of course we should not do, the type locality would remain Buru Island from Doctor Hartert's designation. The subsequent action of Count von Berlepsch in selecting Java as the type locality⁸ can, therefore, not stand. This author's *Halcyon chloris keiensis*,⁹ based on the bird from the Kei Islands, described under the supposition that the birds from Java represented the typical form, seems, consequently, to be a synonym of *Sauropatis chloris chloris*. I have not, however, had specimens from the Kei Islands for examination, but, judging from the original description, there appear to be no characters to separate them from *Sauropatis chloris chloris*.

¹ Novit. Zool., vol. 11, No. 1, Mar. 25, 1904, p. 198.

² Tabl. Planch. Enlum. d'Ilist. Nat., 1783, p. 49.

³ Planch. Enlum., pl. 783, fig. 2.

⁴ Hist. Nat. des Oiseaux [ed. Montbeillard], vol. 13, 1780, p. 279.

⁵ Gen. Synop. Birds, vol. 1, pt. 2, 1782, p. 620.

⁶ *Loc. cit.*

⁷ Novit. Zool., vol. 11, No. 1, Mar. 25, 1904, p. 197.

⁸ Abhandl. Senckenb. Naturf. Gesells., vol. 34, Heft 1, 1911, p. 75.

⁹ *Idem*, Heft 4, 1913, p. 494.

Measurements and localities of all the specimens examined are given in the following table:

Measurements of specimens of Sauropatis chloris chloris.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Ex-posed culmen.	Tar-sus.
M. C. Z. 53233.	Male....	Saonek, Waigiou Island, Molucca Islands.	Mar. —, 1907	T. Barbour....	mm. 112.5	mm. 73	mm. 44	mm. 16.3
M. C. Z. 53232.	Female.	Piru, Ceram Island, Molucca Islands.	Feb. —, 1907	.....do.....	103	68	45	15.5
M. C. Z. 39684.	Female, im.	Ambolna Island, Molucca Islands.	May 21, 1897	K. Schädlcr....	110.5	69	42.3	16
U.S.N.M. 178104.	.....do.....	.....do.....	May 1, 1897	.....do.....	107	67.5	45.5	17

SAUROPATIS CHLORIS TERAOKAI (Kuroda).

Halcyon chloris teraokai KURODA, *Tori*, vol. 1, No. 2, 1915, p. 56 (Pelew Islands).

Subspecific characters.—Similar to *Sauropatis chloris chloris*, but averaging larger, with a narrower, less clearly blackish nuchal band, and somewhat less blackish auriculars.

Measurements.—Both sexes:¹ wing, 108–117 (average, 112.3) mm.; tail, 71–78 (73.7); culmen,² 51–56 (54.6); tarsus, 15.

Type locality.—Pelew Islands.

Geographic distribution.—Pelew Islands.

Remarks.—Although we have seen no specimens of this Pelew Islands race, it appears to be recognizable. It differs from *Sauropatis chloris collaris* in larger size, more bluish upper surface, and more blackish auriculars.

SAUROPATIS CHLORIS FORSTENI (Bonaparte).

Halcyon forsteni BONAPARTE, *Consp. Generum Avium*, vol. 1, 1850, p. 157 (Temminck MS.) (Gorontalo, Celebes).

Subspecific characters.—Similar to *Sauropatis chloris chloris*, but averaging somewhat smaller; male with back more bluish (less greenish), and thus less contrasted with the blue of wings; and nuchal collar less distinctly black, more overlaid with greenish or bluish; female with auriculars slightly more washed with greenish.

Measurements.—Male:³ Wing, 100–115 (average, 107.4) mm.; tail, 60–75 (66.9); exposed culmen, 33.5–47 (41.8); tarsus, 14–17 (15.7).

Female:⁴ Wing, 101.5–114 (average, 107.8) mm.; tail, 62–71.5 (66.8); exposed culmen, 34–47 (42.1); tarsus, 14–17 (15.9).

¹ Five specimens from the Pelew Islands, measured by Mr. N. Kuroda.

² Probably total culmen.

³ Seventeen specimens, from Celebes.

⁴ Sixteen specimens, from Celebes.

Both sexes:¹ Wing, 100–115 (average, 107.6) mm.; tail, 60–75 (66.8); exposed culmen, 33.5–47 (41.9); tarsus, 14–17 (15.8).

Type locality.—Gorontalo, northern Celebes.

Geographic distribution.—Celebes, and probably its coastal islands.

Remarks.—This race is, in general characters, intermediate between *Sauropatis chloris chloris* and *Sauropatis chloris collaris*, as it is in geographic position. Although the specimen from Gorontalo, Celebes, on which Bonaparte based his *Halecyon forsteni*,² was undoubtedly very abnormal, as both Schlegel and Sharpe conclude, the name becomes, of course, available, now that the birds from this island prove to be subspecifically recognizable. This form seems, however, to be confined to Celebes and its coastal islands.

The female of *Sauropatis chloris forsteni* differs from the male in having the upper parts decidedly duller, more greenish or olivaceous (less bluish); the auriculars more blackish (less washed with greenish); and the black nuchal band on the average somewhat wider.

The colors of the soft parts, as shown by data on the labels of specimens, are as follows: Iris gray or black; bill black, the base of mandible flesh color; feet black.

Measurements and localities of all the specimens examined are subjoined.

Measurements of specimens of Sauropatis chloris forsteni.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Exposed culmen.	Tar. sus.
A. N. S. Phila. 50141.	Male	Mt. Masarang, 3,000 feet, Celebes.	Oct. —, 1895	C. Hose	mm. 107	mm. 69	mm. 43.5	mm. 15
U.S.N.M. 145159.	do.	Celebes		L. D. H. A. Duivenbode	109.5	68	42.5	16.5
U.S.N.M. 178105.	do.	Northern Celebes	— —, 1883	V. Faber	108.5	66	44	16
J. H. Fleming 10996.	do.	Totok, Minahasa, Celebes.	April —, 1899	A. Weigall	107	67	40	15.5
J. H. Fleming 10998.	do.	do.	May —, 1899	do.	110	68.5	38.5	16.2
J. H. Fleming 10993.	Male	Bojat, Minahasa, Celebes.	June —, 1899	do.	108	65.5	40	15.3
J. H. Fleming 10988.	do.	Kotta Buna, Minahasa, Celebes.	May —, 1899	do.	111	67	43.8	15.2
M. C. Z. 39686.	do.	Northern Celebes	— —, 1883	V. Faber	103.5	67	43.5	15.5
Am. Mus. N. H. 110957.	Male	Dodepo Island, Tomini Gulf, Celebes.	Nov. 16, 1909	R. C. Andrews	115	75	46	16
Am. Mus. N. H. 110953.	do.	do.	do.	do.	112	70	43.5	16
U.S.N.M. 145158.	[Male]	[Celebes]		L. D. H. A. Duivenbode	109	67.5	37	17
U.S.N.M. 145157.	do.	Celebes	— —, 1874	G. Fischer	104	66	40.5	15.5

¹ Thirty-three specimens, from Celebes.

² *Consp. Generum Avium*, vol. 1, 1850, p. 157.

Measurements of specimens of *Sauropatis chloris forsteni*—Continued.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Ex-posed culmen.	Tar-sus.
U.S.N.M. 249729.	Male....	Ayermadidi, Celebes..	May 5, 1916	H. C. Raven...	mm. 102	mm. 60	mm. 33.5	mm. 14.5
U.S.N.M. 249730.	...do....	Koeala Prang, Celebes.	June 18, 1916	...do.....	106	67	44	15.5
U.S.N.M. 249731.	...do....	Manembo Nembo, Celebes.	June 23, 1916	...do.....	107.5	66	41.5	15
U.S.N.M. 249204.	...do....	Likoepong, Celebes...	Feb. 24, 1916	...do.....	100	62	47	15
U.S.N.M. 249205.	...do....	...do.....	Feb. 28, 1916	...do.....	105	65	41	16.5
J. H. Fleming 10994.	Female.	Bojat, Minahasa, Celebes.	May —, 1899	A. Weigall....	108	65	34	16.5
J. H. Fleming 10995.	...do....	...do.....	Mar. 13, 1899	...do.....	114	70	40	16
J. H. Fleming 10992.	...do....	Kotta Buna, Minahasa, Celebes.	May —, 1899	...do.....	104.5	62.8	42	16
J. H. Fleming 10987.	...do....	...do.....	...do.....	...do.....	106	67	39	15.2
J. H. Fleming 10989.	...do....	...do.....	...do.....	...do.....	108	66	44.5	15.5
M. C. Z. 11299.	...do....	Celebes.....	.....	.....	109	67.5	46.3	16.2
Am. Mus. 110955.	...do....	Dodepo Island, Tomini Gulf, Celebes.	Nov. 16, 1909	R. C. Andrews.	112.5	71.5	47	16.8
Am. Mus. 110956.	...do....	Basa Island, Boni Gulf, Celebes.	Dec. 17, 1909	...do.....	111	69.5	45.2	16.5
U.S.N.M. 145161.	[Female].	Celebes.....	.....	G. Fischer....	111.5	69.5	42.5	16.5
U.S.N.M. 145160.	...do....	...do.....	.....	...do.....	111	69	41.5	17
A. N. S. Phila. 50142.	Female.	Menado, Celebes.....	Oct. —, 1895	C. Hose.....	108	69	42	16
U.S.N.M. 249732.	...do....	Toemaras, Celebes..	July 3, 1916	H. C. Raven...	102.5	63	42	15
U.S.N.M. 249203.	...do....	Likoepong, Celebes...	Feb. 23, 1916	...do.....	102	62	43	16.5
U.S.N.M. 249206.	...do....	...do.....	Feb. 29, 1916	...do.....	104	65	38.5	14
U.S.N.M. 249207.	...do....	...do.....	...do.....	...do.....	104.5	62	43	15
U.S.N.M. 249208.	...do....	...do.....	Mar. 11, 1916	...do.....	108.5	70	43	15

SAUROPATIS CHLORIS MEYERI (Sharpe).

Halcyon humii subsp. *a. meyeri* SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892. p. 282 (Togian Islands, near Celebes).

Subspecific characters.—Resembling *Sauropatis chloris forsteni*, but apparently somewhat smaller; male with sides of body strongly suffused with buff; and auriculars more blackish (less greenish or bluish).

Measurements.—Both sexes: ¹ Wing, 103–106 (average, 104.5) mm.; tail, 66.5–75 (69.8); (total) culmen, 54; tarsus, 15.

Type locality.—Togian Islands, Gulf of Tomini, northeastern Celebes.

¹ Measured by Sharpe and Meyer and Wiglesworth

Geographic distribution.—Togian Islands.

Remarks.—No examples of this supposed race have been available in the present connection; but, if the types represent the adult male, the tinge of buffy on the sides of the body would seem to indicate a subspecific difference from the Celebesian *Sauropatis chloris forsteni*. The form is here provisionally recognized, pending further investigation with sufficient material from the Togian Islands.

SAUROPATIS CHLORIS ENIGMA (Hartert).

Halcyon enigma HARTERT, Novit. Zool., vol. 11, No. 1, March 25, 1904, p. 199.
(Salibabu [Lirung] Island, Talaut Islands.)

Subspecific characters.—Similar to *Sauropatis chloris forsteni*, but averaging smaller.

Measurements.—Male: ¹ Wing, 93.3 mm.; tail, 58; exposed culmen, 39.8; tarsus, 13.2.

Both sexes: ² Wing, 90–104 mm.; tail, 54–65; culmen, 30–40, tarsus, 13 mm.

Type locality.—Salibabu Island, Talaut Islands (north of Celebes).

Geographic distribution.—Talaut Islands.

Remarks.—While I have not been able to examine many specimens of this form, it seems to me a somewhat unsatisfactory race, possibly not sufficiently distinct from *Sauropatis chloris forsteni* to retain a separate name. Size is apparently the only character, and the difference in this is not by any means so trenchant as Doctor Hartert supposed when describing his *Halcyon enigma*, for the measurements given by Meyer and Wiglesworth³ show complete intergradation between the so-called small and large forms on the Talaut Islands. Furthermore, specimens of *Sauropatis chloris forsteni* from Celebes not infrequently have a wing measurement of as little as 102 mm., occasionally 100 mm., and other races of *Sauropatis chloris* are still smaller. It seems certain, therefore, that *Sauropatis enigma* is at most but a subspecies of *Sauropatis chloris*. It is possible, of course, as Doctor Hartert suggests,⁴ that while *Sauropatis chloris enigma* is the breeding form on the Talaut Islands, the larger birds are only migratory visitants; but it seems probable that all the races of *Sauropatis chloris* are strictly resident. The most reasonable hypothesis to account for this unusually puzzling case appears to be that all the birds on the Talaut Islands belong to *Sauropatis chloris enigma*, although this would allow an astoundingly great range of individual variation in dimensions.

¹One specimen, No. 13825, J. H. Fleming; Karkellang Island, Talaut Islands, autumn, 1896.

²Ten specimens, measured by Hartert and Meyer and Wiglesworth.

³Birds Celebes, vol. 1, 1897, p. 294.

⁴Novit. Zool., vol. 11, No. 1, Mar. 25, 1904, p. 199.

SAUROPATIS CHLORIS COLLARIS (Scopoli).

Alcedo collaris SCOPOLI, Del Flor. et Faun. Insubr., pt. 2, 1786, p. 90 (Philippine Islands; based on *Le Martin Pêcheur a collier blanc des Philippines*, Sonnerat, Voyage Nouv. Guin., 1776, p. 67, pl. 33).

Subspecific characters.—Similar to *Sauropatis chloris chloris*, but averaging smaller; upper surface of male more greenish, rather brighter, lighter, less inclined to brownish; blackish nuchal collar narrower or obsolete; and exposed surface of wing-quills more greenish blue, and thus less contrasted with the interscapulum; auriculars usually green; female with upper parts more greenish (less bluish); blackish nuchal band narrower, more overlaid with greenish, and thus less conspicuous; wings more greenish (less bluish); and auriculars more greenish (less blackish).

Measurements.—Male: Total length (in flesh),¹ 248–256 mm.; extent,¹ 388–400; wing,² 102–110 (average, 106) mm.; tail, 63–72 (67.4); exposed culmen, 41–48 (44.2); tarsus, 15–17.5 (16).²

Female:³ Wing, 98.5–112.5 (average, 106.2) mm.; tail, 62–74 (67.9); exposed culmen, 41–45.5 (43.2); tarsus, 15.2–17 (16.1).

Both sexes:⁴ Wing, 98.5–112.5 (average, 106.1) mm.; tail, 62–74 (67.6); exposed culmen, 41–48 (43.8); tarsus, 15–17.5 (16).

Type locality.—Manila, Luzon Island, Philippine Islands.⁵

Geographic distribution.—Philippine Islands, north to the Batan Islands, west to the islands of Luzon, Mindoro, Calamianes, and Palawan; south to the islands of Palawan, Cagayan Sulu, Bongao, Tawi Tawi, and Mindanao; east to Mindanao Island, Samar Island, and the island of Luzon.

Remarks.—This is a well-differentiated race, particularly as compared with *Sauropatis chloris chloris*. Doctor Hartert's statement⁶ that the ear-coverts in this form are nearly always greenish like the crown, hardly ever blackish, is borne out by the *males* of our large series, since in a large majority of the specimens of this sex now available the auriculars are at most only slightly, and that posteriorly, blackish. The narrower, sometimes even obsolete black nuchal band is also an excellent character.

From *Sauropatis chloris forsteni* this subspecies is distinguishable by its longer bill; and, in the male, by reason of its more greenish (less blackish) auriculars, less conspicuous, more greenish (less blackish) nuchal band, and rather lighter upper surface; in the female by reason of somewhat lighter, less olivaceous (more greenish) upper parts, narrower and more greenish dark nuchal band, more greenish ear-coverts, and more buffy-washed sides and flanks.

¹ Two specimens.

² Twenty-eight specimens, from the Philippine Islands.

³ Eighteen specimens, from the Philippine Islands.

⁴ Forty-six specimens, from the Philippine Islands.

⁵ Here first definitely restricted.

⁶ Novit. Zool., vol. 11, No. 1, Mar. 25, 1904, p. 198.

The female of *Sauropatis chloris collaris* differs but slightly from the male, though it has usually somewhat duller, more olivaceous upper parts, a well-marked blackish nuchal band, and more blackish (less greenish) auriculars.

A large series of specimens from various parts of the range of this subspecies indicates that there is little if any geographic variation within these limits, since birds from the islands of Mindoro, Luzon, and Mindanao are, so far as we can see, identical in color. That any difference in dimensions is wholly negligible the following comparison of average measurements demonstrates:

Localities.	Wing.	Tail.	Exposed culmen.	Tarsus.
	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
Ten males from Luzon Island.....	106.1	66.9	44.0	15.9
Ten males, from Mindanao Island.....	106.3	67.7	44.3	16.2
Eight males, from Mindoro Island.....	105.4	67.8	44.4	15.9
Ten females, from Luzon Island.....	105.6	67.6	42.5	16.0
Six females, from Mindanao Island.....	106.2	68	43.8	16.2

The colors of the soft parts, as given on the labels of specimens examined, are as follows: Iris grayish brown; bill plumbeous black, broadly flesh color at base of mandible; feet purplish gray, the soles yellowish.

Some idea of the breeding season may be obtained from the note on one of the labels that a well-formed egg was found in the oviduct of a bird collected on March 23. One bird in molt was taken on January 18.

The proper subspecific name for the present race is undoubtedly *Sauropatis chloris collaris*,¹ as above indicated, since both *Alcedo chloris* Boddaert² and *Alcedo chlorocephala* Gmelin³ apply certainly to the form from the Molucca Islands.

One hundred and seventy-two specimens of this race have been examined, from the following localities in the Philippine Archipelago:

Baluk Baluk Island.

Basilan Island.

Batan Island.—Santo Domingo de Basco.

Bongao Island.

Cebu Island.

Cuyo Island.

Fuga Island.

Lapac Island.

Luzon Island.—Pansipit River; Taal Volcano; Currimao (Ilocos Norte); Sorsogon; Tayabas; Infanta; Camarines; Cañacao (Cavite); Neuva Caceres; Cavite; San Fernando de Union; Port Binang; Corregidor Island in Manila Bay.

¹ *Alcedo collaris* Scopoll, Del. Flor. et Fauna Insubr., pt. 2, 1876, p. 90.

² Tabl. Planch. Enlum., 1783, p. 49.

³ Syst. Nat., vol. 1, pt. 1, 1788, p. 454.

Masbate Island.—Dumurug Point.

Mindanao Island.—Rio San Roque; Pantar; 10 miles north of Ayala; San Ramon Farm; Zamboanga; Tagulaya; Baganga; Panabatan Bay; Glan; Davao.

Mindoro Island.—Pola.

Palawan Island.

Palmas Island.

Panay Island.—Concepcion.

Samar Island.—Lanang.

Sibutu Island.—Three islets off the coast of Sibutu Island.

Sulu Island.—Hacienda of Panglima Hassan.

Measurements of 46 of these examples are given in the subjoined table:

Measurements of specimens of Sauropatis chloris collaris.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Ex-posed cul-men.	Tar-sus.
Am. Mus. N. H. 93790	Male....	Infanta, Luzon Is-land, Philippine Is-lands.	Apr. 28, 1904	E. H. Porter...	mm. 106.5	mm. 64.5	mm. 47	mm. 16
Am. Mus. N. H. 93758	...do....	Tayabas, Luzon Is-land, Philippine Is-lands.	Mar. 12, 1904	....do.....	106.5	66.5	43	16
Am. Mus. N. H. 93801	...do....	....do.....	Mar. 17, 1904	....do.....	110	69.5	42	16
Am. Mus. N. H. 93833	...do....	Sorsogon, Luzon Is-land, Philippine Is-lands.	Jan. 14, 1903	....do.....	102	66	42.5	16
Am. Mus. N. H. 93828	...do....	....do.....	Feb. 13, 1903	....do.....	107.5	70.5	41.2	16.5
Am. Mus. N. H. 93827	...do....	....do.....	Feb. 21, 1903	....do.....	105.5	65.5	44.5	16
Am. Mus. N. H. 93830	...do....	....do.....	Feb. 24, 1903	....do.....	106.5	67	43.5	16
Am. Mus. N. H. 93807	...do....	....do.....	Mar. 4, 1903	....do.....	108	68	45	16.2
Am. Mus. N. H. 93810	...do....	....do.....	Mar. 12, 1903	....do.....	106	68	46	15.5
Am. Mus. N. H. 93818	...do....	....do.....	Apr. 10, 1903	....do.....	102.5	63	45	15
U.S.N.M. 200827	...do....	San Ramon Farm, Mindanao Island, Philippine Islands.	Mar. 23, 1906	E. A. Mearns...	105	69	46.8	17
U.S.N.M. 190070	...do....	Zamboanga, Mindanao Island, Philippine Islands.	Oct. 14, 1903	....do.....	102	66	42	17.5
U.S.N.M. 190194	...do....	Pantar, Mindanao Is-land, Philippine Is-lands.	Aug. 30, 1903	....do.....	105	67	43	15
U.S.N.M. 161227	...do....	Mindanao Island, Philippine Islands.	Nov. 2, 1887	D.C. Worcester.	108	69	42.5	16
U.S.N.M. 192296	...do....	Tagulaya, Mindanao Island, Philippine Islands.	July 14, 1904	E. A. Mearns...	109	67.5	47	17
U.S.N.M. 190602	...do....	Baganga, Mindanao Island, Philippine Islands.	Oct. 22, 1903	....do.....	108	68.5	42.5	16.2
U.S.N.M. 191987	...do....	Zamboanga, Mindanao Island, Philip-pine Islands.	Jan. 18, 1904	....do.....	106	65	45.5	15.5
U.S.N.M. 191988	...do....	....do.....	Jan. 24, 1904	....do.....	106	66.5	44.5	16
U.S.N.M. 191986	...do....	....do.....	Jan. 13, 1904	....do.....	105	66	44	15.5

Measurements of specimens of *Sauropatis chloris collaris*—Continued.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Exposed culmen.	Tarsus.
U.S.N.M. 211377	Male....	Panabatan Bay, Mindanao Island, Philippine Islands.	Feb. 5, 1908	P. Bartsch....	mm. 109	mm. 72	mm. 45.2	mm. 16
U.S.N.M. 161229	...do....	Mindoro Island, Philippine Islands.	May 5, 1888	F. S. Bourns...	107	72	43	16
Am.Mus. N.H. 93856	...do....	Pola, Mindoro Island, Philippine Islands.	Oct. 23, 1903	E. H. Porter...	102.5	65.5	43.5	15
Am.Mus. N.H. 93859	...do....	...do....	Nov. 3, 1903	...do....	109.5	69.5	46.5	16.2
Am.Mus. N.H. 93860	...do....	...do....	Nov. 4, 1903	...do....	104.5	67	46.5	15.5
Am.Mus. N.H. 93863	...do....	...do....	...do....	...do....	104	65	41	15.5
Am.Mus. N.H. 93862	...do....	...do....	...do....	...do....	107	69	46	16.5
Am.Mus. N.H. 93861	...do....	...do....	...do....	...do....	106	68	48	16.8
Am.Mus. N.H. 93864	...do....	...do....	Nov. 5, 1903	...do....	103	66.5	40.5	15.5
Am.Mus. N.H. 93831	Female.	Sorsogon, Luzon Island, Philippine Islands.	Feb. 11, 1903	...do....	109	71	42.5	15.5
Am.Mus. N.H. 93832	...do....	...do....	...do....	...do....	101	63.2	42.2	16.8
Am.Mus. N.H. 93824	...do....	...do....	Mar. —, 1903	...do....	106	66.5	42	16
Am.Mus. N.H. 93826	...do....	...do....	Mar. 1, 1903	...do....	108.2	69	42	16.2
Am.Mus. N.H. 93815	...do....	...do....	Mar. 9, 1903	...do....	106.5	68.5	41	16.2
Am.Mus. N.H. 93837	...do....	...do....	May 25, 1903	...do....	106.5	68	44	16.2
Am.Mus. N.H. 93796	...do....	Infanta, Luzon Island, Philippine Islands.	Apr. 13, 1904	...do....	106	67	43.5	16
Am.Mus. N.H. 93788	...do....	Camarines, Luzon Island, Philippine Islands.	Dec. 12, 1902	...do....	106.5	67.5	44	16
Am.Mus. N.H. 93783	...do....	Tayabas, Luzon Island, Philippine Islands.	Dec. 12, 1903	...do....	98.5	65	43	16
Am.Mus. N.H. 93784	...do....	...do....	Dec. 26, 1903	...do....	107.5	70	41	15.2
U.S.N.M. 161228	...do....	Mindanao Island, Philippine Islands.	Nov. 2, 1887	...do....	112.5	74	43	15.5
U.S.N.M. 191990	...do....	Zamboanga, Mindanao Island, Philippine Islands.	Mar. 19, 1904	E. A. Mearns..	107	68	43.5	17
U.S.N.M. 191989	...do....	...do....	...do....	...do....	107	68	45.5	17
U.S.N.M. 190604	...do....	Glan, Mindanao Island, Philippine Islands.	Oct. 26, 1903	...do....	102	62	43	16
U.S.N.M. 211378	...do....	Davao, Mindanao Island, Philippine Islands.	May 17, 1908	P. Bartsch....	102	66	43.5	15.8
U.S.N.M. 200826	...do....	San Ramon Farm, Mindanao Island, Philippine Islands.	Mar. 23, 1906	E. A. Mearns..	106.5	70	44.5	15.8
U.S.N.M. 161230	...do....	Cebu Island, Philippine Islands.	Mar. 21, 1888	D. C. Worcester.	108	69	44.5	16
U.S.N.M. 161225	...do....	Panay Island, Philippine Islands.	Jan. 18, 1888	F. S. Bourns...	110	69.5	44.5	17

SAUROPATIS CHLORIS CYANESCENS Oberholser.

Sauropatis chloris cyanescens OBERHOLSER, Proc. U. S. Nat. Mus., vol. 52, February 8, 1917, p. 189 (Pulo Taya, off the southeastern coast of Sumatra).

Subspecific characters.—Similar to *Sauropatis chloris collaris*, but bill much larger; other dimensions averaging slightly greater; male with upper parts decidedly more bluish; blackish nuchal band wider, conspicuous, and less overlaid with greenish; and auriculars somewhat more blackish (less greenish); female with upper surface darker, more olive brownish; blackish nuchal band wider; auriculars more blackish; sides and flanks less washed with buffy, generally not at all.

Description.—Type, adult male, No. 170835, U.S.N.M.; Pulo Taya, off the southeastern coast of Sumatra, July 28, 1899; Dr. W. L. Abbott. Pileum dull sea green; back and scapulars dark beryl green; a large, almost concealed patch of white on the occiput; a narrow blackish nuchal band; a broad white cervical collar; lower back, rump, and upper tail-coverts bluish beryl green; wings fuscous, the greater wing-coverts and most of the exposed portion of the wing-quills somewhat purplish Paris blue; the remainder of the wing-coverts, the tertials and distal portions of exposed surface of wing-quills, excepting the fuscous tips, greenish Antwerp blue, the bend of the wing decidedly greenish; tail greenish Antwerp blue; lores black; supraloral spot creamy white; a narrow line over the eye and a spot on lower eyelid white; remainder of sides of head dull beryl green, darker on the cheeks, the posterior auriculars blackish; entire lower surface white.

Measurements.—Male¹: Wing, 102–113 (average, 108) mm.; tail, 64.5–74 (69.2); exposed culmen, 41.5–53.5 (47.2); tarsus, 15–18.5 (16.4).

Female²: Wing, 98.5–115 (average, 108.3) mm.; tail, 65–76 (70.3); exposed culmen, 43–51 (47.3); tarsus, 15–18 (16.6).

Both sexes³: Wing, 98.5–115 (average, 108.1); tail, 64.5–76 (69.8); exposed culmen, 41.5–53.5 (47.3); tarsus, 15–18.5 (16.5).

Type locality.—Pulo Taya, Berhala Strait, off the southeastern coast of Sumatra.

Geographic distribution.—East India Islands, north to Borneo, the Natuna Islands, Anamba Islands, Pulo Taya (Berhala Strait), Pulo Parit (near Karimon Island), and northeastern Sumatra; west to northeastern Sumatra; south to Sumatra (excepting the north-western coast), Banka Island, Bawean Island, Solombo Besar Island,

¹ Thirty-nine specimens, from Borneo, Sumatra, and neighboring islands.

² Thirty-eight specimens, from Borneo, Sumatra, and neighboring islands.

³ Seventy-eight specimens, from Borneo, Sumatra, and neighboring islands.

and the Laurot Islands; and east to eastern Borneo with the small islands along its eastern coast.

Remarks.—This recently described subspecies may be distinguished from *Sauropatis chloris forsteni* by its much longer bill; and, in the male, by decidedly more bluish upper surface, and more greenish (less blackish) ear-coverts. The females of these two forms appear to be scarcely different in color. Compared with *Sauropatis chloris chloris* this has a longer bill; in the male the upper surface is rather more bluish, there being thus less contrast between the back and wings; the ear-coverts are more greenish (less blackish); and the blackish nuchal band narrower, more overlaid with green, and thus less distinct; in the female the upper surface averages darker; the wings are somewhat more bluish; the ear-coverts more greenish, and the blackish nuchal band usually more washed with greenish.

The female of this race is commonly very different from the male in her duller, more olive green upper parts, more blackish auriculars, and broader black nuchal band.

The juvenal plumage is somewhat similar to that of the adult, but the pileum is dull brown with posteriorly a wash of bluish green, the feathers of the forehead with a few narrow creamy or buffy edgings; blackish nuchal band more brownish; white feathers of the cervical collar with dark brown or blackish tips; back duller, darker, and more brownish; wings and tail duller, less bluish; sides of head duller, more brownish, the cheeks and auriculars brownish black, only the former with a slight greenish wash; breast and abdomen somewhat tinged with buff; breast, sides of throat and of body heavily barred or marked with scale-like feather tips of fuscous; and there is also a small blackish brown patch on each side of the breast. The above description is taken chiefly from two juvenal birds, a male, No. 182397, U.S.N.M., collected on Pulo Bilang Bilangan, off eastern Borneo, June 1, 1913; and a female, No. 181897, U.S.N.M., from Pulo Raboe Raboe, July 27, 1912, which dates give some idea of the breeding season.

Birds from the islands along the eastern coast of Borneo appear to be identical with those from eastern Sumatra, as far north as Laboan, Deli. In fact, there seems to be no essential geographic color difference among specimens from the Natuna Islands, Anamba Islands, Tambelan Islands, Bawean Island, Borneo with its coastal islands, Banka, and eastern Sumatra.

Specimens from various parts of the range of this subspecies exhibit the following average measurements, in which most of the variations are due to the small series from many of the localities:

Localities.	Wing.	Tail.	Exposed culmen.	Tarsus.
	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
Two males, from the Anamba Islands.....	110.0	67.0	44.3	16.3
One male, from the island of Banka.....	110.0	66.0	46.0	18.5
One male, from Pulo Taya.....	110.5	72.5	46.0	17.0
One male, from Bawean Island, Java Sea.....	111.3	71.5	42.0	16.5
Two males, from Sumatra.....	106.5	65.8	44.5	16.0
Two males, from Pulo Maura Tua, eastern Borneo.....	106.5	68.3	47.3	16.8
Two males, from Pulo Balik Kukup, eastern Borneo.....	108.3	70.8	49.0	16.5
Three males, from Pulo Sangalan, eastern Borneo.....	108.8	71.5	47.2	16.5
Three males, from Pulo Raboe Raboe, eastern Borneo.....	105.0	67.5	46.7	16.2
Three males, from Pulo Samama, eastern Borneo.....	105.2	69.2	46.0	16.2
Four males, from Pulo Derawan, eastern Borneo.....	108.3	70.0	50.4	16.9
Five males, from Pulo Bilang Bilangan, eastern Borneo.....	109.0	68.9	50.1	16.5
Three females, from the Natuna Islands.....	109.3	72.2	48.8	17.2
Two females, from the island of Banka.....	106.3	69.0	44.4	15.8
Three females, from Pulo Taya.....	113.2	72.2	47.7	17.3
Four females, from Sumatra.....	106.6	68.0	47.4	16.5
Two females, from Bawean Island, Java Sea.....	112.7	71.0	47.4	17.2
Two females, from Pulo Sanga Laki, eastern Borneo.....	108.0	72.3	47.3	16.8
Three females, from Pulo Balik Kukup, eastern Borneo.....	108.7	70.5	47.7	16.2
Two females, from Pulo Malahai, eastern Borneo.....	100.3	69.0	46.7	16.7
Three females, from Pulo Raboe Raboe, eastern Borneo.....	104.8	69.0	45.3	16.8
Five females, from Pulo Derawan, eastern Borneo.....	109.2	70.1	47.5	16.9
Two females, from Pulo Bilang Bilangan, eastern Borneo.....	108.3	69.3	48.4	16.8

The colors of the soft parts, as given on specimen labels, are: Iris bluish gray, dark brown or light brown; bill black, the basal portion of mandible white or creamy white; feet gray, bluish black or dark brown, the soles pale, the claws black.

Measurements of practically all the adults examined are included in the following table:

Measurements of specimens of Sauropatis chloris cyanescens.

Museum and number.	Sex.	Locality.	Date.	Collector.	Total length. ^a	Wing.	Tail.	Exposed culmen.	Tarsus.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
U.S.N.M. 171022	Male...	Pulo Mata, Anamba Islands.	Aug. 28, 1899	Dr. W. L. Abbott.	254	110.5	70	43	17.5
U.S.N.M. 170994	...do....	Islet near Pulo Mobra, Anamba Islands.	Aug. 26, 1899	...do.....	248	111.5	68	47	15.5
U.S.N.M. 170886	...do....	Pulo Wai, Tambellan Islands.	Aug. 13, 1899	...do.....	254	110.5	70	43	17.5
U.S.N.M. 180517	...do....	Tanjong Rengsan, Banka Island.	May 20, 1904	...do.....	250	110	66	46	18.5
U.S.N.M. 170835	[Male].	Pulo Taya, off coast of south-eastern Sumatra. ^b	July 28, 1899	...do.....	260.5	110.5	72.5	46	17
U.S.N.M. 180195	...do....	Pulo Parit, near Karimon Island, southeastern Sumatra.	June 11, 1903	...do.....	250	110	68	47.5	16.5
A.N.S.Phila 38928	...do....	Batu Sangkar, Tavah Datar, Padang, Bovenland, Sumatra.	Aug.-Sept., 1901.	A. C. Harrison, jr. and H. M. Miller.	.....	111	67	45	16
A.N.S.Phila 56164	Male...	Padang Pandjang, Sumatra.	Jan. 15, 1897	J. Z. Kannegieter.	.....	102	61.5	44	16
U.S.N.M. 181492	...do....	Pulo Solombo Besar, Java Sea.	Dec. 4, 1907	Dr. W. L. Abbott.	263	110	71.5	48	16
U.S.N.M. 181495	...do....	Bawean Island, Java Sea.	Nov. 20, 1907	...do.....	254	111.3	71.5	42	16.5
Am. Mus. N.H.110954	...do....	Tawao, British North Borneo.	Jan. 2, 1910	R. C. Andrews.	.....	104	69	44.5	15
U.S.N.M. 181011	...do....	Pulo Temaju, western Borneo.	June 9, 1905	Dr. W. L. Abbott.	260	113	70	48	16.5

^a Measured in the flesh by the collector.

^b Type.

Measurements of specimens of *Sauropatis chloris cyanescens*—Continued.

Museum and number.	Sex.	Locality.	Date.	Collector.	Total length.	Wing.	Tail.	Exposed culmen.	Tarsus.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
U.S.N.M. 181490	Male	Pulo Laut, south-eastern Borneo.	Dec. 23, 1907	Dr. W. L. Abbott.	109	109	69.5	46.5	16
U.S.N.M. 182411	do	Pulo Sanga Laki, eastern Borneo.	May 26, 1913	H. C. Raven	105	105	72.5	47	16
U.S.N.M. 182386	do	Pulo Maura Tua, eastern Borneo.	May 20, 1913	do	109	109	71.5	48	16
U.S.N.M. 182387	do	do	do	do	104	104	65	46.5	17
U.S.N.M. 182401	do	Pulo Balih Kukup, eastern Borneo.	June 9, 1913	do	109	109	71.5	50.5	16.5
U.S.N.M. 182405	do	do	June 10, 1913	do	107.5	107.5	70	47.5	16.5
U.S.N.M. 182406	do	Pulo Lusa Kukup, eastern Borneo.	May 15, 1913	do	107	107	68.5	48.5	17.5
U.S.N.M. 182415	do	Pulo Sangalan, eastern Borneo.	May 13, 1913	do	111	111	74	48	16
U.S.N.M. 182416	do	do	do	do	107	107	68.5	46	16.5
U.S.N.M. 182417	do	do	do	do	108.5	108.5	72	47.5	17
U.S.N.M. 182408	do	Pulo Mataha, eastern Borneo.	June 5, 1913	do	108	108	69.5	48.5	16
U.S.N.M. 182384	do	Pulo Raboe Raboe, eastern Borneo.	May 4, 1913	do	102	102	67.5	45	15.5
U.S.N.M. 182385	do	do	do	do	108	108	69	46	16
U.S.N.M. 181896	do	do	July 27, 1912	do	105	105	66	49	17
U.S.N.M. 182392	do	Pulo Samama, eastern Borneo.	Apr. 21, 1913	do	104	104	67.5	44.5	16
U.S.N.M. 182391	do	do	do	do	103	103	70	45	16.5
U.S.N.M. 182390	do	do	do	do	108.5	108.5	70	48.5	16
U.S.N.M. 182413	do	Pulo Bakungan, eastern Borneo.	May 17, 1913	do	107.5	107.5	70	45.5	15.5
U.S.N.M. 181888	do	Pulo Dera wan, eastern Borneo.	July 22, 1912	do	111	111	69.5	50.5	17.5
U.S.N.M. 181886	do	do	do	do	108.5	108.5	71	50.5	16.5
U.S.N.M. 181890	do	do	July 23, 1912	do	105.5	105.5	68.5	50.5	16.5
U.S.N.M. 181891	do	do	do	do	108	108	71	50	17
U.S.N.M. 182393	do	Pulo Bilang Bilangan, eastern Borneo.	May 30, 1913	do	110.5	110.5	71	50.5	16
U.S.N.M. 182394	do	do	May 31, 1913	do	107	107	68.5	53.5	16.3
U.S.N.M. 182398	do	do	June 1, 1913	do	109	109	66.5	49	16
U.S.N.M. 182399	do	do	do	do	110.5	110.5	70.5	50	16.5
U.S.N.M. 182400	do	do	June 3, 1913	do	108	108	68	47.5	.8
U.S.N.M. 174698	Female	Pulo Subi, north islet, Natuna Islands.	June 12, 1900	Dr. W. L. Abbott.	248	108.5	69.5	45.5	17
U.S.N.M. 174697	do	Sirhassen Island, Natuna Islands.	June 10, 1900	do	260.5	112.5	74.5	50	18
U.S.N.M. 174696	do	Bunguran Island, Natuna Islands.	July 7, 1900	do	266.5	107	72.5	51	16
U.S.N.M. 180519	do	Telok Edar, Karimata Island, western Borneo.	Sept. 4, 1904	do	265	113	76	48	16
U.S.N.M. 180518	do	Tanjong Rengsan, Banka Island.	May 21, 1904	do	255	112	71.5	44.5	16
A. N. S. Phila. 56165	do	Soenge Lujat, Banka Island.	Apr. 13 to July 11, 1898	J. Z. Kanne-gieter.	260.5	100.5	66.5	44.2	15
U.S.N.M. 170834	do	Pulo Taya, off coast of southeastern Sumatra.	July 28, 1899	Dr. W. L. Abbott.	260.5	111.5	70	46	17
U.S.N.M. 170836	do	do	do	do	270	113	72	48	17.5
U.S.N.M. 170833	do	do	July 27, 1899	do	273	115	74.5	49	17.5

Measurements of specimens of *Sauropatis chloris cyaneescens*—Continued.

Museum and number.	Sex.	Locality	Date.	Collector.	Total length.	Wing.	Tail.	Exposed culmen.	Tarsus.
A. N. S. Phila. 38926	[Female]	Batu Sangkar, Tavah Datar, Padang, Bovenland, Sumatra.	Aug. - Sept., 1901	A. C. Harrison, jr., and H. M. Miller.	mm.	mm.	mm.	mm.	mm.
.....	110	72	48	16
A. N. S. Phila. 38930	112	67	49	16
A. N. S. Phila. 38929	101	66	47.5	18
A. N. S. Phila. 38927	103.5	67	45	16
U. S. N. M. 181491	Female.	Pulo Mata Siri, Java Sea.	Dec. 12, 1907	Dr. W. L. Abbott.	258	112	70	46	15.5
U. S. N. M. 181493	Female	Bawean Island, Java Sea.	Nov. 19, 1907	.....	262	110.8	73	46.5	17
U. S. N. M. 181494	Nov. 20, 1907	.....	265	114.5	69	48.3	17.3
A. N. S. Phila. 50140	Indrulaman, Borneo	Oct. —, 1895	A. Everett.	.....	102	65	43	15.5
U. S. N. M. 182410	Pulo Sanga Laki, eastern Borneo.	May 26, 1913	H. C. Raven	.....	108.5	74	44	16
U. S. N. M. 182412	May 27, 1913	.....	.....	107.5	70.5	50.5	17.5
U. S. N. M. 182388	Pulo Maura Tua, eastern Borneo.	May 24, 1913	.....	.....	108	72.5	51	16.5
U. S. N. M. 182403	Pulo Balik Kukup, eastern Borneo.	June 9, 1913	.....	.....	109	70.5	45	16
U. S. N. M. 182402	108	70.5	48	16.5
U. S. N. M. 182404	June 10, 1913	.....	.....	109	70.5	50	16
U. S. N. M. 182407	Pulo Mataha, eastern Borneo.	June 5, 1913	.....	.....	98.5	66.5	48	16.5
U. S. N. M. 182409	102	71.5	45.3	16.8
U. S. N. M. 182381	Pulo Raboe Raboe, eastern Borneo.	May 4, 1913	.....	.....	109.5	71.5	50	17.5
U. S. N. M. 182383	100	66.5	43	16
U. S. N. M. 182382	105	69	43	17
U. S. N. M. 182389	Pulo Samama, eastern Borneo.	Apr. 21, 1913	.....	.....	107	68	48	16.5
U. S. N. M. 182418	Pulo Alanga, eastern Borneo.	May 12, 1913	.....	.....	111	71.5	48.5	17
U. S. N. M. 182414	Pulo Bakungan, eastern Borneo.	May 17, 1913	.....	.....	114	74.5	51	16
U. S. N. M. 181857	Pulo Derawan, eastern Borneo.	July 22, 1912	.....	.....	110	68	48.5	17
U. S. N. M. 181889	July 23, 1912	.....	.....	110	69.5	49	17
U. S. N. M. 181893	109.5	70	48.5	17
U. S. N. M. 181894	108	71.5	48.5	17
U. S. N. M. 181892	108.5	71.5	43	16.5
U. S. N. M. 182395	Pulo Bilang Bilangan, eastern Borneo.	June 1, 1913	.....	.....	108.5	70	48	16
U. S. N. M. 182396	108	68.5	48.8	17.5
U. S. N. M. 181895	Pulo Derawan, eastern Borneo.	July 23, 1912	.....	.....	105	71	50	16.5

SAUROPATIS CHLORIS PALMERI, new subspecies.¹

Subspecific characters.—Resembling *Sauropatis chloris cyaneescens*, but bill slightly smaller; male averaging lighter and more bluish above, with a narrower and less distinct, sometimes obsolete,

¹ Named for Mr. William Palmer, who collected the type specimen.

blackish nuchal band; and auriculars usually a little more greenish (less blackish) especially on posterior portion; female lighter, more bluish on upper surface; blackish nuchal band narrower and less distinct; and auriculars less solidly black (more greenish).

Description.—Type, adult male, No. 218416, U.S.N.M.; Goenoeng Boender, Mount Salak, 2400 feet, Java, May 17, 1909; William Palmer. Pileum dull sea green; back and scapulars dark beryl green; a large, almost concealed patch of white on the occiput; no blackish nuchal band; a broad, white cervical collar; lower back, rump, and upper tail-coverts bluish beryl green; wings fuscous, the greater wing-coverts and most of the exposed portion of the wing-quills somewhat purplish Paris blue; the remainder of the wing-coverts, the tertials, and distal portion of exposed surface of wing-quills, excepting the fuscous tips, greenish Antwerp blue, the bend of the wing decidedly greenish; tail greenish Antwerp blue; lores black; supraloral spot creamy white; a narrow line over the eye and a spot on lower eyelid white; remainder of sides of head dull beryl green, darker on the cheeks, the posterior auriculars blackish; entire lower surface white, the sides of body slightly washed with buff.

Measurements.—Male¹: wing, 105–111.5 (average, 107.2) mm.; tail, 63–71 (68.); exposed culmen, 43.5–50 (46.2); tarsus, 16–18 (16.6).

Female²: Wing, 103–114 (average, 109) mm.; tail, 66.5–73 (70.1); exposed culmen, 42.5–49 (45.6); tarsus, 15–17 (16.1).

Both sexes³: Wing, 103–114 (average, 108 mm.); tail, 63–73 (68.9); exposed culmen, 42.5–50 (45.9); tarsus, 15–18 (16.4).

Type locality.—Goenoeng Boender, Mount Salak, 2400 feet altitude, Java.

Geographic distribution.—Java.

Remarks.—This new race may be separated from *Sauropatis chloris forsteni* by its longer bill; in the male also by the much more bluish upper parts; practical obliteration of the blackish nuchal band; and mostly greenish ear-coverts; in the female by the same characters, though not so pronouncedly. From *Sauropatis chloris chloris* it may be differentiated in the male by the brighter, much more bluish upper surface; obsolescent or obsolete blackish nuchal band; and greenish or bluish auriculars; in the female by the usually more bluish upper parts; more greenish ear-coverts; less conspicuous, because narrower and more greenish-overlaid, blackish nuchal band. It may readily be distinguished from *Sauropatis chloris colaris* by its much more bluish upper parts, and somewhat longer bill.

In this race the female differs from the male in the duller, much more greenish or olivaceous (less bluish) superior surface; wider

¹ Thirteen specimens, from Java.

² Twelve specimens, from Java.

³ Twenty-five specimens, from Java.

and more conspicuous blackish nuchal band; and more blackish (less greenish) ear-coverts.

Colors of the soft parts in this form, as given on the specimen labels by the collectors, are, in the adult: Iris brown or brownish black; bill black, the basal portion of mandible white; feet gray; and in the juvenal: Iris brownish black; bill black, the mandible, except its tip, gray; feet gray.

So far as we have been able to determine, *Sauropatis chloris palmeri* is confined to the island of Java, though it probably in due time will be found on some of the nearby smaller islands. Java has been designated as the type locality of *Sauropatis chloris chloris* by von Berlepsch¹, but, as already shown², quite erroneously. The Javan race has thus, therefore, hitherto remained without a subspecific name.

Measurements of the specimens examined are given below:

Measurements of specimens of Sauropatis chloris palmeri.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Ex-posed cul-men.	Tar-sus.
U.S.N.M. 219380	Male....	Depok, Java.....	July 30, 1909	W. Palmer.....	mm. 106.5	mm. 63	mm. 50	mm. 17.3
U.S.N.M. 219377	...do....	...do.....	June 20, 1909	...do.....	109	70	47.5	16
U.S.N.M. 218930	...do....	Buitenzorg, Java.....	Apr. 6, 1909	...do.....	106	70	48	16.3
U.S.N.M. 218416	...do....	Goenoeng Boender, Mt. Salak, 2400 ft., Java. ^a	May 17, 1909	...do.....	110.5	69.5	43.5	16.8
U.S.N.M. 219823	...do....	Pelaboean Ratoe, Java.	Oct. 8, 1909	...do.....	109	66	45.2	16.8
U.S.N.M. 218923	...do....	Tjenkareng, Java.....	Mar. 3, 1909	...do.....	107	68.5	46	16.5
U.S.N.M. 218413	...do....	Buitenzorg, Java.....	May 1, 1909	...do.....	107	67.5	45	16
U.S.N.M. 219329 ^b	Male, im.	Keledjetan, Java.....	Nov. 22, 1909	...do.....				
M. C. Z. 39685	[Male]..	Wynkoops Bai, Java..	.....	J. V. Bemmelen	111.5	68.5	47.5	16
A. N. S. Phila. 21440	Male....	Java.....	.....	Rivoli collection	106	69	44	16.5
A. N. S. Phila. 21435	...do....	...do.....	.....	...do.....	105	71	44.5	18
A. N. S. Phila. 56162	"Female" (=Male).	Palaboean Ratoe, Java	Oct. 8, 1898	J. Z. Kanne-gieter.	105	67	47	17
A. N. S. Phila. 56163	Male....	...do.....	Jan. 31, 1899	...do.....	105	67	45.8	17.2
A. N. S. Phila. 56156	Male, im.	Omstreken, Batavia, Java.	.....	...do.....	106	66.5	.....	16
U.S.N.M. 219379	Female.	Depok, Java.....	July 18, 1909	W. Palmer.....	103	70	44	16
U.S.N.M. 218415	...do....	Goenoeng Boender, Mt. Salak, 2400 ft., Java.	May 16, 1909	...do.....	110	70	43	16
U.S.N.M. 218929	...do....	Tandjoeng, Java.....	Feb. 5, 1909	...do.....	113	71	49	17
U.S.N.M. 218931	...do....	Buitenzorg, Java.....	Apr. 6, 1909	...do.....	104	.....	47	17

^aType.

^bNot used in measurement averages.

¹ Abhandl. Senckenb. Naturf. Gesells., vol. 34, Heft 1, 1911, p. 75.

² See p. 356.

Measurements of specimens of *Sauropatis chloris palmeri*—Continued.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Exposed culmen.	Tarsus.
U.S.N.M. 218412	Female	Buitenzorg, Java.....	May 1, 1909	W. Palmer.....	mm. 109	mm. 68	mm. 46.5	mm. 15.5
U.S.N.M. 219827	...do....	Tjibodas, Mt. Oede, 4500 ft., Java.	Aug. 23, 1909	...do.....	109.5	72	47	15.5
U.S.N.M. 218414	...do....	Mt. Salak, 2000 ft., Java.	May 7, 1909	...do.....	111.5	73	45.5	16.5
Am. Mus. N. H. 60290	"Male" [=Female]	Preanger Regent, western Java.	1892	.....	114	70	49	16.5
A. N. S. Phila. 56160	Female.	Pandan Aroem, Preanger, western Java.	.....	J. Z. Kannegieter.	106	66.5	45.5	16.3
A. N. S. Phila. 56157	...do....	Omstreken, Batavia, Java.	.....	...do.....	110	68.5	45	15
A. N. S. Phila. 56158	...do....	...do.....	.....	...do.....	111	72	42.5	15.5
A. N. S. Phila. 56161	Female, im.	Pelaboean, Tjibadja, Java.	Nov. 7-21, 1897.	...do.....	106.5	70	43	16.8
A. N. S. Phila. 56159 ^a	Female, juv.	Goenong Pantjar, Java	Oct. 14 to Nov. 5, 1897	...do.....	.....	.....	.....	.....

^a Not used in measurement averages.

SAUROPATIS CHLORIS ARMSTRONGI (Sharpe).

Halcyon chloris subsp. *a. armstrongi* SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892, p. 277, pl. 7, fig. 1 (Sunderbunds to Burmah, Tenasserim, and Siam).

Halcyon humii SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892, p. 281, pl. 8 ("Siam to the Malayan Peninsula and Sumatra"; type locality as "accepted" by Dr. E. Hartert,¹ Mergui, Tenasserim; type in British Museum is from Jaram, Selangor, Malay Peninsula).

Subspecific characters.—Similar to *Sauropatis chloris cyanescens*, but very much smaller; upper parts of male, including wings, more bluish; ear-coverts usually more greenish or bluish; black nuchal band narrower, obsolete, or even absent, and when present always more or less washed with greenish or bluish; sides and flanks more conspicuously washed with buff; female with upper parts, particularly the pileum, averaging rather lighter; exposed edges of wing-quills more bluish (less greenish); blackish nuchal collar narrower.

Measurements.—Male²: Wing, 94–109 (average, 100.8) mm.; tail, 59–71.5 (64.7); exposed culmen, 38.5–43 (41.6); tarsus, 13–17 (15.5).

Female³: Wing, 95.5–104.5 (average, 99.9) mm.; tail, 64–69 (65.6); exposed culmen, 40.5–43 (41.3); tarsus, 15–16.5 (15.8).

Both sexes⁴: Wing, 94–109 (average, 100.4) mm.; tail, 59–71.5 (64.7); exposed culmen, 37.5–45.5 (41.6); tarsus, 13–17 (15.5).

¹ Novit. Zool., vol. 9, No. 3, Dec. 16, 1902, p. 543. See, however, p. 374.

² Nine specimens, from Cochin China, Siam, Tenasserim, India, and the Malay Peninsula.

³ Four specimens, from Lower Siam and the Malay Peninsula.

⁴ Fifteen specimens, from Cochin China, Siam, Tenasserim, India, and the Malay Peninsula.

Type locality.—Siam.¹

Geographic distribution.—Indo-Malayan region, north to southern Siam, coast region of Burmah, and the southeastern part of Bengal, India (Sunderbunds); west to the Sunderbunds, the western coast of the Malay Peninsula and its islands, including the Mergui Archipelago and Pulo Lankawi; south to the southern Malay Peninsula, the island of Singapore, and Cochin China; and east to the eastern coast of the Malay Peninsula and Cochin China.

Remarks.—This is a form undoubtedly worthy of recognition, though not a species as often regarded; it is one of the smallest subspecies of *Sauropatis chloris*. From *Sauropatis chloris palmeri* of Java, it differs by reason of its much reduced size, also, in the male, by usually more bluish upper parts, and, in the female, by its more greenish upper surface. It may be separated from *Sauropatis chloris collaris* by its much smaller size, much more bluish upper surface, and somewhat more evident black nuchal band in the male; and ordinarily darker, more greenish upper parts, with wider black nuchal band in the female. It may be distinguished from *Sauropatis chloris forsteni* by its smaller size, also, in the male, by its much more bluish upper parts, more greenish ear-coverts, and narrower, black nuchal band; in the female by the somewhat wider black nuchal band and more greenish auriculars. Compared with *Sauropatis chloris chloris* it is much smaller, with, in the male, the wings more bluish, the upper surface averaging darker, the black nuchal band much narrower or obsolescent, the ear-coverts more greenish, and the sides and flanks conspicuously buffy; and, in the female, the wings decidedly more bluish and more contrasted with the back, the upper parts averaging darker, the black nuchal band narrower, and the auriculars more greenish.

A single specimen marked "India" is larger than any other of our present series, but is otherwise not different. Birds from the Mergui Archipelago apparently do not differ from those found on the near-by Malay Peninsula.

Examples from Cochin China and Siam are, in both size and color, apparently identical with birds from the Malay Peninsula. I am, in fact, unable to find any satisfactory differences between specimens from various localities—Siam, Burmah, and the central and southern Malay Peninsula—to warrant at present any further racial subdivision. Thus I am not able to distinguish *Sauropatis humii*, even as a subspecies, since typical examples of both *Sauropatis chloris armstrongi* and so-called *humii* occur throughout the same regions, together with various intermediates which completely obliterate the significance of the characters assigned to separate the two

¹Type in British Museum.

forms. The theory that one form migrates into the territory of the other, besides being improbable, would help us little, for both *armstrongi* and "*humii*" occur in the north as well as in the south. The bird described as *Halcyon humii* by Doctor Sharpe¹ is supposed to be more uniformly bluish above than *Sauropatis chloris armstrongi*, and to lack the blackish nuchal band of the latter; but the evidence of intermediates points to the probably correct conclusion that this plumage represents the extreme development of the fully adult male *Sauropatis chloris armstrongi*, possibly even to be regarded as a blue phase, for all the males are by no means so bluish. The most greenish birds, however, are females, and although there is no absolute line of demarcation between the sexes, the females are usually duller, very much more greenish above, including the wings, with ear-coverts and nuchal band more blackish, and sides of body without buffy tinge. Although with this view of relationship, a wide range of color variation must be allowed in *Sauropatis chloris armstrongi*, it is not so very much greater than occurs in some of the other races. The most bluish old males of *Sauropatis chloris armstrongi* (= "*humii*") are in this respect more highly colored than any unworn examples of *Sauropatis chloris cyanescens* that I have seen, but in some cases the difference is not great. The occurrence of *Sauropatis chloris armstrongi* in either Borneo or Sumatra is of course erroneous, and the specimens so recorded by Doctor Sharpe² belong to *Sauropatis chloris cyanescens*.

The colors of the soft parts in this race as given on specimen labels are as follows: Iris dark brown or blackish brown; bill black, the base of mandible creamy white; feet pale plumbeous, plumbeous gray, dark plumbeous, or dark brown, the claws black.

The proper name for this subspecies is *Sauropatis chloris armstrongi*; for although Doctor Sharpe described his *Halcyon chloris* subsp. *armstrongi*³ and *Halcyon humii*⁴ in the same volume, the former has anteriority. The only indication of type locality given for *Sauropatis chloris armstrongi* is the statement that it occurs from the Sunderbunds to Burmah, Tenasserim, and Siam.³ The type in the British Museum is, however, so Mr. Charles Chubb informs me,⁵ one of the Gould collection from Siam.

Similarly, no more definite indication of type locality was given for Sharpe's *Halcyon humii*⁶ than "Siam to the Malay Peninsula and Sumatra." Doctor Hartert subsequently designated Mergui, Tenasserim as the typical locality; but the type of this form is still in the

¹ Cat. Birds Brit. Mus., vol. 17, 1892, p. 281 (Jaram, Selangor, Malay Peninsula).

² Idem, pp. 278, 283.

³ Idem, p. 277, pl. 7, fig. 1.

⁴ Idem, p. 281, pl. 8.

⁵ In a letter.

⁶ Cat. Birds Brit. Mus., vol. 17, 1892, p. 281.

British Museum, and is from Jaram, Selangor, Malay Peninsula; for which information I am further indebted to Mr. Charles Chubb.¹ The latter must therefore be considered the proper type locality of *Halcyon humii* Sharpe.

Measurements of the specimens of *Sauropatis chloris armstrongi* examined in the present connection are presented in the appended table.

Measurements of specimens of Sauropatis chloris armstrongi.

Museum and number.	Sex.	Locality.	Date.	Collector.	Total length, ^a	Wing.	Tail.	Ex-posed cul-men.	Tar-sus.
U.S.N.M. 153794	Male...	Frahmon, Trang, Lower Siam.	Mar. 22, 1896	Dr. W. L. Abbott.	mm. 228.5	mm. 94	mm. 61	mm. 40	mm. 15
U.S.N.M. 153793	...do...	Trang, Lower Siam	Mar. 1, 1896	.....do.....	241.5	103	62	42.5	16
U.S.N.M. 173042	...do....	Pulo Lankawi, Malay Peninsula.	Dec. 2, 1899	.....do.....	241.5	101.5	67.5	41.5	16
U.S.N.M. 173040	...do...	Bentinck Island, Mergui Archipelago, Malay Peninsula.	Mar. 9, 1900	.....do.....	254	101	68	43	15.5
U.S.N.M. 173039	...do...	Loughborough Island, Mergui Archipelago, Malay Peninsula.	Jan. 24, 1900	.....do.....	241.5	99	63.5	42	16
U.S.N.M. 173041	...do...	Victoria Point, Tenasscrim.	Mar. 30, 1900	.....do.....	248	106	65	42.5	17
M.C.Z. 34775	[Male.]	India.....	.....	.....	.....	109	71.5	41.3	16.2
U.S.N.M. 248977	...do...	Klong Yai, south-eastern Siam.	Jan. 6, 1915	C. B. Kloss..	.....	98	65	43	13
M.C.Z. 25906	Male...	Cochin China.....	Oct. 22, 1879	Gilbert Tivant.	.....	95.5	59	38.5	15.2
U.S.N.M. 153795	Female	Frahmon, Trang, Siam.	Mar. 26, 1896	Dr. W. L. Abbott.	241.5	98.5	64	41	15
U.S.N.M. 173056	...do...	Tanjong Laboha, Tringganu, Malay Peninsula.	Sept. 30, 1900	.....do.....	238.5	95.5	65	40.5	15
U.S.N.M. 153792	...do...	Trang, Lower Siam	Feb. 25, 1896	.....do.....	241.5	101	64.5	41.5	16.5
U.S.N.M. 173043	...do...	Pulo Lankawi, Malay Peninsula.	Dec. 2, 1899	.....do.....	254	104.5	69	43	16.5
U.S.N.M. 79217	...Im....	Malacca.....	.....	.....	.....	98	63	37.5	15
U.S.N.M. 28546	.....	India.....	— 1839	Barrot.....	.....	101	63	45.5	15

^a Measured in the flesh by the collector.

SAUROPATIS CHLORIS DAVISONI (Sharpe).

Halcyon humii subsp. *β. davisoni* SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892, p. 282 (Andaman Islands).

Subspecific characters.—Similar to *Sauropatis chloris armstrongi*, but male with all the posterior lower surface and the white cervical collar usually much suffused with buff; upper parts averaging duller, more greenish, particularly on the back just below the white collar, where the greenish is often shaded with dusky; ear-coverts usually more blackish; black nuchal band more conspicuous, less washed with greenish; female with white cervical collar tinged with buff; and with the back blackish just below this white collar.

¹ In a letter.

Measurements.—Male:¹ wing, 100–104 (average, 101.3) mm.; tail, 66–69.5 (67.2); exposed culmen, 39–43 (40.8); tarsus, 14–16.5 (15.5).

Female:² Wing, 101.5–106.5 (average, 104.5) mm.; tail, 67.5–71 (69.6); exposed culmen, 40–41.5 (40.8); tarsus, 15–16.5 (15.7).

Both sexes:³ Wing, 100–106.5 (average, 103.1) mm.; tail, 66–71 (68.6); exposed culmen, 39–43 (40.8); tarsus, 14–16.5 (15.6).

Type locality.—Aberdeen, South Andamans.⁴

Geographic distribution.—Andaman Islands.

Remarks.—The strong buff tinge of the whitish cervical collar and of the posterior lower parts is the most conspicuous, though not the only, character separating this form from *Sauropatis chloris armstrongi*, and, indeed, from the other subspecies of *Sauropatis chloris* as well. This buff suffusion is not due to immaturity, as some ornithologists appear to have supposed, but is present in all adult males, with, of course, some individual variation in extent and intensity; and is almost entirely lacking in the females, excepting on the cervical collar, where, however, it is less pronounced than in the males. The female of *Sauropatis chloris davisoni* is superficially very much like the same sex of *Sauropatis chloris armstrongi*, but, with the exception of the buff tinge on the lower parts, differs as does the male, though in somewhat less degree. From *Sauropatis chloris cyanescens* the present race may be distinguished by its smaller size; strong buff suffusion on the white cervical collar and posterior lower parts; duller, darker, and more greenish upper surface, with a dusky shade on the back just below the white cervical collar. From *Sauropatis chloris chloroptera*⁵ the Andaman race differs so much in its reduced size and strong suffusion of buff on lower parts and cervical collar that more detailed comparison is unnecessary.

The female of *Sauropatis chloris davisoni*, except in the conspicuous lack of buff on the under surface, differs rather less from the male than does the female in some other forms: She is rather duller, more greenish above, particularly on the wings, and has more noticeably blackish ear-coverts and nuchal band. The immature female is more brownish on the upper surface than the adult, duller on the wings, and has the white feathers of cervical collar and breast tipped with dusky. An immature male from Macpherson Strait, South Andaman Island, differs from the adult of the same sex principally in its duller, less bluish upper surface, including the wings, and in the dusky tips on the cervical collar and entire breast.

The colors of the soft parts in this race, as noted on specimen labels, are: Bill black, the basal portion of mandible white or pinkish gray; feet dull or light purplish brown.

¹ Four specimens, from the Andaman Islands.

² Five specimens, from the Andaman Islands.

³ Nine specimens, from the Andaman Islands.

⁴ Type of male in British Museum.

⁵ See p. 379.

The locality given in the original description of this race¹ was simply Andaman Islands. The type of the male in the British Museum² came from Aberdeen, South Andamans; the female from the Little Coco Islands. The male should be considered *the* type, and the type locality thus Aberdeen.

Measurements of the specimens examined are given in the following table:

Measurements of specimens of Sauropatis chloris davisoni.

Museum and number	Sex.	Locality.	Date.	Collector.	Total length. ^a	Wing.	Tail.	Exposed culmen.	Tarsus.
U.S.N.M. 178834	Male...	Cinque Islands, Andaman Islands.	Jan. 18, 1901	Dr. W. L. Abbott.	<i>mm.</i> 248	<i>mm.</i> 104	<i>mm.</i> 69.5	<i>mm.</i> 43	<i>mm.</i> 16.5
U.S.N.M. 178832	Male... im.	Macpherson Strait, South Andaman Island, Andaman Islands.	Jan. 14, 1901	.....do.....	.....	100	66	41	16
U.S.N.M. 178550	Male.....	.....do.....	.....do.....	.....do.....	238.5	100	66	40	15.5
J. H. Fleming 19244	Male... im.	Andaman Islands..	Oct. 5, 1905	B. B. Os- maston.	.....	.....	.....	39	14
U.S.N.M. 178835	[Female]	Cinque Islands, Andaman Islands.	Jan. 18, 1901	Dr. W. L. Abbott.	.....	106.5	70	41	16.5
U.S.N.M. 178549	Female	.....do.....	.....do.....	.....do.....	.....	104.5	71	41.5	15.5
U.S.N.M. 178833	.....do....	South Andaman Island, Andaman Islands.	Jan. 14, 1901	.....do.....	248	105.5	70	40	16
J. H. Fleming 19243	.....do....	Stewart's Island, Andaman Islands.	Jan. 29, 1905	B. B. Os- maston.	.....	101.5	67.5	41	15
J. H. Fleming.	Female im.	Andaman Islands..	Feb. 17, 1905	.....do.....	.....	.....	.....	40.5	15.5

^a Measured in the flesh by the collector

SAUROPATIS CHLORIS AZELA, new subspecies.

Subspecific characters.—Most like *Sauropatis chloris davisoni*, but tail somewhat shorter; in the male, entirely lacks buff on the light cervical collar, and has much less buff on lower parts, this color being confined to sides and flanks; in the female the upper surface is darker and more brownish.

Description.—Type, adult male, No. 180686, U.S.N.M.; Engano Island, western Sumatra, November 19, 1904; Dr. W. L. Abbott. Back, scapulars, and pileum, brownish bottle green, rather darkest and most brownish on the last; a large, almost concealed patch of white on the occiput; a narrow blackish nuchal band; a broad white cervical collar; lower back, rump, and upper tail-coverts, bluish beryl green; wings fuscous, the lesser and median coverts dull green,

¹ Sharpe, Cat. Birds Brit. Mus., vol. 17, 1892, p. 282.

² Mr. Charles Chubb, in a letter.

rather lighter and more bluish than the back, the greater coverts and exposed portions of wing-quills, excepting the tips, deep turquoise blue, in places more greenish; tail of the same color; lores black; supraloral spot creamy white; a narrow line over the eye and a spot on lower eyelid white; remainder of sides of head dull bottle green, the posterior auriculars blackish; entire lower surface white, the sides of body washed with buff.

Measurements.—Male:¹ Total length,² 228–235 (average, 232.7) mm.; wing, 100–103 (101.7); tail, 63–66.5 (64.3); exposed culmen, 39.5–41.5 (40.7); tarsus, 15.5–16 (15.7).

Female:³ Total length,² 231–241 (average, 237.2) mm.; wing, 100–103 (101.3); tail, 63.5–68.5 (65.9); exposed culmen, 42–44.5 (43.1); tarsus, 15–16 (15.4).

Both sexes:⁴ Total length,² 228–241 (average, 235.3) mm.; wing, 100–103 (101.4); tail, 63–68.5 (65.2); exposed culmen, 39.5–44.5 (42.1); tarsus, 15–16 (15.5).

Type locality.—Engano Island, Barussan Islands, western Sumatra.

Geographic distribution.—Engano Island, western Sumatra.

Remarks.—This island race is decidedly smaller than *Sauropatis chloris chloris*, *Sauropatis chloris cyanescens*, *Sauropatis chloris collaris*, and *Sauropatis chloris chloroptera*;⁵ and, curiously enough, like forms of so many other species from the islands off the western coast of Sumatra most closely resembles the race indigenous to the Andaman Islands—another case, apparently, of parallel development. It may be distinguished from *Sauropatis chloris cyanescens* by its much smaller size; in the male by darker, more greenish (less bluish) upper parts, with thus more contrast between back and wings; and, in the female, by darker, more olive brownish upper surface. From *Sauropatis chloris armstrongi* it may, in the male, be separated by its darker, more brownish and greenish upper parts; usually more greenish wings; more blackish ear-coverts; more conspicuous blackish nuchal band; and less pronounced buffy suffusion on the sides and flanks; and, in the female, by darker, somewhat more olivaceous upper surface; more greenish (less bluish) wings; wider blackish nuchal band; and ordinarily more blackish auriculars. The female of *Sauropatis chloris azela* differs from the male in much darker, duller, more brownish upper parts, more greenish wings, and lack of any buff on sides and flanks.

¹ Three specimens, from Engano Island.

² Measured in the flesh by the collector.

³ Four specimens, from Engano Island.

⁴ Seven specimens, from Engano Island.

⁵ See p. 379.

Measurements of the type series are as below:

Measurements of specimens of Sauropatis chloris azela.

U.S.N.M. number.	Sex.	Locality.	Date.	Collector.	Total length, ^a	Wing.	Tail.	Ex-posed culmen.	Tar-sus.
					mm.	mm.	mm.	mm.	mm.
180686...	Male...	Engano Island, western Su-matra. ^b	Nov. 19, 1904	Dr. W. L. Abbott.	228	102	63.5	41.5	15.5
180687...	do.....	do.....	Nov. 24, 1904	do.....	235	103	66.5	41	16
180685...	do.....	do.....	Nov. 17, 1904	do.....	235	100	63	39.5	15.5
180682...	Female	do.....	Nov. 2, 1904	do.....	241	103	65.5	42	16
180684...	do.....	do.....	Nov. 11, 1904	do.....	241	102	68.5	44.5	15
180683...	do.....	do.....	Nov. 3, 1904	do.....	236	100	63.5	43.5	15.5
180681...	do.....	do.....	Nov. 2, 1904	do.....	231	100	66	42.5	15

^a Measured in the flesh by the collector.

^b Type.

SAUROPATIS CHLORIS CHLOROPTERA, new subspecies.

Subspecific characters.—Similar to *Sauropatis chloris cyanescens*, but wing and tail longer; male with upper parts, particularly the exposed upper surface of the closed wings, much more greenish; pileum usually darker; black nuchal band averaging rather narrower and more washed with green; auriculars less green-washed; and the sides and flanks noticeably tinged with buff; female with upper parts much duller, more brownish olive; exposed upper surface of closed wings more greenish.

Description.—Type, adult male, No. 179771, U.S.N.M., Sibabo Bay, Simalur Island, northwestern Sumatra, October 23, 1902; Dr. W. L. Abbott. Back and scapulars terre-verte green; ¹ pileum similar, but darker and much tinged with olive brown; a large concealed white occipital patch; a narrow black nuchal band, succeeded posteriorly by a wide white cervical collar; lower back, rump, and upper tail-coverts, bluish beryl green; wings fuscous, the lesser coverts mostly terre-verte green like the back, the other wing-coverts bluish beryl green, the exposed surface of the wing quills, except at the tips, deep turquoise blue; tail deep turquoise blue; lores black; supraloral spot creamy white; a narrow line over the eye and a spot on lower eyelid white; otherwise the sides of the head are terre-verte green, excepting the posterior portion of auriculars, which is blackish, continuous with the black nuchal band; entire lower surface, including the lining of wings, white, the sides of body strongly washed with buff; feet dark brown; bill black, the basal two-thirds of mandible white.

Measurements.—Male: ² Wing, 107–118 (average, 112.8) mm.; tail, 72–78 (74.2); exposed culmen, 44.5–49 (46.7); tarsus, 16.3–18 (17.1).

¹ Ridgway, Nomenclature of Colors for Naturalists, 1886.

² Ten specimens, from Simalur Island and the Batu Islands.

Female:¹ Wing, 108–117.5 (average, 112.6) mm.; tail, 69–78 (73.7); exposed culmen, 43.5–50 (46.8); tarsus, 16–18 (16.9).

Both sexes:² Wing, 107–118 (average, 112.7) mm.; tail, 69–78 (74); exposed culmen, 43.5–50 (46.7); tarsus, 16–18 (17).

Type locality.—Sibabo Bay, Simalur Island, Barussan Islands, western Sumatra.

Geographic distribution.—Simalur Island, Pulo Siumat (near Simalur Island), the Batu Islands, Pagi Islands, and, excepting Nias Island, doubtless other adjacent and intervening islands of the Barussan chain.

Remarks.—The most conspicuous characters separating this new subspecies from *Sauropatis chloris cyanescens* are its more greenish wings and upper parts, and larger size. As in all the races of this difficult species these characters are not entirely constant, but are excellent average distinctions. The buffy suffusion on the sides is not due to immaturity, and seems to be, as in *Sauropatis chloris davisoni*, a reliable character, for in *Sauropatis chloris* and *Sauropatis chloris cyanescens* it appears but seldom and then usually as a mere trace. From *Sauropatis chloris armstrongi* of the Malay Peninsula the present form differs in its very much larger size; also, in the male, in much more greenish upper parts, especially exposed surface of closed wings; darker more brownish pileum; more blackish auriculars and nuchal band; rather smaller white supraloral spot; and somewhat less pronounced buffy suffusion on the sides and flanks; and, in the female, by reason of much more olive brownish (less bluish) upper surface; less greenish ear-coverts; wider black nuchal band; and more greenish (less bluish) outer edges of the upper surface of the wing-quills. It may be separated from *Sauropatis chloris azela* by its much larger size; also, in the male, by the more greenish outer edges of the superior surface of wing-quills; and, in the female, by the same character as well as by lighter upper parts. Compared with *Sauropatis chloris davisoni* it is much larger; the male is without buffy suffusion on the white cervical collar; has much less buff on the lower parts, and this restricted to sides and flanks; the upper surface darker, usually more brownish, particularly on the pileum; the ear-coverts more blackish; and the black nuchal band more in evidence; while the female is darker, more olive brownish above; with the ear-coverts less greenish; the exposed outer edges of superior surface of wing-quills more greenish (less bluish); the under surface and white cervical collar without creamy wash.

The female of *Sauropatis chloris chloroptera* may be distinguished from the male by the noticeably duller, more brownish back, less bluish wings, and entire lack of buffy suffusion below.

¹ Seven specimens, from Simalur Island, North Pagi Island, and the Batu Islands.

² Seventeen specimens, from Simalur Island, North Pagi Island, and the Batu Islands.

The bird from the Pagi Islands appears to be the same as that from Simalur Island, though we have but a single example, and that a female, for comparison. Birds from the Batu Islands are somewhat lighter in color above than typical *Sauropatis chloris chloroptera* from Simalur Island, and also average slightly smaller; but these differences do not now appear significant enough for sub-specific distinction. These Batu Islands birds are, in fact, intermediate between *Sauropatis chloris chloroptera* of Simalur Island and *Sauropatis chloris amphiryta* of Nias Island,¹ but are nearer the former, with which, for the present, we include them. Average measurements of examples from the different islands compare as follows:

Localities.	Wing.	Tail.	Exposed culmen.	Tarsus.
Five males, from Simalur Island and Pulo Sumat.....	114.2	74.7	47.5	17.2
Five males, from the Batu Islands.....	111.3	73.7	45.9	16.9
One female, from Simalur Island.....	114.5	73	50	17
One female, from North Pagi Island.....	113	72	.....	16
Five females, from the Batu Islands.....	112.2	74.2	46	17.1

The data on the colors of the soft parts gleaned from the labels of the specimens examined are as follows: In the adult the iris is dark brown, light brown or brownish black; the bill black or blackish blue; the basal portion of mandible white; and the feet gray, bluish gray, dull olive, dark brown or black. In the juvenile stage the iris is given as light brown; the bill black, with basal part of mandible white; and the feet gray.

Detailed measurements of the specimens examined are added herewith:

Measurements of specimens of Sauropatis chloris chloroptera.

Museum and number.	Sex.	Locality.	Date.	Collector.	Total length, ^a	Wing.	Tail.	Exposed culmen.	Tarsus.
U.S.N.M. 179199	Male...	Simalur Island, western Sumatra.	Nov. 25, 1901	Dr. W. L. Abbott.	mm. 276.5	mm. 115	mm. 78	mm. 48	mm. 18
U.S.N.M. 179200	...do....	Pulo Sumat, western Sumatra.	Dec. 29, 1901	....do.....	263.5	116	75	46	17
U.S.N.M. 179769	...do....	Sibabo Bay, Simalur Island, western Sumatra.	Oct. 22, 1902	....do.....	276	114.5	72.5	48	17
U.S.N.M. 179771	...do....	....do.b.....	Oct. 23, 1902	....do.....	260.5	117.5	75	49	17
U.S.N.M. 179198	...do....	Simalur Island, western Sumatra.	Dec. 2, 1901	....do.....	.....	108	73	46.5	17
A. N. S. Phila. 56149	...do....	Pulo Tana Masa, Batu Islands, western Sumatra.	—, 1896	J. Z. Kannegieter.	.....	109	75	44.5	17
A. N. S. Phila. 56151	...do....	Pulo Pini, Batu Islands, western Sumatra.	Oct.-Nov., 1896.	....do.....	.....	107	73	46	16.5

^a Measured in the flesh by the collector.

^b Type.

¹ See p. 382.

Measurements of specimens of *Sauropatis chloris chloroptera*—Continued.

Museum and number.	Sex.	Locality.	Date.	Collector.	Total length, ^a	Wing.	Tail.	Exposed culmen.	Tarsus.
A. N. S. Phila. 56150	Male...	Pulo Pini, Batu Islands, western Sumatra.	Oct.-Nov., 1896.	J. Z. Kanietieter.	mm.	mm. 108	mm. 74.5	mm. 44.5	mm. 16.3
A. N. S. Phila. 56155	...do....	Pulo Tello, Batu Islands, western Sumatra.	Aug. 1, 1896	...do....	.....	118	74	47.5	17.8
A. N. S. Phila. 56154	...do....	...do.....	...do.....	...do....	.....	114.5	72	47	17
U.S.N.M. 179764	Female, im.	North Pagi Island, western Sumatra.	Jan. 1, 1903	Dr. W. L. Abbott.	260	113	72	.....	16
U.S.N.M. 179768	Female.	Batu Islands, western Sumatra.	Feb. 10, 1903	...do....	250	108	74	44	17
A. N. S. Phila. 56148	Female, im.	Pulo Tana Masa, Batu Islands, western Sumatra.	Aug. 26, 1896	J. Z. Kanietieter.	.....	108.5	69	43.5	17
A. N. S. Phila. 56147	Female.	...do.....	Oct.-Nov., 1896.	...do....	.....	117.5	78	46.5	16.8
A. N. S. Phila. 56152	...do....	Pulo Tello, Batu Islands, western Sumatra.	Aug. 8, 1896	...do....	.....	117.3	76	50	18
A. N. S. Phila. 56153	...do....	...do.....	July 31, 1896	...do....	.....	109.5	74	.....	16.5
U.S.N.M. 179770	...do....	Sibabo Bay, Simalur Island, western Sumatra.	Oct. 23, 1902	Dr. W. L. Abbott.	.....	114.5	73	50	17

^a Measured in the flesh by the collector.

SAUROPATIS CHLORIS AMPHIRYTA, new subspecies.

Subspecific characters.—Similar to *Sauropatis chloris chloroptera*, but slightly smaller; male with upper surface lighter, more clearly greenish (not so dull or olivaceous); sides and flanks much less tinged with buff; female with superior parts lighter, less brownish or olivaceous (more clearly greenish); and auriculars more greenish (less blackish).

Description.—Type, adult male, No. 179765, U.S.N.M.; Lafau, Nias Island, western Sumatra, March 21, 1903; Dr. W. L. Abbott. Back, scapulars, and pileum, sea green, darker and somewhat brownish on the last; a large, almost concealed patch of white on the occiput; a narrow blackish nuchal band, somewhat washed with green; a broad white cervical collar; lower back, rump, and upper tail-coverts, dull bluish beryl green; wings fuscous, the lesser coverts mostly green like the back, the greater coverts and exposed portions of wing-quills, excepting the tips, deep turquoise blue, in places somewhat more greenish; tail of the same color; lores black; supraloral spot creamy white, a narrow line over the eye and a spot on lower eyelid white; remainder of sides of head dull sea green, the posterior auriculars black; entire lower surface white, the sides of body washed with buff.

Measurements.—Male¹: total length,² 260 mm.; wing, 108.5; tail, 75; exposed culmen, 44.5; tarsus, 16.5.

Female³: total length,² 253–266 (average, 258.8) mm.; wing, 108–114 (111.2); tail, 70–76.5 (73.4); exposed culmen, 44–48 (46.1); tarsus, 16.5–17.5 (17).

Both sexes⁴: total length², 253–266 (average, 259) mm.; wing, 108–117.5 (average, 111.8) mm.; tail, 70–76.5 (73.7); exposed culmen, 44–48 (45.8); tarsus, 16.5–17.5 (17).

Type locality.—Lafau, Nias Island, Barussan Islands, western Sumatra.

Geographic distribution.—Nias Island and the northwestern coast of Sumatra.

Remarks.—This race is separable from *Sauropatis chloris cyane-scens* by somewhat greater size; also, in the male, by the duller, more greenish or brownish (less bluish) upper parts, and more greenish (less bluish) wings; in the female by more greenish (less bluish) wings, and slightly duller, more olivaceous upper surface. From *Sauropatis chloris azela*, of Engano Island, it is distinguishable by its much larger size; also, in the male, by lighter upper parts and more greenish exposed surface of wing-quills; and, in the female, by much lighter upper surface, and more greenish (less bluish) exposed surface of wing-quills. It differs from *Sauropatis chloris davisoni* in its decidedly larger size; the male is also lighter, rather more greenish (less bluish) above, the exposed surface of the wing-quills much more greenish; the sides, flanks, and white cervical collar with little or no buffy tinge; the female is rather more brownish above, especially on the pileum, with the exposed upper surface of wing-quills more greenish (less bluish), and the cervical white collar and lower parts lacking creamy or buffy tinge.

The female of *Sauropatis chloris amphiryta* differs from the male in much darker, more olivaceous upper parts, and in all lack of buffy on the lower surface.

A single adult male from Loh Sidoh Bay, on the mainland of northwestern Sumatra, agrees so closely with specimens of the present race from Nias Island that it seems to be referable here rather than to any of the other subspecies.

The colors of soft parts, so far as mentioned on the labels of specimens are: Maxilla black; mandible pinkish white, with tip and edges black.

¹ One specimen, from Nias Island.

² Measured in the flesh by the collector.

³ Four specimens, from Nias Island.

⁴ Six specimens, from Nias Island.

Measurements of the specimens examined are given in the subjoined table:

Measurements of specimens of Sauropatis chloris amphiryta.

U.S.N.M. number.	Sex.	Locality.	Date.	Collector.	Total length, ^a	Wing.	Tail.	Exposed culmen.	Tarsus.
179765	Male....	Lafau, Nias Island, western Sumatra. ^b	Mar. 21, 1903	Dr. W. L. Abbott.	mm. 260	mm. 108.5	mm. 75	mm. 44.5	mm. 16.5
180868	Female....	do.....	Mar. 2, 1905	do.....	266	112	74	48	17
180866	do.....	do.....	Feb. 26, 1905	do.....	261	114	76.5	45.5	17
179767	do.....	do.....	Mar. 22, 1903	do.....	253	111	73	44	17.5
179766	do.....	do.....	Feb. 26, 1905	do.....	255	108	70	47	16.5
180867	do.....	do.....	do.....	do.....	117.5	117.5	73.5	46	17.5
179201 ^c	Male.....	Loh Sidoh Bay, north western Sumatra.	Nov. 8, 1901	do.....	249	105	68.5	40.5	16.5

^a Measured in the flesh by the collector.

^b Type.

Not used in measurement averages.

SAUROPATIS CHLORIS VIDALI (Sharpe).

Halcyon chloris subsp. *β. vidali* SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892, p. 278 (Ratnagiri and Kelsi Creek, South Konkan, Western India).

Subspecific characters.—Similar to *Sauropatis chloris cyanescens*, but lower parts with more creamy tinge; black nuchal band obsolete or absent; and auriculars green.

Measurements.—Both sexes¹: Wing, 111–115 mm.; tail, 70–76; culmen, 53; tarsus, 15–16.5.

Type locality.—Kelsi Creek, South Konkan, western India.²

Geographic distribution.—Konkan, western India.

Remarks.—Although not examined, this form, as its isolated range would indicate, appears to be separable from both *Sauropatis chloris cyanescens* and *Sauropatis chloris armstrongi*. It is decidedly larger than the latter, and it seems not to be the same as the new race above described from Simalur Island, western Sumatra, *Sauropatis chloris chloroptera*, since it differs in its more bluish wings, obsolescence or lack of the black nuchal band, and wholly green auriculars.

Mr. C. Chubb informs me³ that the male type of this race in the British Museum is from Kelsi Creek, South Konkan, western India; and that the female type came from Ratnagiri, South Konkan. The former should, therefore, be considered the type, and Kelsi Creek consequently the type locality.

¹ Two specimens, measured by Sharpe.

² Type of male in British Museum; according to Mr. Charles Chubb.

³ In a letter.

SAUROPATIS CHLORIS ABYSSINICA (Pelzeln).

Ceryle abyssinica LICHENSTEIN, Nomenclator Avium Mus. Zool. Berol., 1854, p. 67 (nomen nudum).

Halcyon (Ceryle) abyssinica PELZELN, Sitz. k. Akad. Wiss. Wien, vol. 20, 1856, p. 500 (*Abyssinia*).

Subspecific characters.—Similar to *Sauropatis chloris cyanescens*, but smaller; more greenish, particularly on the exposed surface of wings; no black nuchal band; ear-coverts greenish.

Measurements.¹—Wing, 104; tail, 68; culmen, 50; tarsus, 14 mm.

Type locality.—Coast of Red Sea, Abyssinia.

Geographic distribution.—Red Sea coast of Abyssinia.

Remarks.—This race may easily be distinguished from *Sauropatis chloris chloroptera* by its smaller size, greenish ear coverts, and lack of black nuchal band. The subspecific name *abyssinica* as here applied is usually credited to Lichtenstein, but this author's *Ceryle abyssinica*² is a *nomen nudum*. The first tenable use of the name is apparently Pelzeln's.³

SAUROPATIS CHLORIS ANACHORETA (Reichenow).

Halcyon anachoreta REICHENOW, Ornith. Monatsber., vol. 6, No. 3, March, 1898, p. 47 (Hermit Islands, western Admiralty Islands).

Subspecific characters.—Similar to *Sauropatis chloris chloris*, but decidedly larger.

Measurements.—Both sexes:⁴ Wing, 122–125; tail, 95; culmen, 60; tarsus, 15 mm.

Type locality.—Hermit Islands, western Admiralty Islands, off northeastern New Guinea.

Geographic distribution.—Hermit Islands, in the western part of the Admiralty Islands.

Remarks.—This form I have not seen, but unless there is a hidden discrepancy due to difference in method of measuring, it is easily recognizable by its great size alone, as it is larger than any other race of *Sauropatis chloris*. Doctor Reichenow says,⁵ also, that the crown is more purely blue green, and that the white supraloral spot is larger than in *Sauropatis chloris chloris*; but these differences are not of much diagnostic value unless based upon a series of specimens, which Doctor Reichenow appears not to have had.

¹ One specimen, measured by Sharpe.

² Nomenclator Avium Mus. Zool. Berol., 1854, p. 67.

³ *Halcyon (Ceryle) abyssinica* Pelzeln, Sitz. k. Akad. Wiss. Wien, vol. 20, 1856, p. 500.

⁴ Measured by Reichenow.

⁵ Ornith. Monatsber., vol. 6, No. 3, March, 1898, p. 47.

SAUROPATIS CHLORIS SOLOMONIS (Ramsay).

Halcyon solomonis RAMSAY, Proc. Linn. Soc. New South Wales, vol. 6, 1881, p. 833 (Solomon Islands).

Halcyon salomonis RAMSAY, Proc. Linn. Soc. New South Wales, vol. 7, 1882, p. 21 (Ugi Island and St. Christoval Island, Solomon Islands).

Halcyon salmonis RAMSAY, Nature, vol. 25, 1882, p. 355 (Solomon Islands).

Sauropatis salomonis SALVADORI, Ann. Mus. Civ. Stor. Nat. Genova, vol. 18, 1882, p. 420.

Halcyon solomonensis SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892, pl. 7, fig. 2 (Solomon Islands).

Subspecific characters.—Similar to *Sauropatis chloris chloris*, but much smaller; white occipital patch obsolescent; supraloral spot reduced, sometimes absent; male with head more bluish; female much duller, darker, above than the female of *Sauropatis chloris chloris*, the back below the white collar more blackish, the head more dusky or brownish; exposed surface of wing-quills more purely blue (less greenish).

Measurements.—Female:¹ Wing, 91 mm.; tail, 63; culmen, 45.5; tarsus, 12.5.

Type locality.—Ugi Island, Solomon Islands.

Geographic distribution.—Solomon Islands; together with probably the islands of New Britain and New Ireland.

Remarks.—There is little difficulty in distinguishing this well-marked form from *Sauropatis chloris chloris*, by its small size and the dark upper surface of the female; it is, however, more closely allied to *Sauropatis chloris sordida*.

It may be worth while to call attention to the original description of *Halcyon chloris solomonis*,² as above given, for the subspecific name is commonly cited from the Proceedings of the Linnaean Society of New South Wales for 1882, where it is spelled *salamonis*.

SAUROPATIS CHLORIS HYPERPONTIA, new subspecies.

Subspecific characters.—Similar to *Sauropatis chloris solomonis*, but larger; female with head darker; no line of white over the eye; no white in lower part of eye-ring; white occipital patch larger; outer under wing-coverts mottled with blackish brown and dark greenish.

Description.—Type, nearly adult (female?), No. 102000, U.S.N.M.; Havannah Harbor, Vate Island (Efate, or Sandwich Island), New Hebrides Islands, Melanesia. Back and scapulars dark oily bottle green; forehead olive brown; rest of pileum olive brown tinged with greenish, shading on the occiput into the dark green color of the back; a large, almost concealed white occipital patch; a rather wide black nuchal band; a broad white cervical collar (a few of the

¹ One specimen, measured by Sharpe.

² Ramsay, Proc. Linn. Soc. New South Wales, vol. 6, 1881, p. 833.

unworn tips of this with small flecks of blackish); lower black, rump, and upper tail-coverts, sea green; wings fuscous, the tertials, lesser and median coverts, green like the back, the greater series and alula. bluish sea green, the exposed portions of primaries and secondaries, excepting the fuscous tips, deep greenish cerulean blue; tail myrtle green; lores dark olive brown; supraloral spot rather small, creamy white; a spot on lower eyelid white, but no white feathers in the dark brown eye-ring; superciliary and postocular regions greenish olive like the crown; auricular, subocular, and malar regions brownish black; entire lower surface white, (a few dusky edgings on the sides of throat and breast); under wing-coverts white exteriorly, much mixed with dark brown and dull greenish.

Measurements.—Female¹: wing, 102 mm.; tail, 66.5; exposed culmen, 44.5; tarsus, 16.5.

Type locality.—Havannah Harbor, Vaté Island, New Hebrides Islands, Melanesia.

Geographic distribution.—New Hebrides Islands.

Remarks.—The only specimen we have is an adult, presumably a female, but this differs so radically from females of the other races that it can scarcely belong to any of them. Compared with the same sex of *Sauropatis chloris chloris* it is much smaller; has no white line over the eye; has the white supraloral spot smaller; the upper parts much darker throughout; the pileum more brownish; the back just below the white collar blackish; outer edges of wing-quills much more bluish (less greenish) and thus more contrasted with the interscapulum; no white in the lower part of the orbital feathering; black nuchal band wider; and the outer under wing-coverts mottled with blackish brown and dark greenish. It differs from *Sauropatis chloris sordida*, of Australia, in smaller size; darker, more greenish (less olivaceous) upper parts, the mantle below the white collar being blackish; more bluish outer vanes of wing-quills; larger white occipital patch; somewhat smaller white supraloral spot; more blackish ear-coverts; and the extensive admixture of dark brown and dark greenish on the under wing-coverts, this existing to a much greater degree than in even the juvenal stage of any form of *Sauropatis chloris* examined. From *Sauropatis chloris colonus*, of the Louisiade Archipelago, *Sauropatis chloris hyperpontia* may be distinguished by its greater size; rather lighter upper surface; more bluish (less greenish) outer vanes of wing-quills; much less or no buffy wash on white areas; lack of any indication of a white superciliary stripe; and by the considerable admixture of blackish brown and dark greenish in the white of the outer under wing-coverts, which parts are pure white in *Sauropatis chloris colonus*.

¹ One specimen, the type.

SAUROPATIS CHLORIS SUVENSIS (Sharpe).

Halcyon suvensis SHARPE, Cat. Birds Brit. Mus., vol. 17, 1892, p. 281 (Suva Island, Fiji Islands).

Subspecific characters.—Similar to *Sauropatis chloris solomonis*, but slightly smaller; (female) with no green on auriculars or below eye; entire mantle blackish; flanks and crissum washed with ochraceous.

Measurements.—[Female?]:¹ Wing, 91 mm.; tail, 61.5; culmen, 41; tarsus, 15.5.

Type locality.—Suva Island, Fiji Islands.

Geographic distribution.—Fiji Islands.

Remarks.—This race was described by Doctor Sharpe² from a single specimen in the British Museum supposed to be an immature male, but which will probably be found to be a female. It is apparently a recognizable form, though more specimens are necessary for a final judgment.

SAUROPATIS CHLORIS COLONUS (Hartert).

Halcyon sordidus colonus HARTEET, Novit. Zool., vol. 3, No. 3, September 18, 1896, p. 244 (Egum Island, Louisiade Archipelago).

Subspecific characters.—Resembling *Sauropatis chloris suvensis*, but concealed white patch on occiput larger, and female without ochraceous tinge on posterior lower parts.

Measurements.—Male:³ Wing, 92.5 mm.; tail, 70.5; exposed culmen, 40; tarsus, 14.3.

Female:⁴ Wing, 88.5–92.5 (average, 90.8) mm.; tail, 64–68 (66); exposed culmen, 38.3–41 (39.6); tarsus, 14–16 (14.8).

Both sexes: Wing, 88.5–92.5 (average, 91.3) mm.; tail, 64–70.5 (67.1); exposed culmen, 38.3–41 (39.7); tarsus, 14–16 (14.7).⁵ Wing, 86–95 (90.7).⁶

Type locality.—Egum Island, Louisiade Archipelago, off south-eastern New Guinea.

Geographic distribution.—Louisiade Archipelago.

Remarks.—This subspecies differs from *Sauropatis chloris chloris* by reason of much smaller size; the male also in darker, more greenish (less bluish) upper parts; more greenish wings; still more solidly black ear-coverts, with scarcely a wash of bluish or greenish; less evident white superciliary stripe; and narrower black nuchal band, more overlaid with greenish; the female also in having darker, more

¹ One specimen, measured by Sharpe.

² Cat. Birds Brit. Mus., vol. 17, 1892, p. 281.

³ One specimen, from the Louisiade Islands.

⁴ Three specimens, from the Louisiade Islands.

⁵ Four specimens, from the Louisiade Islands.

⁶ Eleven specimens, measured by Hartert.

blackish upper parts, particularly the pileum and that part of the back just below the white collar; the whitish superciliary stripe less distinct; the supraloral spot and white cervical collar more deeply tinged with ochraceous or buff. From *Sauropatis chloris sordida* it may be distinguished by its much smaller measurements; also, in the male, by the darker, more greenish (less brownish) upper surface, especially on the pileum; evident white superciliary stripe; less greenish (more blackish) ear-coverts; more bluish (less greenish or brownish) superior wing-coverts; and rather more greenish wing-quills; and, in the female, by darker, more blackish (much less brownish) superior surface; more greenish (less bluish) wings; less greenish (more blackish) ear-coverts; more buffy or ochraceous-washed cervical collar and supraloral spot; and the presence of a more or less well-indicated superciliary stripe.

The female of *Sauropatis chloris colonus* differs from the male in having the upper parts much darker, more blackish, particularly on the pileum and upper back; wings above duller, less bluish (more greenish); auriculars somewhat more blackish (less washed with green; only very slightly so tinged even in the male); supraloral spot and whitish cervical collar more washed with buff or ochraceous; and throat less purely white, more creamy or buffy.

As in most of the forms of this species, there is much individual variation in color, both in the male and female; this involving chiefly the bluish or greenish shade of the upper parts, including the wings, and, particularly in the female, depth of the buffy suffusion on the white cervical collar, and the extent of blackish on the back below this collar.

No specimens have been examined from outside the Louisiade Archipelago; in fact, this race has not been recorded from elsewhere. It is fair to presume, therefore, that *Sauropatis chloris colonus* is confined to these islands.

Detailed measurements are as follows:

Measurements of specimens of Sauropatis chloris colonus.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Ex-posed cul-men.	Tar-sus.
J. H. Fleming 20469.	Male....	St. Aignan Island, Louisiade Archipelago.	Apr. 12, 1897	A. S. Meek....	mm. 92.5	mm. 70.5	mm. 40	mm. 14.3
J. H. Fleming 20467.	Female..	.....do.....	July 9, 1897	.....do.....	92.5	68	38.3	14.5
J. H. Fleming 20470.	.....do.....	.....do.....	.....do.....	.....do.....	88.5	64	41	16
J. H. Fleming 20471.	.....do.....	.....do.....	.....do.....	.....do.....	91.5	66	39.5	14

SAUROPATIS CHLORIS GRAYI Cabanis and Heine.

S[auropatis]. *Grayi* CABANIS and HEINE, Mus. Hein., pt. 2, 1860, p. 159 (based on "*Halcyon sordida* Gray (nec Gould) P. Z. S., 1858, p. 172 [No.] 14") (Aru Islands).

Halcyon chloris aruensis BERLEPSCH, Abhandl. Senckenb. Naturf. Gesells., vol. 34, pt. 1, July 31, 1911, p. 75 (Dobo, Aru Islands).

Subspecific characters.—Similar to *Sauropatis chloris chloris*, but upper parts more greenish or brownish; no green at all on sides of head; blue on outer webs of primaries paler.

Measurements.—Both sexes:¹ Wing, 100–110.5 (average, 105.7) mm.; tail, 71–73 (71.8); culmen, 49–56.5 (53.7);² tarsus, 15.5–16.5 (16).

Type locality.—Aru Islands.

Geographic distribution.—Aru Islands.

Remarks.—This bird was described by von Berlepsch³ under the impression that *Sauropatis chloris sordida* was a distinct species, and that the two occurred together on the Aru Islands. The present writer, not having access to any Aru Island specimens, wrote to Dr. Ernst Hartert for his opinion regarding the status of *Halcyon chloris aruensis*. Doctor Hartert very kindly borrowed for examination the type series, and under date of March 16, 1913, wrote me as follows:

"I have received a long letter from friend Berlepsch and the types of his *Halcyon chloris aruensis*. Though they look very much like *chloris*—are, in my opinion, undoubtedly *blue varieties of H. sordidus*! We have a specimen entirely intermediate between Berlepsch's '*aruensis*' and typical dark *sordidus*."

From this information and the data furnished by the original description of *Halcyon chloris aruensis*, this bird appears to be a recognizable race, combining the characters of *Sauropatis chloris chloris* and *Sauropatis chloris sordida*, and forming the connecting link between these two. It thus becomes evident that *Sauropatis sordida* is a subspecies of *Sauropatis chloris*, with which view of its status the opinion of Doctor Hartert coincides.

Unfortunately for Berlepsch and his name *Halcyon chloris aruensis*, the Aru Islands bird had long previously been named by Cabanis and Heine, by whom it had been called *Sauropatis grayi*,⁴ on the basis of a specimen from the Aru Islands briefly described by Gray under the name "*Halcyon sordida* var."⁵ The race inhabiting the Aru Islands must therefore bear the name *Sauropatis chloris*

¹ Six specimens, measured by Berlepsch and Gray.

² Doubtless total culmen, and thus not entirely comparable with exposed culmen.

³ Abhandl. Senckenb. Naturf. Gesells., vol. 34, pt. 1, July 31, 1911, p. 75.

⁴ Mus. Hein., pt. 2, 1860, p. 159.

⁵ Proc. Zool. Soc. Lond., 1858, p. 172.

grayi Cabanis and Heine. It includes the Aru Islands birds heretofore identified as *Sauropatis chloris sordida*.

SAUROPATIS CHLORIS COLCLOUGHI Mathews.

Sauropatis chloris colcloughi MATHEWS, Bull. Brit. Ornith. Club, vol. 36, No. 213, February 22, 1916, p. 61 (Mud Island, near Brisbane, Queensland, Australia).

Subspecific characters.—Resembling *Sauropatis chloris sordida*, but more brightly colored, the head bluish green instead of brownish; back, wings, and tail, more bluish green (less brownish).

Measurements.—(None given in the original description.)

Type locality.—Mud Island, near Brisbane, Queensland, Australia.

Geographic distribution.—Coast region of southeastern Queensland, Australia.

Remarks.—No examples of this newly described race have been examined, and nothing therefore can be added to the original description, which is as follows:¹

“Differs from *S. s. sordida* (Gould) in being more brilliantly colored, the blue in all the feathers of the head, back, and tail being most noticeable. The head is bluish green, not greenish brown; the back is also bluish green and the primaries edged with indigo. Tail blue.”

Since no measurements or comparisons with forms other than *Sauropatis chloris sordida* were added by its describer, the characters separating it from *Sauropatis chloris grayi*, excepting inferentially the lack of a superciliary stripe, can not now be given. It is, however, possibly a recognizable race.

SAUROPATIS CHLORIS SORDIDA (Gould).

Halcyon sordidus GOULD, Proc. Zool. Soc. Lond., 1842, (December, 1842), p. 72 (northern coast of Australia).

Halcyon sordidus cooktowni MATHEWS, Novit. Zool., vol. 18, No. 3, January 31, 1912, p. 289 (Cooktown, northern Queensland, Australia).

Subspecific characters.—Very much like *Sauropatis chloris solomonis*, but decidedly larger; the blue of upper surface, particularly the wing-quills, somewhat more greenish; superciliary stripe entirely lacking; upper parts in female duller and more brownish.

Measurements.—Both sexes: Wing, 101.5–111.5 (average, 105.9) mm.; tail, 68–73.5 (70.5); exposed culmen, 46.5–50 (47.8); tarsus, 17–18 (17.5).² Wing, 105–116 (average, 111.3).³

Type locality.—Cape York, northern Queensland, Australia.⁴

Geographic distribution.—Coast region of northern Queensland, Australia.

¹ *Sauropatis sordida colcloughi* Mathews, Bull. Brit. Orn. Club, vol. 36, No. 213, Feb. 22, 1916, p. 61.

² Four specimens, from Australia.

³ Seven specimens, measured by Hartert.

⁴ Designated by Mathews, Novit. Zool., vol. 18, No. 3, Jan. 31, 1912, p. 289.

Remarks.—From the male of *Sauropatis chloris chloris* the same sex of *Sauropatis chloris sordida* differs in having a longer bill; the upper parts, including the wing-coverts, much duller, more brownish or greenish (less bluish); black nuchal band somewhat broader and less overlaid with greenish; no white superciliary stripe; ear-coverts washed with greenish instead of bluish. The female may be distinguished from the female of *Sauropatis chloris chloris* by its longer bill, rather darker, much more brownish (less greenish) upper surface, including the wing-coverts; less greenish wing-quills; and absence of a white superciliary stripe.

The adult male of the present form has a closer resemblance to the adult female of *Sauropatis chloris chloris* than to the same sex of that subspecies, but is distinguishable by longer bill; absence of a white superciliary stripe; more olivaceous or brownish superior wing-coverts and remaining upper parts, especially the pileum; more bluish wing-quills; and more olive greenish auriculars. The adult male of *Sauropatis chloris sordida* is even more like the juvenal female of *Sauropatis chloris chloris*, but is separable by the entire absence of a superciliary stripe; more greenish (less blackish) ear-coverts; more brownish pileum; more bluish (less greenish) wing-quills; and more olivaceous superior wing-coverts.

The female of the present race is appreciably duller throughout than the male, also more brownish above, with more blackish ear-coverts.

The type of *Sauropatis chloris sordida*, which I have examined in the Academy of Natural Sciences of Philadelphia, is apparently a female, since it is dull and brown for an example of even that sex. The locality on the label is the same as that given in the original description—"North coast of Australia," and this is probably correct. Mr. G. M. Mathews has subsequently restricted the type locality to Cape York, northern Queensland.¹

The other specimen in the Gould collection seems also to be a female. This one is labeled "West coast of Australia," but from the large size of the bill was probably obtained in northern Queensland and incorrectly labeled.

There seems to be little doubt of the subspecific relationship of *Sauropatis sordida* with *Sauropatis chloris*, as Doctor Hartert has already pointed out,² since the differences between *Sauropatis chloris sordida* and *Sauropatis chloris solomonis* are practically bridged by individual variation in both color and size, and between the former and *Sauropatis chloris chloris* by individual variation in *Sauropatis chloris grayi*, as already mentioned.³

¹ Novit. Zool., vol. 18, No. 3, Jan. 31, 1912, p. 289.

² Idem, vol. 11, No. 1, Mar. 25, 1904, p. 198.

³ See p. 390.

Measurements of specimens examined are added below:

Measurements of specimens of Sauropatis chloris sordida.

Museum and number.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Ex-posed cul-men.	Tar-sus.
M.C.Z.32229	[Male]...	[Australia].....	.....	.....	mm.	mm.	mm.	mm.
A. N. S. Phila. 21416.	[Female]	North coast of Aus-tralia. ^a	.....	Gould collec-tion.	104.5 106	68 73.5	47	17.3 18
A. N. S. Phila. 50130.	...do.....	Australia.....	— —, 1850	Warevich.....	111.5	71.5	46.5	17
A. N. S. Phila. 21417.	...do.....	"West" coast of Aus-tralia.	.....	Gould collec-tion.	101.5	69	50	17.5

^a Type.

SAUROPATIS CHLORIS MELVILLENSIS (Mathews).

Halecyon sordidus melvillensis MATHEWS, Austral Avian Record, vol. 1, No. 2, April 2, 1912, p. 38 (Melville Island, Northern Territory, Australia).

Subspecific characters.—Much like *Sauropatis chloris sordida*, but bill smaller and upper surface paler.

Measurements.—(None given by the original describer.)

Type locality.—Melville Island, Northern Territory, Australia.

Geographic distribution.—Coast region of the Northern Territory, Australia, southwest along the coast to middle Western Australia.

Remarks.—No authentic specimens of this proposed race have been examined, but it will probably be found recognizable, and is therefore given a place here on the strength of the original diagnosis.¹

KEY TO THE SUBSPECIES OF SAUROPATIS CHLORIS, BASED ON ADULT MALES.

a¹. Larger (wing over 120 mm.)-----*Sauropatis chloris anachoreta* (p. 385).

a². Smaller (wing under 120 mm.)

b.¹ Black nuchal band obsolete or absent (if present, very narrow).

c.¹ Larger (wing averaging more than 110 mm.)

d.¹ Auriculars green; black nuchal band not distinct.

Sauropatis chloris vidali (p. 384).

d.² Auriculars mostly blackish; black nuchal band distinct.

Sauropatis chloris terakoi (p. 357).

c.². Smaller (wing averaging less than 110 mm.).

d.¹. Upper parts decidedly bluish.

e.¹. Smaller (wing averaging less than 103 mm.); more bluish above

Sauropatis chloris armstrongi (p. 372).

e.². Larger (wing averaging more than 105 mm.); less bluish above

Sauropatis chloris palmeri (p. 369).

d.² Upper parts decidedly greenish.

e.¹. Exposed surface of wings more bluish; upper surface rather lighter-----*Sauropatis chloris collaris* (p. 361).

¹ Mr. Mathews, however, has recently (Birds Australia, vol. 7, pt. 2, May 15, 1918, p. 196) relegated this form to the synonymy of *Sauropatis chloris sordida*.

- e². Exposed surface of wings more greenish; upper surface rather duller.....*Sauropatis chloris abyssinica* (p. 385).
- b². Black nuchal band broad and conspicuous.
- c¹. Wing less than 100 mm.
- d¹. Lores, infra-orbital region, and fore part of auriculars black, or but slightly washed with greenish; upper parts darker.
- e¹. Concealed white occipital patch larger; female without ochraceous tinge on posterior lower parts.
Sauropatis chloris colonus (p. 388).
- e². Concealed white occipital patch smaller; female with ochraceous tinge on posterior lower parts.
Sauropatis chloris suvensis (p. 388).
- d². Lores, infra-orbital region, and fore part of auriculars greenish or bluish; upper parts lighter.
- e¹. Concealed white occipital patch larger; black nuchal band narrower, more washed with greenish; female with upper surface lighter.....*Sauropatis chloris enigma* (p. 360).
- e². Concealed white occipital patch smaller; black nuchal band wider, and less, or not at all, washed with greenish; female with upper surface darker, on mantle somewhat blackish.
Sauropatis chloris solomonis (p. 386).
- c². Wing not less than 100 mm.
- d¹. Upper parts decidedly more bluish.
- e¹. Bill longer (the exposed culmen averaging more than 46 mm.).
Sauropatis chloris cyanescens (p. 365).
- e². Bill shorter (the exposed culmen averaging less than 46 mm.).
- f¹. Upper surface more bluish and less contrasted with wings; blackish nuchal band narrower, less distinct, and more overlaid with greenish or bluish; bill somewhat shorter.
- g¹. Sides of body strongly suffused with buff; size somewhat smaller; auriculars more blackish.
Sauropatis chloris meyeri (p. 359).
- g². Sides of body not strongly, if at all, suffused with buff; size somewhat larger; auriculars more greenish.
Sauropatis chloris forsteni (p. 357).
- f². Upper surface more greenish and more contrasted with wings; blackish nuchal band wider, more distinct, and less, or not at all, overlaid with green; bill somewhat longer.
Sauropatis chloris chloris (p. 355).
- d². Upper parts decidedly more greenish.
- e¹. Wing averaging less than 105 mm.
- f¹. No white line over eye; anterior portion of mantle bordering white cervical collar in female blackish; outer under wing-coverts mottled with dark brown and greenish.
Sauropatis chloris hyperpontia (p. 386).
- f². A white line over eye; anterior portion of mantle bordering white cervical collar in female not blackish; outer under wing-coverts not mottled.
- g¹. White cervical collar tinged with buff; all of lower parts more or less washed with buff.
Sauropatis chloris davisoni (p. 375).
- g². White cervical collar not tinged with buff; only sides and flanks washed with buff....*Sauropatis chloris azela* (p. 377).

- e.² Wing averaging more than 105 mm.
- f.¹ Upper surface much duller, more olivaceous.
- g.¹ Bill smaller-----*Sauropatis chloris mcivillensis* (p. 393).
- g.² Bill larger-----*Sauropatis chloris sordida* (p. 391).
- f.² Upper surface much brighter, more greenish.
- g.¹ Smaller (wing averaging less than 110 mm.).
- h.¹ Superciliary stripe absent.
- Sauropatis chloris colcloughi* (p. 391).
- h.² Superciliary stripe present.
- Sauropatis chloris grayi* (p. 390).
- g.² Larger (wing averaging not less than 110 mm.).
- h.¹ Upper parts lighter, brighter, less olivaceous.
- Sauropatis chloris amphiryta* (p. 382).
- h.² Upper parts darker, duller, more olivaceous.
- Sauropatis chloris chloroptera* (p. 379).