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## STUDIES FROM THE DWIGHT COLLECTION OF GUATEMALA BIRDS. III

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This is the third<sup>1</sup> and final paper containing descriptions of new forms in the Dwight Collection, or revisions of Central American birds based primarily on material in The American Museum of Natural History. I have been, however, greatly aided throughout the progress of my work on this collection, by having the free use of the collections of the Museum of Comparative Zoölogy.

I am greatly indebted also to Messrs. Dickey and Van Rossem for the loan of material and notes from their Salvador collection which is unique. With unexceeded generosity they have urged me to publish and use information which they themselves have discovered, and which was undoubtedly in manuscript form in their final report. I have never had a more interesting or more profitable correspondence. In one case beyond, I describe a Salvador oriole based on specimens received by the Museum of Comparative Zoölogy in exchange. With the warm approval of the Bird Department, the type has been returned to Mr. Dickey's collection, and is consequently cited by his original catalogue number, and as being in his collection.

As usual, all measurements are in millimeters, and technical color-terms follow Ridgway's nomenclature. The identification of the specimens in the Dwight Collection is now completed, and by the time this paper is published, it will be available in New York.

### ***Cryptoglaux rostrata*, new species**

TYPE.—Dwight Collection, Amer. Mus. Nat. Hist.; ♀ "slightly immature"; Sacapulas, Rio Negro Valley, Central Guatemala; March 5, 1928; A. W. Anthony.

SPECIFIC CHARACTERS.—Toes bare for last joint; wings and tail unspotted with white, as in *C. ridgwayi* Alfaro of Costa Rica; forehead white as in *acadica* (Gmelin) of North America, but without the border of vertical white streaks; the rim of the facial disk also devoid of the white streaks, present in *acadica*; bill twice as large as in the other two species (all dimensions considered), the length of exposed culmen, 20 mm.

<sup>1</sup>Amer. Mus. Novit., No. 379, 1929, and No. 414, 1930.

This very interesting find of Mr. Anthony's raises some absorbing questions. In the first place, it dispels our illusion that saw-whet owls in Central America are boreal birds found only in high mountains. The type of *rostrata* was taken in the Arid Tropical Zone at 4500 ft. In the next place, the suspicion is aroused that *Cryptoglaux* and *Gisella* are scarcely separable genera (see Ridgway, Bull. 50, U. S. Nat. Mus., part 6, 1914, p. 619, footnote), and that tropical saw-whet owls never acquire the so-called adult plumage. It will be recalled that Salvin found a *Cryptoglaux* in 1873, in a museum in Guatemala, which was also in the "immature" plumage.

The comparative characters of the three saw-whet owls are best shown in tabular form as follows.

	<i>acadica</i>	<i>rostrata</i>	<i>ridgwayi</i>
Toes	Fully Feathered	Partly bare	Naked, except base of outer
Wing	Longer and more pointed	Shorter and rounded	Shorter and rounded
Bill	Small and delicate	Large and heavy	Small and delicate
Culmen	Maximum, 14 mm.	20 mm.	13 mm.
Wings	Spotted with white	No white	No white
Tail	Barred with white	No white	No white
Forehead	White	White	Buffy brown
Suborbital Region	Sooty black	Dark brown	Buffy brown
Under Wing-coverts	White	Wood brown	Wood brown

***Cardellina rubrifrons bella*, new subspecies**

TYPE.—No. 60472, Dwight Collection; ♂ ad.; Chichicastenango, Guatemala; January 27, 1925; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Similar to typical *Cardellina rubrifrons* (Giraud) of southern Arizona and Mexico, but general coloration darker and clearer; red areas slightly darker, approaching crimson, most conspicuous on forehead; gray of upperparts darker and slatier; underparts grayer, less white, the chest, sides, and flanks more extensively washed with gray of a darker shade and less tinged with pink.

MATERIAL EXAMINED

*Cardellina rubrifrons rubrifrons*.—Large series from Mexico and southern Arizona.

*Cardellina rubrifrons bella*.—Guatemala: Chichicastenango, 2 ♂, 1 ♀.

The slightly darker coloration is quite obvious in the Guatemalan birds, and is sufficient to characterize a southern subspecies.

**SMARAGDOLANIUS, new genus**

GENERIC CHARACTERS.—Similar to *Vireolanius* Du Bus, but tail two-thirds length of wing or less; outer toe coherent to middle toe for two basal phalanges; rictal bristles inconspicuous, the longest scarcely exceeding the bristly points of the frontal feathers; bill relatively longer and narrower; coloration chiefly bright green and yellow.

TYPE.—*Vireolanius pulchellus* Sclater and Salvin.

The type of the genus *Vireolanius* is *melitophrys* Bonaparte, one of the rarest of Central American birds in collections, characteristic of the oak forests of the Temperate Zone on the high mountains of southern Mexico and western Guatemala. This bird is, in coloration and structure, quite different from the three species *pulchellus*, *eximius*, and *leucotis*, which are much better-known birds of tropical rain forests from southern Mexico to Amazonia, and which have always been incorrectly referred to *Vireolanius*. So much is this the case that the only recent technical diagnosis of *Vireolanius* (that of Ridgway) is based on *pulchellus* and not *melitophrys*! It is, therefore, the latter which really needs to be described, although it is the type of the genus. The contrasted diagnosis of *Vireolanius*, as here construed, follows.

*Vireolanius*.—Tail more than five-sixths length of wing; outer toe almost or entirely free from middle toe; rictal bristles well developed, the longest over 1 cm. in length; bill relatively much shorter and wider; coloration very variegated and bizarre.

Three fresh specimens of *Vireolanius* collected by Anthony have the feet in excellent condition, and show the great development of the rictal bristles which have not been broken off or worn with age.

Some years ago, Dr. Wetmore gave a paper at an A. O. U. meeting in which he showed, I believe, that these birds and *Cyclarhis* were not vireos. His final conclusions have not been published as yet, and the matter may well be left alone until they are. With ample field experience with *Cyclarhis* (every Central American form), it is incredible that this genus is vireonine, and the same is probably true of *Vireolanius*. In life, *Smaragdolanus* at least resembles other vireos in haunts and habits, but its song is a loud sweet whistle of two syllables, suggesting the call note of a pine grosbeak or lesser yellowlegs.

***Vireo huttoni vulcani*, new subspecies**

TYPE.—No. 56442, Dwight Coll.; ♂ ad.; Quetzaltenango (8500 ft.), Guatemala; November 22, 1919; Austin Paul Smith.

SUBSPECIFIC CHARACTERS.—Similar to *Vireo huttoni mexicanus* Ridgway of Puebla, Mexico, but olive-green above with a slight brownish tinge, entirely lacking the dull gray tint on the pileum and back, the rump scarcely brighter than the rest

of the upperparts; underparts in breeding adults radically different from any other race in being almost uniform pale dirty yellowish-olive, quite different from the brownish-buff wash characteristic of young *mexicanus*; resembles *mexicanus* in larger size and in having the throat and abdomen scarcely lighter than chest.

#### MATERIAL EXAMINED

*Vireo huttoni mexicanus*.—Mexico: Vera Cruz, 1 ♀; southern Tamaulipas, 4 ♂, 4 ♀.

*Vireo huttoni vulcani*.—Guatemala: Momostenango, 1 ♂, 1 ♀; Chichicastenango, 1 ♂; Tecpam, 3 ♂, 2 ♀ (breeding adults); Zanjon, 1 ♂, 1 ♀; Quetzaltenango, 6 ♂, 3 ♀.

Also adequate series of all the other described forms.

There was only one record for Hutton's vireo in Guatemala, and it was supposed to be a winter visitant. Messrs. Smith and Anthony deserve the credit for rediscovering this species in Guatemala, and proving that it is a fairly common resident in the Temperate Zone (about 8000 ft.) of the great volcanoes of western Guatemala. It is by no means surprising to find that it is a very distinct subspecies, which requires no further comment. Some years ago when Smith's original series came in, Dr. Dwight and I compared them with a good series of *mexicanus*, in The American Museum of Natural History, and were positive the bird was undescribed. Additional material merely strengthens this impression.

#### *Catharus mexicanus cantator*, new subspecies

TYPE.—No. 60329, Dwight Coll.; ♂ ad.; Finca Sepacuite (3500 ft.), about 50 miles east of Coban, Vera Paz, Guatemala; May 26, 1925; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Similar to typical *Catharus mexicanus* (Bonaparte) of Vera Cruz, Mexico, but generally darker in color; upperparts with a bistre-brown tint to the olive; chest, sides and flanks darker olive; decidedly smaller, as in the Costa Rican *fumosus*; wing of males 84.5–92, average 86.7.

#### MATERIAL EXAMINED

*Catharus mexicanus mexicanus*.—Mexico: Vera Cruz, 3 ♂; southern Tamaulipas, 20 ♂, 2 ♀.

*Catharus mexicanus cantator*.—Guatemala: Finca Sepacuite, 3 ♂, 1 ♀; Barillos, 1 ♂.

*Catharus mexicanus fumosus*.—Costa Rica and western Panama, large series.

Formerly regarded as a rare bird, this *Catharus* is now becoming well represented in collections, and a study of its variation is feasible. Large series show that *smithi* Nelson from southern Tamaulipas is inseparable from true *mexicanus*, which may be characterized as a large, medium-olive form. The new race *cantator* is a small, darker, browner-olive form. The Costa Rican *fumosus* is also small and dark, but the chest,

sides, and flanks average more slaty, less brownish olive. Needless to say, true *mexicanus* does not occur in Costa Rica.

Variations of age and sex are just as important as racial variation. In the first place, females are more olive below than males, the cap is not so jet-black, the forehead at least is olive-brown, and sometimes the whole pileum is faintly margined with this color. Older males are also undoubtedly more slaty, less olive than younger males, and only old males have an all yellow bill. It will be apparent, therefore, that females of *fumosus* will very closely resemble young males from Mexico or Guatemala. A final point of difficulty is post-mortem change. Old skins are browner, less gray, a fact which has also confused the issue in the past.

In The American Museum of Natural History there are large series from northern Nicaragua southward. Fifteen specimens from Nicaraguan localities are intermediate between *cantator* and *fumosus* and should be recompared with recent material from farther north. Specimens from as far south and east as Veraguas are not separable from Costa Rican material.

#### ***Turdus grayi umbrinus*, new subspecies**

TYPE.—No. 58125, Dwight Coll.; ♀ ad.; Finca El Cipres (2300 ft.), near Mazatenango, Pacific slope, Guatemala; July 25, 1924; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Nearest to typical *Turdus grayi* Bonaparte of eastern Guatemala, but darker and more richly colored, much browner, less olive above, bright Isabella brown rather than clay color or brownish buff below, in any plumage most conspicuous on the belly and under tail-coverts; worn specimens are very close to fresh specimens of *grayi*, but radically different from *grayi* in comparable plumage. Differing from all other races in even greater degree than from *grayi*.

#### **MATERIAL EXAMINED**

*Turdus grayi grayi*.—Mexico: Vera Cruz, 20; Oaxaca, 6; Quintana Roo, 2. British Honduras, 3. Eastern Guatemala (13 localities), 37. Eastern Honduras, 15.

*Turdus grayi umbrinus*.—Guatemala (Pacific slope): 30 specimens from Ocos to San José.

A few years ago (Amer. Mus. Novit., No. 183, 1925, pp. 3-4) Miller and I gave a brief review of the races of this robin. The Dwight Collection and the much more extensive material in the Museum of Comparative Zoölogy, when combined, tend to confirm the general conclusions then advanced, but permit a better precision as to the ranges of the various forms and the degree of individual variation in size and color.

As there are obviously two races in Guatemala, the first thing to do is to decide just what *Turdus grayi* Bonaparte is. The name is based

on a bird brought back by Colonel Velasquez de Leon, as part of a small collection acquired during a two weeks visit to Guatemala. Dearborn has suggested (Field Mus. Publ. 125, 1907, p. 136) that the type probably came from the Pacific coast region, as several of the species reported in the paper are restricted to that region. A careful examination of the paper shows, however, that other species reported could have come only from the highlands, and others are restricted to the Caribbean rain forest (for instance, *Pachysylvia decurtata*). It is apparent, therefore, that Colonel Velasquez must have bought a collection of the trade-skins of the day, in addition to whatever he shot himself. The type may have come from any part of Guatemala. Post-mortem color-change in this species is so pronounced that specimens taken prior to 1900 are usually worthless for subspecific comparison. It consequently makes little or no difference whether the type still exists or not. For many years, trade-skins from "Guatemala" and good series from Vera Cruz have been passing as typical *grayi*. Modern series from Alta Vera Paz and Vera Cruz are identical. I, therefore, designate Alta Vera Paz as the type-locality, thereby avoiding any changes in nomenclature.

Large series show great seasonal and individual variation. Worn specimens of *grayi* are much paler below and have been confused with *tamaulipensis*. Birds in very fresh plumage (chiefly October to December) are much more richly colored below. The size variation in all good series from one locality is about 10 mm. in the wing of males. Series from the highlands on the eastern side of the Pacific Cordilleras of Guatemala average 1.3 mm. larger than series from Vera Paz and Vera Cruz.

The new form from the Pacific lowlands is the brownest and most richly colored extreme of the species.

#### ***Myadestes unicolor veraepacis*, new subspecies**

TYPE.—No. 60281, Dwight coll.; ♂ ad.; Finca Sepacuite (3500 ft.), 50 miles east of Coban, Alta Vera Paz, Guatemala; May 4, 1925; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Nearest to *Myadestes unicolor pallens* Miller and Griscom of northern Nicaragua in being a paler and purer gray than typical *unicolor* of Vera Cruz, but intermediate in not being quite so light on the belly; chest distinctly darker than chin, throat and belly; eye-ring almost complete; a hoary spot on gape just below black of lores; chest feathers without light shaft-streaks; outer rectrices clear gray, not brownish gray; size as in *unicolor*; wing, 100 mm.; tail, 92 mm.

#### MATERIAL EXAMINED

*Myadestes unicolor unicolor*.—Vera Cruz, 3.

*Myadestes unicolor veraepacis*.—Alta Vera Paz, the type.

*Myadestes unicolor pallens*.—Northern Nicaragua, 12.

A very distinct form, though intermediate in that it has the paler color of *pallens* and the size of *unicolor*. The contrasted color below, the pure gray outer rectrices, the distinct eye-ring and the hoary spot below the lores are, however, characters which separate it almost at a glance. It is isolated in the highlands of Vera Paz, and there is a big "break" in the range, before the species reappears in northern Honduras.

***Cinclus mexicanus anthonyi*, new subspecies**

TYPE.—No. 63484, Dwight coll.; ♂ ad.; San Mateo (8250 ft.), 45 miles east of Nenton, western Guatemala; February 12, 1927; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Similar to *Cinclus m. mexicanus* Swainson of Mexico, but a purer, less brownish gray throughout, especially on the underparts; head even darker sepia, the area more restricted on the nape, and much more sharply demarcated from the gray body-color both above and below.

**MATERIAL EXAMINED**

*Cinclus mexicanus mexicanus*.—Mexico: Vera Cruz, 2; southern Chihuahua, 17.

*Cinclus mexicanus anthonyi*.—Guatemala: San Mateo, 3 ♂; 2 ♀; Barrillos, 1 ♂; Tecpam, 1 ♀.

This very distinct form is easily separable by the cleaner, purer gray, and the sharper definition of the brown head. No comparison is needed with the North American race. The occurrence of a dipper in Guatemala rests on a sight record of Salvin's, who shot one of a pair in a mountain torrent above Totonicapam, but lost it in the stream. It is, therefore, quite appropriate to name this local race after the only man who ever succeeded in collecting a series.

***Sporophila moreletti mutanda*, new subspecies**

TYPE.—No. 63845, Dwight Coll.; ♂ ad.; Hacienda California, near Ocos, Pacific slope, western Guatemala; June 9, 1926; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Adult male very different from typical *S. moreletti* (Bonaparte) of eastern Guatemala, and scarcely separable from adult males of the whiter phases of *S. aurita*; differing from the latter only in the presence of minute white spots on the wing-coverts; differing from typical *moreletti* in having the chin and throat largely black, connected with the pectoral collar, which is twice as broad; white on ear-coverts, sides of neck, rump and wing-coverts, greatly reduced; females inseparable from typical *moreletti*, and in no way suggesting *aurita*.

**MATERIAL EXAMINED**

*Sporophila moreletti moreletti*.—Large series from entire range.

*Sporophila moreletti mutanda*.—Thirty-five specimens from the Pacific coastal plain of Guatemala.

The adult males in the Salvin and Godman collection from western Guatemala, which Sharpe referred to *S. aurita*, thus giving that species a

discontinuous distribution, undoubtedly belong to the bird here described, and true *aurita* does not range north of southwestern Costa Rica. Ornithologists have long been familiar with the complex permutations of characters in the black and white species of this genus in Central and northern South America, but the present case is surely unique in Central American birds. Anyone looking at the great series of skins in the Dwight Collection from eastern and western Guatemala can see at a glance that two very distinct forms are involved, but forms only, in spite of the fact that the males of one are practically inseparable from a distinct species farther south. In the first place, the females of the two forms are inseparable and quite different from the female of *S. aurita*. In the second place, obviously intermediate males occur in the highlands, which are geographically intermediate.

While every male specimen of the new form is instantly separable from typical *morelleti*, they are by no means constant among themselves. The amount of white on the throat is variable, and in some cases a white area separates the black of the chin from the black of the pectoral collar. There is also variation in the amount of white on the wing-coverts and rump. In other words, males of *mutanda* are to a lesser extent polymorphic, like the males of *S. aurita*.

As a matter of fact, there are other male *Sporophilæ* before me, from the Pacific coast of Guatemala, which are neither typical *morelleti* nor *mutanda*. A preliminary statement of their characters could be made by saying that they formed a partial connecting link between *morelleti* and *torqueola* of southwestern Mexico, of which *S. albitorquus* Sharpe, known from two Oaxaca specimens, is probably a dimorphism. The case is a very complicated one, of great biologic interest, but cannot be more fully discussed until ample material becomes available from southwestern Mexico.

#### ***Saltator grandis hesperis*, new subspecies**

TYPE.—No. 56541, Dwight Coll.; ♂ ad.; San José, Guatemala; January 24, 1920; Austin Paul Smith.

SUBSPECIFIC CHARACTERS.—Similar to typical *Saltator grandis* (Lichtenstein) of eastern Mexico and eastern Central America, but larger, slightly darker, more slaty above, obviously darker, more slaty, less buffy below, particularly on the chest and sides; superciliary stripe averaging narrower and not extending so far back of eye; wing of males, 100–108.5 (105), in *grandis* 94–102 (98.6).

#### **MATERIAL EXAMINED**

*Saltator grandis grandis*.—Eastern Mexico, 4 ♂, 2 (?). British Honduras, 3 ♂, 1 ♀. Eastern Guatemala, 1 ♀. Eastern Honduras, 1 ♂, 1 ♀. Eastern Costa Rica, 2, ♂ 3 ♀.



*Saltator grandis hesperis*.—Guatemala: Pacific coastal plain, 13 ♂, 12 ♀, from various localities, Ocos to San José; central highlands, San Lucas, 3 ♂; Panajachel, 1 imm.; Lake Amatitlan, 1 ♂, 1 ♀. Western Nicaragua, 1 ♂, 1 ♀.

We now know a great deal more about the range and variations of *Saltator grandis* than when Ridgway wrote in 1901. A paler form tending to be extensively whitish on the belly is now known as *yucatanensis* Berlepsch. In Salvin's day this species was unknown in eastern Guatemala, but was found there by Anthony, as was surely to be expected. Birds from the Pacific coast and highlands of Guatemala are readily separable as being larger and darker. A specimen from Finca La Primavera, at 3500 ft. in Baja Vera Paz, is intermediate, resembling *hesperis* in size but *grandis* in color. A specimen from Finca Chama in the tropical lowlands is typical *grandis*. As we go southward there seems little change as far as Nicaragua. Specimens from Costa Rica are, however, a little darker in color, but run as small as the smallest Mexican and British Honduras specimens, perhaps even less. These characters are perhaps too tenuous for a fourth form.

#### ***Aimophila ruficauda connectens*, new subspecies**

TYPE.—No. 58485, Dwight Coll.; ♂ ad.; Progreso, Guatemala; July 8, 1924; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Intermediate between typical *ruficauda* (Bonaparte) of Nicaragua and Costa Rica and *Aimophila ruficauda lawrencii*; upperparts grayer, less rufescent, nearer *lawrencii* in this respect; tail rufescent as in *ruficauda*, not brown as in *lawrencii*.

#### **MATERIAL EXAMINED**

*Aimophila ruficauda ruficauda*.—Nicaragua, 2. Costa Rica, 7 ♂, 9 ♀.

*Aimophila ruficauda connectens*.—Guatemala: Progreso, 19 ♂, 8 ♀, 6 imm.; Gualan, 1 ♂ (M. C. Z.).

*Aimophila ruficauda lawrencii*.—Mexico: Oaxaca, 8 ♂, 10 ♀.

This form is isolated in the arid Motagua River Valley and, while intermediate in characters, is easily distinguishable from the two extremes.

#### ***Aimophila rufescens gigas*, new subspecies**

TYPE.—No. 62955, Dwight Coll.; ♂ ad.; Nebaj, 50 miles north of Quiché, alt. about 6700 ft., Guatemala; April 29, 1927; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Similar to typical *Aimophila rufescens* (Swainson) of southern Mexico, but very much larger, and paler above, grayer on the hind-neck, the back a paler, less rusty brown; sides, flanks, and vent averaging grayer, less washed with buffish or brownish.

## MATERIAL EXAMINED

*Aimophila rufescens rufescens*.—Large series from Vera Cruz and Vera Paz, Guatemala; Salvador, 6 specimens from Chalatenango and San Salvador. Nicaragua: 11 specimens from the northern highlands.

*Aimophila rufescens* approaching *gigas*.—Guatemala: Sacapulas, 1 ♂, 1 ♀; La Perla, 2 ♂, 1 ♀.

*Aimophila rufescens gigas*.—Guatemala: Momostenango, 4 ♂, 1 ♀; Chichicastenango, 5 ♂, 1 ♀; Nebaj, 2 ♂; Antigua, 4 ♂, 1 ♀; La Montanita, 1 ♂; San Lucas, 11 ♂, 1 ♀; Panajachel, 4 ♂, 3 ♀, 9 imm.; Lake Amatitlan, 3 ♂.

Thanks to the courtesy of Messrs. Dickey and Van Rossem, I have before me six specimens of apparently typical *rufescens* from various points in Salvador, and four specimens of their very distinct *pectoralis*, apparently isolated on the Volcan San Miguel, which requires no further comment. There is nothing surprising in the distinctness of the bird of the Pacific highlands of Guatemala, but it is surprising that the sparrow farther south in the same mountain system should be inseparable from true *rufescens*. Nicaraguan birds are also inseparable from *rufescens*. Typical *rufescens* is really an intermediate between two extremes, the large pale *gigas* to the west, and the very small, dark *discolor* Ridgway in the lowland pinelands of the Caribbean slope from Peten to southern Honduras. As regards *rufescens* in Salvador and Nicaragua, I can only conclude that it was derived from the east rather than the north.

## WING OF ADULT MALES

<i>rufescens</i> (Mexico)	—67–74.5 (series)
<i>rufescens</i> (Vera Paz)	—67–75 (series)
<i>rufescens</i> (Salvador)	—?–74.5 (2 only)
<i>rufescens</i> (Nicaragua)	—68–75.5 (series)
<i>gigas</i> (West Guatemala)	—76–82 (series)
<i>pectoralis</i> (Salvador)	—77.5–78 (2 only)

CENTRAL AMERICAN RACES OF *Zonotrichia* (*Brachyspiza*) *capensis*

For many years all Chingolo sparrows from Peru northward have been called *peruviana* (Lesson) for lack of proper material from the enormously diversified and extensive area involved. For two decades Dr. Chapman has been assembling a superb collection, and has long had it in mind to monograph the species. Many people are now aware that *peruviana* of authors is a composite of many subspecies, but the task of describing them should be left to the only person whose material is adequate. I therefore confine myself strictly to the two forms found in Central America, and compare them only with topotypes of *peruviana*

from Lima, kindly forwarded by the authorities of The American Museum of Natural History.

In Central America this little *Zonotrichia* is strictly a highland bird, never occurring below 3000 ft. In parts of Costa Rica and Guatemala it has become a town bird, and its cheerful song can be heard from the roofs of houses in the heart of San José. In western Panama, however, it is quite local, as it prefers open rocky fields in the mountains, and this habitat is scarce in a heavily forested country. It is as yet unrecorded in eastern Panama, or between Guatemala and Costa Rica, but this probably signifies only lack of exploration. Years ago, J. A. Allen described the Costa Rican form without having seen topotypes of *peruviana*, which has a very restricted range in the arid littoral of Peru. Nevertheless, as might be expected, the Costa Rican bird is quite different from ANY Peruvian subspecies, and it will occasion students of Central American birds no surprise to learn that the representative in Guatemala is different again. Detailed comparative descriptions are appended below.

***Zonotrichia capensis peruviana* (Lesson)**

TYPE LOCALITY.—Lima.

RANGE.—Arid littoral of Peru. Specimens from southwest Peru (Ica and Arequipa) and northern Peru (Huancabamba) belong to other forms.

DIAGNOSIS.—A relatively large and pale subspecies; nuchal collar relatively pale rufous, sharply contrasted with back; back paler and more grayish brown, the streaking relatively distinct and narrow; auricular region much darker gray than superciliary stripe; sides and flanks washed with pale grayish brown.

MEASUREMENTS OF MALE.—Wing, 70–74 (72); culmen, 10.5–12 (11.2).

MATERIAL EXAMINED.—Six males, 4 females from Lima.

***Zonotrichia capensis costaricensis* J. A. Allen**

TYPE LOCALITY.—San José, Costa Rica (cf. Bull. Amer. Mus. Nat. Hist., III, 1891, p. 375).

RANGE.—Highlands of Costa Rica and western Panama, east to central Veraguas.

DIAGNOSIS.—Distinctly darker and browner above, the brown with a vinaceous wash; nuchal collar rich rufous, sharply contrasted with back; black streaking very broad and heavy in fresh specimens; auricular region but little if any darker gray than superciliaries; sides and flanks heavily washed with buffy olive; decidedly smaller, but the bill as long.

MEASUREMENTS OF MALES.—Wing, 62–66 (64.5).

MATERIAL EXAMINED.—Costa Rica: good series including type. Western Panama: Boquete, 4 ♂.

**Zonotrichia capensis septentrionalis**, new subspecies

TYPE.—No. 60798, Dwight Coll.; ♂ ad.; Chichicastenango, Guatemala; January 27, 1925; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Nearest *Zonotrichia capensis costaricensis* Allen in general coloration, but black streaking above much less broad and heavy, as in *peruviana*; nuchal collar less sharply defined, the rufous tinge invading the interscapular area; decidedly larger.

MEASUREMENTS OF MALE.—Wing, 66.5–73 (70).

MATERIAL EXAMINED.—Guatemala: 84 specimens from 15 localities in the highlands.

**Passerina versicolor purpurascens**, new subspecies

TYPE.—No. 58453, Dwight Coll.; breeding ♂; Progreso, Guatemala; July 10, 1924; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Similar to typical *P. versicolor* (Bonaparte) of eastern Mexico, but much smaller; general coloration darker and duller; in adult male purplish-blue area on forecrown more restricted; wine-purple of hind-part of crown much duller, followed by a more distinct and more purplish nuchal collar; back darker and more purplish, less red; throat and chest much darker and duller wine-purple; immature male darker and grayer, less brown; wing, 63.5–66 (64.2), as compared with 68–71 (69.5) in the typical form.

## MATERIAL EXAMINED

*Passerina versicolor versicolor*.—Thirteen specimens from southeastern Texas, Tamaulipas, Vera Cruz, and Jalisco (2). The latter slightly approach *pulchra* of Lower California in color.

*Passerina versicolor purpurascens*.—Guatemala: Progreso, 2 ♂ ad., 1 ♀ imm.

Even allowing for the worn condition of the Progreso birds, the new form is so different as to require no further comment. It is another interesting addition to the specialties of the arid Motagua Valley.

**Pipilo maculatus repetens**, new subspecies

TYPE.—No. 59,025, Dwight Coll.; ♂ ad.; Zanzon (alt. 8000 ft.) western Guatemala; January 8, 1925; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Strikingly different from typical *Pipilo maculatus* Swainson of the central and southern portions of the Mexican Plateau, the adult male much blacker above, the head not conspicuously darker than the back, only the rump and tail-coverts distinctly brownish olive, the back dark brownish with very inconspicuous diffused blackish streaks; white streaking of back much more developed; central tail feathers blackish, without obvious brownish-olive edges; averaging slightly larger, with a distinctly heavier bill; in general coloration approaching *montanus* Swarth of northern Mexico and the southern Rockies, but not so black above and with less white streaking and spotting on back and wings, the white almost never pure white, usually strongly tinted with brownish. Females differ in exactly the same respects; they are darker brown, the back more streaked with white.

## MATERIAL EXAMINED

*Pipilo maculatus maculatus*.—Mexico: Hidalgo, 2 ♂; Puebla, 2 ♂; Oaxaca, 1 ♂, 1 ♀; Chiapas, 2 ♂, 2 ♀; "Mexico," 1 ♀.

*Pipilo maculatus repetens*.—Guatemala: 39 specimens from various localities in the Pacific Cordilleras.

Also large series of *montanus*, *megalonyx*, etc., from northern Mexico and the United States.

While individual birds are separable at a glance from true *maculatus*, it requires series to determine satisfactorily the respects in which birds from Guatemala differ from *montanus*. Midsummer specimens from Sierra Valparaiso, Zacatecas, and Alvarez, San Luis Potosi are intermediate between *maculatus* and *montanus* but apparently nearer the latter. However, good series might show differently. It must be remembered in making comparisons that worn specimens have less white edging on the wing, and the back tends to be more uniformly colored and to appear darker. Several specimens from Guatemala, sexed as males and taken in late summer and fall, are colored far more like females and are distinctly smaller. They are either erroneously sexed or perhaps younger males have these characters. They have been disregarded in the diagnosis and measurements.

I am greatly indebted to the Biological Survey for the loan of the series of true *maculatus* used.

## WING OF ADULT MALES

*Pipilo maculatus maculatus*—83-87 (85.9).

*Pipilo maculatus repetens* —87-92 (89).

***Icterus gularis troglodytes*, new subspecies**

TYPE.—No. 56504, Dwight Collection; ♂ ad.; San Felipe, Retalhuleu, Pacific slope of Guatemala; December 7, 1919; Austin Paul Smith.

SUBSPECIFIC CHARACTERS.—Exactly similar to typical *Icterus gularis* (Wagler) of Oaxaca, but one-third smaller in size; exceedingly close to *Icterus gularis tamaulipensis* Ridgway of eastern Mexico, but slightly larger, the yellow areas less orange-tinted, the black of the malar region not broader, and bill not proportionately deeper and stouter.

***Icterus gularis gigas*, new subspecies**

TYPE.—Dwight Collection; ♂ ad.; Sacapulas, Rio Negro Valley, central Guatemala; February 4, 1928; A. W. Anthony; original No. 6513.

SUBSPECIFIC CHARACTERS.—Closest to typical *Icterus gularis* (Wagler), but averaging paler yellow throughout and of enormous size, one-third larger, nearly twice as big a bird as *troglodytes*.

***Icterus gularis xerophilus*, new subspecies**

TYPE.—No. 58303, Dwight Coll.; ♂ ad.; Progreso, Motagua River Valley, central Guatemala; July 5, 1924; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Of the same gigantic size as *gigas*, but coloration rich cadmium-orange, as in *yucatanensis* Berlepsch.

## MATERIAL EXAMINED

*Icterus gularis gularis*.—Mexico: Oaxaca, 10 ♂, 3 ♀; a specimen from Jalapa, Vera Cruz is nearer *tamaulipensis*.

*Icterus gularis troglodytes*.—Guatemala: Pacific slope, 29 from various localities, Ocos to San José; Antigua, 1 ♂; San Lucas, 1 ♂.

*Icterus gularis gigas*.—Guatemala: Sacapulas, Rio Negro Valley, 18.

*Icterus gularis xerophilus*.—Guatemala: Progreso, Motagua Valley, 21.

*Icterus gularis tamaulipensis*.—Eastern Mexico, 13. A specimen from Jalapa, Vera Cruz, approaches *gularis*.

*Icterus gularis yucatanensis*.—Yucatan, 8 specimens.

## WINGS OF ADULT MALES

<i>gularis</i>	—125.5–131 (128)
<i>troglodytes</i>	—116 –121 (118.5)
<i>gigas</i>	—132 –138 (134.4)
<i>xerophilus</i>	—130 –136 (132.3)
<i>tamaulipensis</i>	—112 –114 (113); with deeper bill proportionately
<i>yucatanensis</i>	—111 –115 (113); with deeper bill proportionately

The extraordinary local size-variations of this oriole are without parallel in Central American birds. It is a species of the Arid Tropical Zone, and in Guatemala occurs abundantly on the Pacific slope, and locally in the arid sections of the two river valleys in the interior. The giant interior races seem almost specifically distinct, when compared with the Yucatan or the Pacific slope races, which closely parallel extremes of *Icterus sclateri* in size and coloration. Indeed, the very deep bill of *gularis* is the only means of separating very worn or immature specimens of these two species. What is even more extraordinary is that wherever the two species occur together, *Icterus sclateri* affords an exact duplication of the subspecific variation of *gularis*. This will be brought out in detail below.

Returning, however, to the variations of *Icterus gularis*, the intermediate forms are all found on the periphery of the range of the species. Thus, I have not listed above four specimens from Gualan, in the eastern lowlands of Guatemala, and the species is known to occur locally in this area. These birds in size and color will have to be called *gularis*, but they are really intermediates between the large *xerophilus* of the upper Motagua Valley and the small orange *yucatanensis* far to the northeast.

South of Guatemala we run into further complications. Mr. Van Rossem has kindly forwarded me the measurements of his Salvador series. His males are: wing, 120–131; a clear majority of the larger specimens not from higher altitudes, and a clear majority of the smaller specimens not from near sea-level. These birds can scarcely be called *troglydytes*, as the measurements of that race are very uniform and based on a large series. Unfortunately, no series exists from Honduras. The species is recorded from there, and will doubtless be found locally in the central portions, where large areas of suitable country occur. Such specimens will probably connect the large races of the interior of Guatemala with the Salvador birds. Certainly the specimens from the western Salvador lowlands, nearest Guatemala, Barra de Santiago, and Sonsonate, are among the smallest, and could easily be referred to *troglydytes*, while the majority of the birds from eastern Salvador and the interior are larger. What to call them may well be left to the discrimination of Messrs. Dickey and Van Rossem.

***Icterus sclateri maximus*, new subspecies**

TYPE.—Dwight Coll.; ♂ ad.; Sacapulas, Rio Negro Valley, interior of Guatemala; February 12, 1928; A. W. Anthony; original No. 6563.

SUBSPECIFIC CHARACTERS.—Nearest *Icterus sclateri alticola* Miller and Griscom of Progreso, Guatemala, but much paler yellow throughout, gamboge or tinged with cadmium, never orange; resembling *alticola* and differing from all other forms in very large size and the almost solid black back.

***Icterus sclateri connectens*, new subspecies**

TYPE.—No. 8250, collection of Donald R. Dickey, ♂ ad.; San Salvador (2100 ft.), Salvador; April 2, 1912; A. J. Van Rossem.

SUBSPECIFIC CHARACTERS.—Intermediate in size between the small typical *sclateri* Cassin of the Pacific lowlands of Nicaragua and the very large *alticola* Miller and Griscom of the interior of Guatemala; yellow as in *sclateri*, not orange as in *alticola*; more black, less yellow in back than *sclateri*, much less solid black than *alticola*.

Lack of material years ago caused Miller and me to make several erroneous assumptions in our description of *alticola* (Amer. Mus. Novit., 1925, No. 184, p. 4), and Van Rossem made still others in his description of *pustuloides* (Condor, 1927, XXIX, p. 75). With fine series before me now from most of the range, it is only fair to all concerned to state that the true facts could not possibly have been deduced from the few specimens then available. I should like to make the following points:

1.—*Icterus gularis* (subgenus *Andriopsar* Cassin) differs structurally from *I. sclateri* in a relatively shorter and much deeper bill; adult males have long hairs scattered among the feathers of the nape, and twice as long as the feathers; the white tail-tips and wing-edgings are much narrower, a distinction which disappears in worn specimens.

2.—The Guatemala races of *Icterus sclateri* perfectly mimic the size and color characters of *I. gularis*, wherever the two birds occur together. The case is unique in Central American birds, but recalls the vasa parrots of Madagascar.

3.—*Icterus sclateri* is a much more local species than *I. gularis*. It does not occur in eastern Mexico or Yucatan, and is entirely absent from the Pacific coast of Guatemala. The characters of the Salvador race show that it came in from the east, and it has no relationship whatever to the subspecies in Oaxaca, which is entirely isolated.

4.—Van Rossem is entirely correct in stating that worn breeding specimens of *sclateri* have more black and less yellow in the back than fresh ones. He erred, however, in suspecting that the "black backed" *alticola* was based on worn material. As a matter of fact, the feathers of the back in this species are yellow or whitish at the base. In *alticola* and *maximus* the terminal half is black with or without a very narrow border and tip of yellow. In other races the black is reduced to a broad central shaft stripe, giving a streaked appearance (*sclateri*) or an oval, guttate spot, producing a spotted appearance (*formosus* of Oaxaca). Females in comparable plumage always have broader yellow edgings and tips than males, and average 8–9 mm. shorter in the wing. Immature birds have, first, olive-gray edgings, and later yellowish-olive edgings.

5.—Van Rossem states that *I. sclateri* is a summer resident only in Salvador, disappearing between October and March. This is a most interesting fact, and I could not dispute such competent field experience for a moment. On the other hand, published data and specimens before me show conclusively that the species is resident throughout the year in Mexico, Guatemala, and Costa Rica. A series from Oaxaca taken throughout the year shows that there is not the most minute difference between winter and breeding plumage, except for possible wear.

A synopsis of the known forms and their ranges follows.

#### ***Icterus sclateri sclateri* Cassin, 1867**

TYPE LOCALITY.—"San Juan," Nicaragua.

RANGE.—Pacific slope lowlands of Nicaragua and northwest Costa Rica. In the interior of Nicaragua at higher altitudes, the characters of the subspecies break down rapidly and pass into *connectens* and *alticola*.

DIAGNOSIS.—Size small; wing of males, 101–108, averaging 105; back yellow, with broad shaft streaks of black, the black and yellow in about even proportions in fresh males, the yellow predominating in fresh females, about even in worn females, black predominating in worn males; yellow of males a rich gamboge or cadmium; 18 specimens examined.

#### ***Icterus sclateri formosus* Lawrence, 1872**

TYPE LOCALITY.—Juchitan, Oaxaca.

RANGE.—Oaxaca and Chiapas, south inland to extreme northern Guatemala (Chanquejelve), east of the Pacific Cordilleras.



DIAGNOSIS.—Size small; wing of males, 101–110.5; back yellow with broad, tear-shaped or guttate spots of black; in more than half the fresh males, the yellow predominating; otherwise, sequence of plumage as in the last form; general shade of yellow similar; Ridgway called attention to the probable validity of this race; 17 specimens.

***Icterus sclateri connectens* Griscom**

TYPE LOCALITY.—San Salvador, Salvador.

RANGE.—Salvador and adjacent parts of Honduras. Specimens from the latter country and north central Nicaragua will probably prove to connect this subspecies with the large “black-backed” races of Guatemala.

DIAGNOSIS.—Size variable and intermediate; wing of males, 105–112.5; back of some fresh males with more black than worn specimens of the last two races; the average, intermediate between *alticola* and *sclateri*. It should be noted that Salvador specimens of this species show the same variability of size that *I. gularis* does; 6 specimens, plus Van Rossem’s measurements and critique.

***Icterus sclateri pustuloides* Van Rossem, 1927**

RANGE.—Localized, in the breeding season at least, on the slopes of the Volcan San Miguel, Salvador.

DIAGNOSIS.—Resembling *sclateri*, but yellow areas of adult males replaced by orange, orange-red, or flame-orange. Some years ago when Van Rossem was east, he showed me a series of topotypes of this well-marked subspecies.

***Icterus sclateri alticola* Miller and Griscom, 1925**

TYPE LOCALITY.—Progreso, Guatemala.

RANGE.—Isolated in the western half of the arid section of the Rio Motagua Valley.

DIAGNOSIS.—Size large; wing of males, 110–116.5; back either solid black in fresh males, or with minute yellow edgings and tips; fresh females with less yellow than worn males of *sclateri* and *formosus*, about as in dark extremes of male *connectens*; yellow areas replaced by orange-yellow or orange; in both size and color characters exactly paralleling *Icterus gularis xerophilus*; 22 specimens.

It will be noted that *Icterus sclateri* in the ‘British Museum Catalogue’ is a reddish orange, black-backed bird, based on specimens from San Geronimo, near Salama, Guatemala, a locality near Progreso.

***Icterus sclateri maximus* Griscom**

RANGE.—Localized around Sacapulas in the arid portion of the Rio Negro Valley in northwest central Guatemala.

DIAGNOSIS.—Resembling *alticola* in color and size, but yellow as in *sclateri*, etc., not orange; wing of males, 111–118; in size and color characters exactly paralleling *Icterus gularis gigas*; 17 specimens.

***Icterus sclateri*, subspecies**

RANGE.—Confined to the extreme eastern end of the arid section of the Motagua River Valley, around Iguana and Gualan, Guatemala.

DIAGNOSIS.—Size very small; males, 101–104, female, 94; black about as in dark extremes of *connectens*; these variations exactly paralleling *Icterus gularis* in the same region.

I do not describe this form, as I have only three old trade-skins and one very worn female from Gualan.

***Icterus pectoralis anthonyi*, new subspecies**

TYPE.—No. 58330, Dwight Coll.; ♂ ad.; Finca El Cipres, near Ocos, Pacific coast of Guatemala; July 28, 1924; A. W. Anthony.

SUBSPECIFIC CHARACTERS.—Resembling typical *Icterus pectoralis* (Wagler) of Mexico in the flame-orange tint to head, neck, and auriculars, and the relatively less spotted chest, but much smaller; slightly larger than *espinachi* Ridgway of north-western Costa Rica, which has a more heavily spotted chest and a yellow head and neck, at most rich cadmium.

**MATERIAL EXAMINED**

*Icterus pectoralis pectoralis*.—Mexico: Oaxaca, 3 ♂. Guatemala: various localities east of the Pacific Cordilleras, 9 ♂, 1 ♀. Honduras: Copan, 1 ♂, 1 ♀. Nicaragua: 7 specimens from the north central highlands (Matagalpa and San Rafael del Norte). Wing of males, 107–115 (111).

*Icterus pectoralis anthonyi*.—Guatemala: various localities on the Pacific coastal plain, 24 ♂, 24 ♀. Nicaragua: 3 from Leon, Chinandega and Volcan Viejo, Pacific lowlands. Wing of males, 101–106 (103).

*Icterus pectoralis espinachi*.—Northwest Costa Rica, 8 ♂, 5 ♀. Wing of males, 95.5–104 (100).

I have suspected the existence of this well-marked intermediate race for some years, and, in fact, Miller and I characterized it fully in the MS. of our Nicaraguan report. At that time, however, we had only eighteen males available of all three forms combined, and preferred to see more material. Thanks to Mr. Anthony's zeal, the great series listed above amply confirms the characters of the three forms. It seems only fitting that one of the many interesting and novel orioles secured by Mr. Anthony should bear his name.

Wagler's description and measurements show that this type was a large bird. In the material listed above, it will be noted that several range extensions are involved. Salvador lowland material will doubtless prove to be *anthonyi*, but true *pectoralis* may perhaps occur in the mountains of the interior.