

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

NOTES ON BIRDS FROM COSTA RICA AND CHIRIQUI,
WITH DESCRIPTIONS OF NEW FORMS AND
NEW RECORDS FOR COSTA RICA.

BY OUTRAM BANGS.

In the spring of 1905 while Mr. Robert Ridgway was in Costa Rica, Mr. C. F. Underwood offered him for sale his entire collection of birds. Mr. Ridgway at once wrote to John E. Thayer, Esq., and myself, setting forth the great advantage it would be to American ornithologists to have this collection come to the United States. Mr. Thayer at once bought the collection and in due time it was packed and shipped to us. It consisted of 3,365 skins, representing about 611 species and subspecies—mostly from Costa Rica, though a few came from Guatemala. The collection had been kept by Underwood as a sort of type series from which he might name specimens he secured, and many of the skins had been identified by Salvin, the labels bearing names and notes in his handwriting. Besides containing representatives of most of the rarer Costa Rican species the collection is rich in young birds in nestling plumage, and where the series of a species is large, specimens both in freshly moulted plumage and in worn, abraded condition can be found. The dates on the labels cover nearly a score of years, and the collection is the result of Underwood's laying aside the better things secured by him during this period. Such a collection is invaluable.

Mr. Thayer turned the whole lot over to me for identification, and with help here and there from Ridgway, Nelson, Oberholser, Richmond, and Riley, I have at last finished the work, which, as usual, took a much longer time than I anticipated. At first Mr. Thayer was undecided what to do with the collection, but, noticing from time to time the great interest I took in it, finally,

with his accustomed generosity, told me to keep a series for my own collection and to arrange the duplicates for exchange—probably with the National Museum.

As was to be expected there proved to be several new forms and several new records for Costa Rica in the Underwood collection, besides which the fine material from the neighboring country gave me an opportunity for comparison of Chiriqui birds—collected by Brown—that I never before had had, resulting in the discovery among them of one or two new forms.

The following notes and descriptions are the results of my work on the Underwood collection, which also meant going over again all of Brown's Chiriqui collections.

Botaurus lentiginosus (Mont.).

One ♀ taken at Reventazon, November 5, 1899; appears to be the first Costa Rican record for the species.

Ereunetes pusillus (Linn.).

One ♀ from vicinity of San José, September 15, 1898, adds this species to the Costa Rican ornithology.

Heteropygia bairdi (Cones).

Baird's sandpiper must also be given a place in the Costa Rican ornithology, on the strength of one ♀ taken by Underwood at Cerro de la Candelaria, near Escazú in October, 1900.

Leptotila cassini vinaceiventris (Ridg.).

In the Underwood collection are two doves, both adult males, labeled *Leptotila cassini*, one of them so identified by Salvin, one from Volcan Miravalles, September 14, 1895, the other from Juan Vinas, March 20, 1902. The Miravalles specimen is typical *vinaceiventris*, exactly matching Honduras examples. The Juan Vinas bird is not quite typical, approaching *cassini* in its grayer breast and slightly darker and more lustrous upper parts. Compared, however, with a pretty extensive series it seems rather nearer to *vinaceiventris* than to *cassini*.

Geotrygon costaricensis Lawr.

In 1902* I recorded *Geotrygon costaricensis* from the Volcan de Chiriqui, on the strength of four adults taken there by W. W. Brown, Jr.

I was somewhat surprised a little later to see my record discredited in *Biologia Centrali-Americana*,† where my Chiriqui specimens are referred to *G. lawrencei* Salvin, and this done without seeing my skins or even writing

* Proc. New Eng. Zool. Club, Vol. III, p. 24, Jan. 30, 1902.

† Vol. 3, p. 266, 1897-1904.

to me to ask if I had made a mistake! My identification was correct, and the birds from the Volcan de Chiriquí are true *G. costaricensis*, differing in no wise from Costa Rican specimens.

The Underwood collection contains a splendid series of *Geotrygon* which includes all the species known from Costa Rica—*Geotrygon albiventer*, *G. montana*, *G. veraguensis*, *G. lawrencei*, *G. costaricensis* and *G. chiriquensis*. I think it would be difficult to select more inapplicable names than *veraguensis*, *costaricensis* and *chiriquensis*, which three of these doves are doomed to bear, misleading any one not familiar with the birds to suppose they were local forms, confined each to the country the name of which it bears.

***Pyrrhura hoffmanni gaudens* subsp. nov.**

Type from Boquete, Chiriquí. ♂ adult, No. 9117, coll. of E. A. and O. Bangs. Collected March 3, 1901, by W. W. Brown, Jr.

Characters.—Similar to true *P. hoffmanni* of Costa Rica, except in having the feathers of top of head—especially the occiput—more or less tipped with red and with red shafts; underparts slightly darker green—less yellowish green.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Culmen.
9117	♂ ad.	Chiriquí, Boquete	133	112	13.5	19
9116	♂ ad.	do.	132	110.5	13.5	19.5
9115	♀ ad.	do.	132	111.5	14	20
9125	♀ ad.	do.	130	111	13	19

In Catalogue of Birds in British Museum, XX, p. 230, Salvadori noticed this difference between Costa Rican and Veraguan specimens of *P. hoffmanni*. When I compared Brown's Chiriquí birds, twenty-seven in number, with the Costa Rican material in the U. S. National Museum I was of opinion that it was not a constant difference, as there was in that institution one Costa Rican skin with some red tips to the feathers of the nape, and I had one skin from Chiriquí that had none of the usual red tipping. I find on closer inspection that this latter bird is young—not full grown—and even the yellow markings of the head are ill defined. All the skins in the Underwood collection are without a trace of these red-tipped feathers, and the one Costa Rican specimen, before referred to, is the only one to show anything of the sort. It has the red-tipped feathers and red shafts developed about as much as in Chiriquí skins that show such markings the least. Chiriquí skins usually, also, have more yellow on the crown than Costa Rican ones, and slight as the differences are it seems best to recognize two subspecies. I for one do not hold that subspecific characters must be absolutely constant. In this very case I do not think that one Costa Rican specimen, out of the large number examined, showing the characters of the southern form, should be considered to disprove the existence of such a form.

The two subspecies of *Pyrrhura hoffmanni* are easily recognized by the Costa Rican true *hoffmanni* being without red tips and shafts to the feathers of nape and crown (one skin only out of a large number examined showing any) and the Chiriquí form, *gaudens*, having always, when adult, such red markings, often very conspicuously developed.

***Eumomota superciliaris australis* subsp. nov.**

Type from Bebedero, Costa Rica. ♂ adult, No. 16,499, coll. of E. A. and O. Bangs. Collected February 11, 1890, by C. F. Underwood.

Characters.—Similar to true *E. superciliaris*, but paler in color throughout, blue color of wings and tail much paler, more greenish blue; superciliaries chiefly whitish or very pale blue; cinnamon-rufous of middle of back and belly paler, particularly so on belly; and wings quite different in character, the primaries much shorter in proportion to secondaries, so that the secondaries reach nearly to the wing tip; black tips of tertials and secondaries much shorter.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Exposed Culmen.
16,499	♂ ad.	Bebedero, C. R.	109	200	21	41
16,500	♀ ad.	do.	107	181	20	...

The Underwood collection contained but two skins of this bird,—which is I believe rare and local in Costa Rica,—both from Bebedero, the type, an adult male taken February 11, 1890, and an adult female, September 11, 1893. These two are alike in all important points, and differ very much from any northern specimen—I have examined a score or more—in the very peculiar wing with the secondaries and tertials reaching almost to the wing tip, instead of falling far back of it. The short black ends of the tertials and secondaries and the generally paler and duller coloring of the southern bird are also striking characters, and if other Costa Rican examples prove like my two I believe this southern extreme will be found to be more than subspecifically different from the northern true *E. superciliaris* (Sandbach).

Crypticus apiaster Lesson, Rev. Zool. 1842, p. 174, was described from "San Carlos Americae Centralis, Oceani Pacifici." As every Central American State except British Honduras has a town in it called San Carlos, I am at a loss to tell just whence Lesson's type came. There is nothing in the description to indicate that the bird differed in any way from true *Eumomota superciliaris*, and I am forced to regard Lesson's name as a synonym of the northern form.

***Saucerottea cyanura impatiens* subsp. nov.**

Type (and only specimen) from San Pedro, Costa Rica, fully adult ♂, No. 16,684, coll. of E. A. and O. Bangs. Collected October, 1904, by C. F. Underwood.

Characters.—Similar to true *S. cyanura* (Gould), but larger with shorter bill; head, back and breast darker green; under tail coverts dull steel blue edged with rich ferruginous—the under tail coverts in true *S. cyanura* are edged with pale grayish.

Measurements.—Type, old adult ♂: Wing, 54; tail, 28; culmen, 18.

Compared with *S. sophie* (Bourc. & Muls.), the common Costa Rican species, the new bird is at once distinguished by its more glittering green crown, rusty instead of grayish edges to under tail coverts and wholly different wing with conspicuous chestnut patches in it, and lined with chestnut.

The type locality of *Saucerottea cyanura* (Gould) is Realejo, Nicaragua, near the Pacific coast in the northwestern part of the republic. I have seen no specimens from this immediate region, but have compared the one Costa Rican skin with three from the boundary line between Honduras and Nicaragua, 180 miles from Pacific coast, and one from Guatemala. Gould's figure and description of the type agree minutely with these four skins, and not at all with the type of my new form from Costa Rica.

Apparently *S. cyanura impatiens* is an extremely rare bird, the type being the only individual Underwood ever saw; but it must be borne in mind that the ornithology of much of Costa Rica remains still unknown. Many tropical American birds are exceedingly local, though perhaps common in certain spots, and this hummer may yet be found in numbers somewhere.

Oreopyra.

Salvin in Cat. of Birds in British Museum and Hartert in Trochilidæ, both allow four forms to the genus of humming-birds, *Oreopyra*, confined to Costa Rica, Chiriquí and Veragua. Salvin gives these all specific rank while Hartert allows two species and two subspecies.

With the specimens in the Underwood collection and those taken by W. W. Brown, Jr., on the Volcan de Chiriquí combined, I have before me a series of upwards of 200 skins, representing three of the four recognized forms. A critical study of this large amount of material has induced me to alter somewhat the arrangement of the species and subspecies as adopted by Hartert, which was as follows—

1a. *Oreopyra leucaspis leucaspis* Gould. Chiriquí.

1b. *O. leucaspis cinereicauda* Lawr. Costa Rica.

2a. *O. calolama calolama* Salv. Costa Rica and western Panama.

2b. *O. calolama pectoralis* Salv. Costa Rica.

The females of all are practically alike (I can tell none of them). *O. leucaspis* and *O. calolama* are distinguished by the male of the former having a white and the male of the latter a violet throat. *O. cinereicauda*, however, is quite distinct in that the male has a gray tail (the others having it steel blue) and a much bluer, less greenish crown. *O. pectoralis*—a form I have not seen—I should judge to have been based on abnormal specimens

of *O. calotæma calotæma* faded or discolored by some change in the feathers, as it is said to differ only in its breast being darker, and when viewed from in front nearly black. Especially as Hartert says it occurs with true *O. calotæma* in several parts of Costa Rica. At all events, Underwood did not have a specimen in his collection, and it is with the other three forms that I have to deal.

The first point to be decided is whether or not the white throat of *leucaspis* as against the violet throat of *calotæma* is a specific or subspecific character, or even a character at all, and I must confess that even the large amount of material I have examined does not satisfy me on this point. The series taken on the Volcan de Chiriqui by Brown contained but one individual with a violet throat; all the others have the throat *mostly* white; close inspection, however, shows that there are some violet-tipped feathers at the edge of the white patch in nearly every one of these white-throated birds. Among the Costa Rican skins of *O. calotæma* I find none but violet-throated birds. These are mostly from Irazú and Cerro de la Candelaria. *O. cinereicauda*, that occurs chiefly (if not exclusively) in the Dota Mountains in central Costa Rica, between the Volcan de Chiriqui and Irazú and the Cerro de la Candelaria, has the throat usually mixed violet and white; out of 63 males, 33 have the throat violet and white mixed, in some nearly half and half, and 30 have plain white throats. Otherwise *cinereicauda* is not in the least intermediate between *calotæma* and *leucaspis*, but differs widely from both in its gray tail and bluer crown.

Examining the feathers of the throat carefully, we find them in the white-throated specimens to be gray at base then pure white to ends, in both *leucaspis* and *cinereicauda*. In the one violet-throated bird from the Volcan de Chiriqui, the feathers are gray at base, then white in middle and merely tipped with violet. In *calotæma* from Costa Rica the gray bases of the feathers extend upwards to the violet tips and there is no white middle part to the feathers of the throat. I therefore think that the violet-throated birds (either with the throat wholly or partially violet) from Chiriqui are merely cases of extreme individual variation of *O. leucaspis*.

White-throated examples with steel blue tails, *i. e.*, *O. leucaspis*, are only known from the Volcan de Chiriqui, and even here some examples have the throat violet. As I have said before, however, *all* Costa Rican skins have the throat violet.

I have seen no specimens from the Veraguan Ranges. Salvin, however, records violet-throated birds from the western ranges—Cordillera del Chuen, Cordillera de Tolé, etc.—which he calls, together with the violet-throated ones from Volcan de Chiriqui, *O. calotæma*. I am unable to say if these have white below the violet, or if they are like Costa Rican specimens and have the gray of the bases of the feathers extended upward and meeting the violet tips; probably they are *calotæma*. In my opinion *O. calotæma* and *O. leucaspis* are exceedingly closely related forms, differing in extreme cases in one having a violet and the other a white throat, but in many instances only to be told apart by one having white below the violet tips of the feathers of the throat and the other gray, and I should treat them only as subspecies at the best.

O. cinereicauda seems to be a perfectly distinct species. *Trochilus castaneiventris* Gould is, furthermore, the name by which the bird of the Volcan de Chiriquí, which I have called throughout this article, for the sake of clearness, *O. leucospis*, must be known. It was based on a female bird from the Cordillera of Chiriquí, and is the earliest name for any member of the genus. I should therefore arrange the forms as follows:

Orcopyra castaneiventris castaneiventris (Gould.) Volcan de Chiriquí.

O. castaneiventris calolema (Salv.) Costa Rica; Irazú, Cerro de la Candelaria, Dota Mts. (one skin in Underwood coll.), etc. South to western ranges of Veragua.

(*O. pectoralis* Salv. A doubtfully valid form, occurring with *O. c. calolema* in several parts of Costa Rica, the alleged differences probably being due to fading or to some aberrant difference in structure of the feathers.)

O. cinereicauda, Lawr. Central Costa Rica. Dota Mts.

Melanerpes wagleri Salv. & Godm.

In the Underwood collection is one young male of this species, taken at Pozo Azul, July 9, 1903. This is I believe the first time the bird has been recorded from Costa Rica, where the place of this Panaman form is taken by *Melanerpes hoffmanni*.

Hypocnemis naevioides capnitis subsp. nov.

Type from Volcan Miravalles, Costa Rica. ♂ adult. No. 17,048, coll. of E. A. and O. Bangs. Collected October 16, 1895, by C. F. Underwood.

Characters.—Similar to *H. naevioides** (from Panama) except that the adult ♂ has the whole sides and flanks slate color. (In true *H. naevioides* (Lafr.) the sides are whitish tinged with pale gray, and flanks pale grayish brown).

The adult ♀ of the new form has the sides and flanks darker, duller brown, and the back deeper chestnut, than in true *H. naevioides*.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Exposed Culmen.
17,048	♂ ad.	Miravalles, C. R.	61	31	24	17
17,047	♀ ad.	Carrillo, C. R.	59	32	22	17

Mr. W. W. Brown, Jr., took examples of true *H. naevioides* (Lafr.) at Loma del Leon, and near Panama City, Panama, but did not meet with the species anywhere in Chiriquí, and so far as I am aware *H. naevioides* has never been recorded from Veragua or Chiriquí, there being, apparently, a gap between the ranges of the Costa Rican and Panaman forms.

* Type locality, Pasto, southwestern Colombia.

***Xenicopsis variegaticeps idoneus* subsp. nov.**

Type from Boquete, Chiriqui. Adult ♂. No. 8943, coll. of E. A. and O. Bangs. Collected March 4, 1901, by W. W. Brown, Jr.

Characters.—Similar in size and proportions to true *Xenicopsis variegaticeps* ScL. of Costa Rica to southern Mexico (type locality, southern Mexico), but strikingly different in the color of underparts, which in the new form are dull yellowish olive, and in true *X. variegaticeps* rich reddish brown. The back and rump in *X. variegaticeps idoneus* are paler and more olivaceous, less reddish brown than in true *X. variegaticeps*.

From *X. temporalis* (ScL.) of Ecuador, the Chiriqui bird differs in having the shaft spots on breast and belly much less well developed.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Exposed Culmen.
8943	♂ ad.	Boquete, Chiriqui	86	69	20.4	18.2
8944	♀ ad.	do.	79	67.5	20	18

In 1890 Dr. Scater called attention to the differences in color between northern and southern examples of *Anabazenoops variegaticeps*, in Catalogue of Birds, Vol. XV, pp. 106-107, but so far as I am aware the species has not been subdivided by name till now.

The eight specimens collected by Brown on the Volcan de Chiriqui from 4,000 to 4,800 feet altitude vary but little one from the other and are all very different in color from northern examples. The range of the new form does not extend north of Chiriqui, Costa Rican examples being wholly referable to true *X. variegaticeps*.

X. variegaticeps idoneus is an intermediate form, between true *X. variegaticeps* and *X. temporalis*, though different enough from either to be recognized by name.

***Thryorchilus ridgwayi* sp. nov.**

Type from Volcan Irazú, Costa Rica. Adult (♂?)* No. 17,152, coll. of E. A. and O. Bangs. Collected March 4, 1899, by C. F. Underwood.

Characters.—Similar to *Thryorchilus browni* (Bangs) of the Volcan de Chiriqui but slightly larger and color of upper parts and flanks darker and decidedly more olivaceous, less reddish brown—almost bistre on head, back, flanks, under tail coverts and anal region, gradually shading into mummy brown on rump and upper tail coverts.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Exposed Culmen.
17,152	(?♂) ad.	Volcan de Irazú, C. R. . . .	52	32.5	23.5	14
199,509	†♂ ad.	do.	50	30.5	23	13.2

When Mr. Ridgway packed up for shipment the Underwood collection he discovered among the wrens it contained one skin belonging to this

*The type was not sexed by the collector but undoubtedly is a male.

†Coll. U. S. National Museum.

little known genus from Irazú, and wrote me that he thought it represented a new form.

Later in the season—May, 1905—Mr. Ridgway visited Irazú himself and had the pleasure of seeing the species in life, his companion, Don Anastasio Alfaro, succeeding in taking one example, which has been kindly lent me.* The species lived on Irazú in brushwood in ravines above timber-line. There is no cane (bamboo) on Irazú. It was not uncommon, though very hard to shoot.

The Irazú wren is quite distinct from the only other known member of the genus, *T. browni* of the Volcan de Chiriquí, wholly lacking the strong ruddy or chestnut coloring of the lower back, rump, tail coverts and flanks of that species; it is also larger.

Cyanolyca blandita sp. nov.

Type from Volcan de Chiriquí, 9,000 feet altitude, ♂ adult. No. 9324, coll. of E. A. and O. Bangs. Collected June 2, 1901, by W. W. Brown, Jr.

Characters.—Similar to *Cyanolyca argentigula* (Lawr.) of Costa Rica and of the same size, but throat constantly pale blue—flax flower blue—and pale colored band across head narrower and blue throughout, darker on sides of head, paler in middle. In *C. argentigula* the throat is silvery white, sometimes shaded with lavender gray; the band across head is much wider, nearly white in middle and pale blue at the sides.

Nestlings of the two forms are easily distinguished; even in this stage of plumage *C. argentigula* having a silvery and *C. blandita* a blue throat. The band across the head is narrower and less definite than in the adults, but it is bluish in *C. blandita* and whitish in *C. argentigula*.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Exposed Culmen.
9324	♂ ad.	Volcan de Chiriquí.	74	132	35.5	26
9327	♀ ad.	do	71	131.5	34.5	26

At the time I worked over the collections made in Chiriquí by Brown I did not have adequate material from Costa Rica and referred the Chiriquí bird to *C. argentigula*. The splendid series in the Underwood collection including adults taken at various seasons of year (January, February, May, June, and September), and nestlings, compared with the equally good one from Chiriquí, at once proved the incorrectness of my earlier identification, and showed the forms from the two regions to be distinguishable at a glance.

Vireolanius pulchellus viridiceps Ridg.

In the Underwood collection is one fine adult male of this subspecies from Pozo Azul, western Costa Rica, taken June 10, 1903. Thus still an-

*See Robert Ridgway, A Winter with the Birds of Costa Rica, The Condor, Vol. VII, No. 6, November-December, 1905, p. 159.

other Panaman form proves to extend its range north to the Pacific slope of Costa Rica. Apparently the more northern subspecies *V. pulchellus verticalis* Ridg. occupies eastern Costa Rica and extends southward even to the Volcan de Chiriqui. I have one adult bird (the only one from the region in my collection) from Boquete, Chiriqui, that is absolutely typical *V. pulchellus verticalis*. The characters that separate these two forms appear perfectly good, and we have in these vireos another instance of a Panaman form extending into western and a Central American form into eastern Costa Rica.

Stelgidopteryx.

In the Underwood collection is an extremely interesting series of nine rough-winged swallows, no two of which are quite alike. One or two breeding birds from Pozo Azul and Juan Vinas, C. R., and two others in fresh plumage taken in March, are rather nearer *serripennis* than any of the other subspecies, and might almost pass for that form except that all show some fulvous on the throat and one or two have dusky spots, more or less well developed, on some of the longer under tail coverts; another skin, a breeding bird, taken at Pozo Azul, June 16, is exactly intermediate between these and *uropygalis*; three others from Pozo Azul and Carrillo I should call *uropygalis*.

I must again emphatically express my belief that there is *but one* species of *Stelgidopteryx*. Since I first made this statement (Proc. New Eng. Zoöl. Club. Vol. II, pp. 57-60, July 31, 1901), I have been accumulating what specimens I could, and now have a much more extensive series, that to my mind conclusively proves this. Selecting specimens of breeding birds from a large amount of material I can lay out a line of skins that shows every possible stage of intergradation between the various forms and every combination of characters. There is no reason for considering any of the forms more than subspecies, there is absolutely no break in the chain anywhere, and no gap in the breeding range of the species.

The form Ridgway named *S. salvini* was based on a series of intergrades between *serripennis* and *uropygalis*, very unstable in character, and subject to an immense amount of variation. This is the bird I called *fulvipennis*, a name which I still do not feel at all sure is not the proper one, if such intergrades are to be recognized by name at all.

S. ridgwayi Nelson unquestionably intergrades with *serripennis*. I have an adult male taken March 6, at Texolo, V. C., Mex., that is exactly intermediate in every character. I occasionally, also, find well developed dusky markings on under tail coverts in specimens taken within the United States, one adult male taken April 4, at Barrington, Ga., having these markings very conspicuously developed.

I was pleased to see that Dr. Hellmayr, in a recent paper on the birds of Trinidad, agrees with me and also recognizes the very pale form of the northeastern portion of South America that I named *S. ruficollis equalis*, especially as other students of the American ornithology have persisted in taking the opposite view.

Chlorophanes spiza (Linn.).

The twenty-six skins of *Chlorophanes spiza* in the Underwood collection from Pozo Azul and San José are intermediate between subspecies *guatemalensis* and *exsul* though rather nearer the latter. None of them have as long bills as the northern form and none are quite so large, and although none have quite the small size and short bill of *exsul*, several specimens might well pass for that form.

Dacnis cayana callaina Bangs.

The Underwood collection contains nine skins of this form, three of them fully adult males, all from Pozo Azul, thus extending the range of the Chiriqui form to western Costa Rica. Unfortunately there were no skins from other places in Costa Rica, but I fancy *ultramarina* is the subspecies that inhabits the eastern part of the country.

Icterus prosthemeles Strick.

There is in the southern part of the range of *Icterus prosthemeles* a tendency toward a curious phase of plumage that apparently never occurs among birds from Mexico or Guatemala. In a series of southern specimens some can always be found that show much black mottling on flanks and have the black of breast extended far backward over the belly, and in a few specimens the black of the back also encroaches much on the yellow rump patch. If all southern examples were alike, no ornithologist would hesitate to recognize a southern form by name, but they are not. In fact the larger number of specimens from Panama to Honduras are quite like Mexican examples. It may be that in time this tendency among southern examples to show much more black than northern ones will become a fixed character, but at present it certainly is not.

In the Underwood collection there were but two skins of this species, one the blackest I have ever seen, the other exactly like ordinary Mexican specimens.

Icterus sclateri Cassin.

In *Birds of North and Middle America*, part II, pp. 297-298, foot-note, Ridgway suggests that perhaps two forms of this striking oriole may really exist,—*Icterus sclateri sclateri* Cassin, Nicaragua to Costa Rica, and *I. sclateri formosus* (Lawr.), Honduras to Oaxaca.

In the Underwood collection there is a fine pair from Miravalles, Costa Rica. These and my one Mexican example, Nelson compared for me with all the material in Washington, and found no appreciable difference in size between northern and southern specimens. Southern skins have the back more solidly black than northern, but the difference is slight and perhaps partly due to season—the southern specimens examined being in freshly acquired autumnal plumage, and there seems no need for a subdivision of the species.

Chlorospingus regionalis sp. nov.

Type from Cariblanco de Sarapiquí, Costa Rica. ♂ adult. No. 17,491, coll. of E. A. and O. Bangs. Collected August 11, 1899, by C. F. Underwood.

Characters.—Similar to *Chlorospingus novicius* Bangs of Volcan de Chiriquí, but much duller in color, especially below, the rich greenish ochre of jugulum and olive yellow of breast and sides and under tail coverts of *C. novicius* being replaced in the new form by dull yellowish, olive-green—slightly brighter and more yellowish on jugulum and darker and duller on sides and under tail coverts; back duller and browner olive and size a little larger than in *C. novicius*.

MEASUREMENTS.

No.	Sex.	Locality.	Wing.	Tail.	Tar- sus.	Exposed Culmen.
17,491	♂ ad.	Cariblanco de Sarapiquí, C. R.	70	57	22	...
17,492	♀ ad.	Azabar, C. R.	68.5	57	22	13

At the time I separated *C. novicius* from *C. albitempora* (Lafr.) of South America, Ridgway and I together compared very carefully the Chiriquí series with such specimens from Costa Rica as were in the National Museum, and made up our minds that birds from the two regions were subspecifically distinct, as suggested by Ridgway—Birds of North and Middle America, Part II, p. 164, foot-note. The use here of a binomial for the form, is not because I consider it very different from *C. novicius*, but because both may eventually prove to be subspecies of *C. albitempora*, and in such cases, until the real relationships of the forms are established, binomials are preferable to trinomials.

Junco vulcani (Boucard).

The Irazú Junco, the most southern and most aberrant member of the genus, is confined, so far as known, to the summits above timber line, of the Volcan de Chiriquí and of Irazú. One would naturally expect to find a bird of such peculiar habits and habitat differentiated into at least subspecies on these two isolated peaks. I have before me now a beautiful suite of specimens, which includes adults and young taken on corresponding dates from both Irazú and the Volcan de Chiriquí, and while there is a slight difference in birds from the two volcanoes I am unable satisfactorily to separate them. Birds from Irazú are a little darker, with slightly grayer heads and with backs more heavily marked with black than in those from the Volcan de Chiriquí, but the differences are trifling and not altogether constant, and after very careful consideration I have decided it would be unwise to divide the species into two subspecies.