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NEW BIRDS FROM THE STATE OF SAN LUIS POTOSI
AND THE TUXTLA MOUNTAINS OF VERACRUZ, MEXICO

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During the past four years, the Louisiana State University Museum of Zoology has been gathering material for a detailed report on the birds of the Mexican state of San Luis Potosí. This work, still in progress, has brought to light several notable instances of geographic variation, four of which are discussed below. Of the new forms described at this time, three are at present known only from San Luis Potosí. The fourth is a new form of *Chlorospingus ophthalmicus* from the Tuxtla Mountains of southern Veracruz, which we discovered in the collection of the U. S. National Museum while identifying our series of twenty-one *C. o. ophthalmicus* from San Luis Potosí. We subsequently learned that Alexander Wetmore had already noticed some of the characters that distinguish the Tuxtla population but had deferred nomenclatural action because adequate comparative material was not then available. He generously suggested that, since we were preparing this paper describing other forms from eastern México, we should include the new *Chlorospingus*.

Family STRIGIDAE

*GLAUCIDIUM MINUTISSIMUM SANCHEZI*¹ new subspecies

Type.—Adult male; no. 11002, Louisiana State University Museum of Zoology; Llano de Garzas, near Cerro Coneja, San Luis Potosí, México; elevation 6,800 feet; May 14, 1947; Robert J. Newman; original no. 669.

¹This interesting little owl is named for our good friend, Sr. Carlos Sanchez Mejorada, Jr., of México, D.F., who long has shown a keen interest in the advancement of Mexican ornithology and has rendered us assistance of inestimable value.

Characters.—This race is longer-tailed, both relatively and absolutely, than *G. m. rarum* Griscom², *G. m. griseiceps* Sharpe³, or *G. m. occultum* Moore⁴, and possesses four or five tail bars instead of three; lacks the spotting on the crown conspicuous in *rarum*, *griseiceps*, and *G. m. griscomi* Moore⁵; has feathering of legs mottled Clay Color⁶ and Bister, instead of white to buff as in *occultum*; is lighter- and grayer-backed than *rarum* or *griseiceps*, but much darker in over-all coloration than *griscomi*; and is larger than *G. m. oberholseri* Moore⁷.

Additional plumage differences will be suggested by the following more detailed description: general color of upper parts grayish brown, deepening from Saccardo's Umber on forehead to very near Bone Brown on hindneck and most of back; forehead with narrow to nearly round markings of pale buff or buffy whitish, these extending along sides of pileum to postauricular region but absent, or nearly so, from crown and hindneck; lower hindneck crossed by conspicuous black collar, which is edged anteriorly by white, and posteriorly by pale tawny, markings that irregularly encroach upon the black and divide it medially; dorsum and rump absolutely unspotted, nearly concolor with pileum but enriched here and there with traces of russet and suffused with this color in the region directly below hind collar; wings Natal Brown, the coverts edged with brighter brown (Russet to Van Dyke Brown); the rectrices spotted on outer web and barred on inner web with white or buff; tail fuscous with rows of white or buffy-tinged spots, forming four or five bars (not counting the white tail tip or the vestigial basal bar); chin and jugulum, sides of chest, sides of breast, and flanks, uniform Prout's Brown with never more than a suggestion of streaking or spotting; mid-part of chest, mid-part of breast, and belly, white, coarsely streaked with Prout's Brown darkening occasionally to Fuscous posteriorly; under tail coverts white,

²*Glaucidium minutissimum rarum* Griscom, Proc. New England Zoöl. Club, 12, 1931: 41 (Permé, Caribbean slope of eastern Panamá).

³*Glaucidium minutissimum griseiceps* Sharpe, Ibis, 1875: p. 41, pl. 2, fig. 2 (Veragua, Panamá, and Chisec and Choctum, Guatemala; restricted to the tropical lowlands of Alta Vera Paz by Griscom, Proc. New England Zoöl. Club, 12, 1931: 42).

⁴*Glaucidium minutissimum occultum* Moore, Proc. Biol. Soc. Washington, 60, Dec. 21, 1947: 144-145 (Moctum, Mt. Zempoaltepec, Oaxaca, México).

⁵*Glaucidium minutissimum griscomi* Moore, Proc. Biol. Soc. Washington, 60, April 3, 1947: 33-35 (El Rancho Potrero de los Indios, 12 miles south of Zirandaro, Guerrero, México).

⁶Capitalized color names in this paper are from Ridgway's "Color Standards and Color Nomenclature" (Washington, D. C., 1912).

⁷*Glaucidium minutissimum oberholseri* Moore, Proc. Biol. Soc. Washington, 50, August 7, 1937: 105-106 (Vado Hondo, central Sinaloa, México).

sometimes with fine shaft streaks; feathers of legs mottled with Clay Color and Bister in varying proportions; irises and feet canary yellow.

The above characterization applies to a series of four males, representing what may be said to correspond to the "intermediate" phase of other races. The unique female example of *sanchezi*, while it must be classed within the limits of the same phase, is a lighter and brighter brown throughout: pileum and hindneck, Mummy Brown; back and most of wings, Russet to Prout's Brown; streaking of under parts, mostly Cinnamon Brown, with a few dashes of blackish brown posteriorly; primaries and tail, fuscous.

*Measurements.*⁸—Adult male (4 specimens): wing, 86.4 - 90.1* (88.1) mm.; tail, 51-57* (52.7); culmen from cere, 10.2* - 10.5 (10.2). Adult female: wing, 90; tail, 55; culmen from cere, 11.

Distribution.—Present records are confined to a narrow range in the Sierra Madre Oriental of southeastern San Luis Potosí, near the border of Queretaro, at elevations of 5,600 to 7,300 feet.

Remarks.—Since we have not had the privilege of directly comparing *sanchezi* with *G. m. occultum* Moore or *G. m. oberholseri* Moore, all specimens of which are in the Orcutt Trust collections, we do not feel that a detailed evaluation of color differences is warranted at this time. Not only are written color interpretations likely to contain a highly subjective element, but in the genus *Glaucidium* the matter is rendered still more complicated by polychromatism. It is evident, even from the written descriptions of these owls, that *sanchezi* possesses many distinctive color characters, but to make explicit comparisons of all these points under the circumstances would surely lead to some error in detail.

The discovery of *sanchezi* extends the range of *G. minutissimum* farther to the north than the species has ever been recorded in eastern México, about 150 miles north of its geographically nearest relative, *griscomi*, which, surprisingly enough, it least resembles among all the races we have examined. This dissimilarity seems less remarkable, however, when we consider the habitats involved. *G. m. griscomi* is a bird of the Lower Arid Tropical Zone, occurring as low as 1,200 feet. *G. m. sanchezi* has been found only above 5,000 feet in montane forest of mixed evergreens and hardwoods, including such temperate zone trees as Douglas fir (*Pseudotsuga taxifolia*), cypress (*Cupressus lindleyi*), pines (*Pinus*

⁸Measurements marked with asterisks in this paper are those of type specimens.

teocote, *P. patula*, etc.), dogwood (*Cornus disciflora*), American hornbeam (*Ostrya virginiana*), and sweetgum (*Liquidambar styraciflua*). It seems unlikely that the species regularly occurs at elevations much lower than this in southeastern San Luis Potosí, within the range of *G. brasilianum*, since its presence would be quickly betrayed by its characteristic call notes, a series of short, hollow whistles, all on one pitch, delivered at intervals in groups of two or three.

Specimens examined.—Five, all from Cerro Coneja Region, San Luis Potosí, as follows: Llano de Garzas, 6,800 feet (type); near Cerro la Luz, 7,300 feet; near Cerro la Mina, 6,500 feet; Hoya de la Silleta, 6,250 feet; beyond Puerto de Loso, 5,600 feet.

Family TROGLODYTIDAE

THRYOTHORUS LUDOVICIANUS TROPICALIS new subspecies

Type.—Adult male; no. 11823, Louisiana State University Museum of Zoology; .5 mi. E Naranjos, San Luis Potosí, México; elevation 1,000 feet; March 21, 1947; Robert J. Newman; original no. 563.

Characters.—Darkest in over-all coloration of all the races of *Thryothorus ludovicianus*: Van Dyke Brown or darker on upper parts and postocular region; under parts, except throat, ranging from Clay Color to Ochraceous Tawny; flanks barred, the markings more or less blackish. *T. l. berlandieri* Baird⁹ is almost identical in coloration of the under parts but is distinctly lighter on pileum, back, and wings and has a less heavily barred tail. *T. l. miamensis* Ridgway¹⁰ is somewhat lighter, and decidedly more rufescent, above than *tropicalis* and is much lighter below, lacking the barring on the flanks.

Measurements.—Adult male (2 specimens): wing, 57*, 57.6 mm.; tail, 48*,—; exposed culmen, 17.7*, 15.5; tarsus, 20*, 21. Adult female (1 specimen): wing, 55.1; tail, 44.5; exposed culmen, 15.8; tarsus, 20.0.

Distribution.—Currently represented in typical form only by specimens taken in a tropical pocket on the eastern side of the Sierra Madre Oriental, between Sabinito and the environs of Naranjos, San Luis Potosí, México. Carolina Wrens seen in the Sierra Boca de Abra, one example of which was shot but subsequently lost, may extend the range of *tropicalis* at least as far southward and eastward as Taninul, San Luis Potosí.

⁹*Thryothorus berlandieri* Baird, Rep. Pac. R.R. Surv., 9, 1858: 362 (Boquillo, Nuevo León, México).

¹⁰*Thryothorus ludovicianus* var. *miamensis* Ridgway, Amer. Natur., 9, 1875: 469 (Miami River, Florida).

Remarks.—Because the seasonal and individual variability of Carolina Wrens is so marked, definitive conclusions regarding geographic variation among Mexican populations cannot be reached on the basis of material currently available. However, comparison of a series from Monterrey, Nuevo León, with birds from Victoria, Tamaulipas, shows quite definitely a darkening of the upper parts from north to south. This trend is in the direction of duskiness, with a submergence of rufescence, as though a shadow had been cast over the plumage. Thus, while both Victoria material and the richly-colored *miamensis* of Florida may be described as darker than typical *berlandieri*, the darkness is of a different order and they differ more widely from each other in this characteristic than they do from the lighter examples of *berlandieri*.

In San Luis Potosí, at the southern limit of the range of the species, this darkening trend reaches such an extreme in the coloration of the upper parts and postocular region that, even if there were no other differences, specimens from the region could hardly be assigned to *berlandieri*. With respect to this major character, Victoria birds are almost exactly intermediate between *tropicalis* and typical *berlandieri*.

Other differences are more variable and their importance cannot be fully determined until larger series have been collected. In the three examples of *tropicalis* the markings on the flanks range from bold bars to very narrow ones; but all agree in that the markings are more or less dusky. Our material from the latitude of the type locality of *berlandieri* has these markings either brown or entirely absent. In some Victoria specimens the barring is just as dusky as in the most heavily-marked *tropicalis* and even more profuse; in others, it is wholly brown. It would appear that, while birds from this locality are not individually intermediate in the coloration of the bars, the population may be considered so in regard to the proportion of black-barred birds.

Specimens examined.—Three, all from San Luis Potosí, as follows: .6 mi. E El Sabinito, 1; .5 mi. E Naranjos, 2.

Family TURDIDAE

TURDUS GRAYI MICRORHYNCHUS new subspecies

Type.—Adult male; no. 12008, Louisiana State University Museum of Zoology; Santa María del Río, San Luis Potosí, México; elevation 5,500 feet; March 13, 1948; Robert J. Newman; original no. 1098.

Characters.—Similar in color and size to *Turdus grayi tamaulipensis* (Nelson)¹¹ but bill decidedly smaller and shorter; distinguished from *T. g. grayi* Bonaparte¹² by its much smaller bill and by its paler and duller coloration throughout: upper parts near Brownish Olive instead of between Dresden and Mummy Brown; under parts mainly Pinkish Buff below varying to Clay Color on flanks instead of mainly light cinnamon (between Chamois and light Pinkish Cinnamon) below to Sayal Brown on flanks; throat with ground color whitish (less buffy) and with streaks light Drab instead of Prout's Brown.

Measurements.—Type: wing, 123 mm.; tail, 100; exposed culmen, 17.6; bill from posterior edge of nostril, 15.0; tarsus, 31.0. For comparative measurements see Table 1.

Distribution.—Apparently confined to the mesophytic habitat bordering the Río Santa María in the arid region of central-southern San Luis Potosí.

Remarks.—Southeast of the city of San Luis Potosí, the Mexican plateau drops gradually down through a region of low arid mountains into the narrow valley of the Río Santa María. Along much of its upper course, the river has no pronounced effect on the character of the surrounding vegetation, which remains desert-like with a typical desert fauna. At some points, however, the water has been used to irrigate the level land adjoining its banks, making possible a growth of trees. Such a place is the village of Santa María del Río, where the foliage of thick stands of pecans and willows make a green oasis nearly a mile in extent nestled among bare hills. In this isolated, restricted, and man-made habitat, lives a flourishing population of *Turdus grayi*, 100 miles from the tropics and at an elevation of 5,500 feet. Farther to the east, on the other side of the Sierra Madre Oriental, this species is a bird of the lower elevations, giving way to *Turdus assimilis* at about 2,000 feet. The distributional relationship between the Santa María del Río population and these more eastern birds is obscured by the fact that long stretches of the river are very difficult of access and the nature of the intervening habitat, as well as the avifauna, is unknown. It may be surmised, however, that *Turdus grayi* has moved westward from a tropical origin along the Santa María valley, occupying suitable ecological situations as they become available.

¹¹*Merula tamaulipensis* Nelson, Auk, 14, Jan., 1897: 75 (Ciudad Victoria, Tamaulipas, México).

¹²*Turdus grayi* Bonaparte, Proc. Zool. Soc. London, 5, 1837 [=June 14, 1838]: 118 (Guatemala).

This view is supported by a specimen taken at Labor del Río, where cultivation has provided a similar but much restricted vegetation, and by sight records of the species at Hacienda Capulín, almost seventy miles still farther east, and only a few miles north of the river, where local

TABLE 1. MEASUREMENTS IN MILLIMETERS OF THE RACES OF *TURDUS GRAYI*

	Wing	Tail	Exposed Culmen	Bill from Nostril ¹³	Tarsus
<i>T. g. microrhynchus</i>					
4 male topotypes	123-127 (125.3)	100-112 (105.6)	17.6-19.0 (18.4)	14.5-15.0 (14.8)	28.8-31.0 (30.1)
2 female topotypes	113-118 (116.0)	98	17.4-17.8 (17.6)	14.5-14.9 (14.7)	29.5-30.0 (29.8)
<i>T. g. tamaulipensis</i>					
12 males from Tamps. and eastern S.L.P.	118-130 (123.7)	94-113 (101.3)	19.0-21.5 (20.6)	16.0-18.0 (16.9)	30.5-34.4 (32.5)
2 females from eastern S.L.P.	112-119 (115.5)	97-98 (97.5)	20-21 (20.5)	16.4-17.3 (16.9)	29.4-34.0 (31.7)
<i>T. g. grayi</i>					
6 males from Córdoba, Potrero, and Jalapa, Vera- cruz	115-125 (119.0)	90-102 (96.3)	19.0-21.0 (19.9)	16.0-16.9 (16.3)	31.0-32.9 (31.9)
2 females from Fortín and Potrero, Vera- cruz	117-120 (118.5)	93-96 (94.5)	20.0-20.5 (20.3)	16.4-17.4 (16.9)	30.0-31.0 (30.5)

¹³Measured from the posterior edge of nostril to the tip of the bill.

conditions provide considerable rainfall and suitable natural vegetation. Specimens taken in August at the western limits of the range are faded and worn out of all semblance to *Turdus grayi* as it is usually visualized; but spring material, in fresh plumage, is almost identical in coloration with birds from the coastal plain of San Luis Potosí, which are typical of *tamaulipensis*. Between the more or less dry surroundings of these two similarly-colored populations, lies the Sierra Madre Oriental, interposing an area of higher precipitation, in which the *Turdus grayi* are more different in plumage characters from birds either to the east or west than they are from examples of the nominate race taken in Veracruz.

This distributional pattern would lead one to suspect that the two light-colored populations are not identical. Nor are they. The difference in bill measurements, without overlap, characterizes the plateau birds as a distinct form and suggests that the color similarities may result from the parallel effect of an arid environment rather than from direct derivation.

As demonstrated by Table 1, other measurements fail to show significant differences among the three races involved, the alleged short wing and tail of *tamaulipensis* being of doubtful taxonomic importance.

Specimens examined.—Seven, all from San Luis Potosí, as follows: Santa María del Río, 6; Labor del Río, 1.

Family THRAUPIDAE

CHLOROSPINGUS OPHTHALMICUS WETMOREI new subspecies

Type.—Adult male; no. 360348, U.S. National Museum; Volcán San Martín, Sierra de Tuxtla, Veracruz, México; elevation 2,500-3,500 feet; April 22, 1940; M. A. Carriker, Jr.; original no. 798.

Characters.—Resembles *Chlorospingus ophthalmicus ophthalmicus* (Du Bus)¹⁴ but differs as follows: breast band more purely and more deeply yellow (tending toward Primuline Yellow rather than Olive Yellow) and averaging nearly twice as wide; white feathering of frontal antia confluent with sharply defined white supraloral line forming a distinct \surd ; dusky upper border of white superciliary line averaging narrower, sometimes barely indicated; chin, throat, and especially malar region, averaging more buffy, resulting in less sharp definition and less striking contrast in color between malar and suborbital regions. Differs from *C. o. albifrons* Salvin and Godman¹⁵ in the Sepia rather than Sayal Brown pileum; the decidedly less buffy throat and malar region; and the Primuline Yellow rather than Yellow Ocher pectoral band. Differs from *C. o. dwighti* Underdown¹⁶ and *C. o. postocularis* Cabanis¹⁷ most markedly in the Sepia rather than Slate-Gray or Chaetura Drab color of the pileum.

Measurements.—Adult male (2 specimens): wing, 70.6*, 72.6 mm.; tail, 55.2*, 58.1; exposed culmen, 11.2*, 11.1; tarsus, 21.3*, 21.2. Adult female (3 specimens): wing, 66.1, 67.0, 67.4; tail, 52.8, 55.2, 53.1; exposed culmen, 11.1, 10.4, 10.5; tarsus, 20.5, 21.5, 21.1.

¹⁴*Arremon ophthalmicus* Du Bus, Bull. Acad. Roy. Sci. Lettr. et Beaux-Arts Belg., 14, (2), 1847: 106 (México). We herewith restrict the type locality to Jalapa, Veracruz, México, where much of the existing material was collected.

¹⁵*Chlorospingus albifrons* Salvin and Godman, Ibis, (6), 1, 1889: 237 (Omiteme, Sierra Madre del Sur, Guerrero, México).

¹⁶*Chlorospingus ophthalmicus dwighti* Underdown, Auk, 48, 1931: 612 (Finca Sepur, Vera Paz, Guatemala).

¹⁷*Chlorospingus postocularis* Cabanis, Journ. Orn., 14, 1866: 163 ("Guatemala"—sierra above Costa Cuca, Pacific slope, Guatemala).

Distribution.—Known only from the Sierra de Tuxtla in southern Veracruz, where it is resident on Volcán San Martín above 2,500 feet elevation, and from the adjacent lowlands, where it occurs as a straggler in winter (one record, Tres Zapotes, January 17, 1940).

Remarks.—*Chlorospingus ophthalmicus* is a bird of the forests and undergrowth of the subtropical zone, breeding at elevations above 2,500 feet and straggling lower only in the course of altitudinal migration in winter. As currently conceived, the nominate race occurs in suitable situations all the way from southeastern San Luis Potosí to Oaxaca, its distribution following the general trend of the Sierra Madre Oriental. Fifty-three examples¹⁸ of *C. o. ophthalmicus* show that populations from within this range are not, however, entirely homogeneous. The more northern birds, as exemplified by specimens from San Luis Potosí, Hidalgo, and the northern half of Veracruz (Tlapacoyan), average somewhat brighter in over-all coloration, with paler grays and more immaculate white areas. But variations in measurements seem to fit no geographic pattern; the color differences noted are tendencies only; much of the existing material is not of comparable museum age; and southern birds can be selected that fit well among northern series. Apparently all of these populations maintain sufficient contact through the continuity of the Sierra Madre to prevent the development of well-defined characters that would make them worth naming as separate races.

All of the five known examples of *wetmorei* were taken by M. A. Carriker, Jr., between January 17 and April 22, 1940, at Tres Zapotes Camp or the nearby Volcán San Martín, where he found it in fair numbers. These localities are in the coastally situated Cantón de los Tuxtlas, less than 130 miles from Jalapa (herein designated as the restricted type locality of *ophthalmicus*), and even closer to Córdoba, where typical *ophthalmicus* also occurs. However, across part of this intervening distance there stretches a broad, low plain, broken by lakes and rivers, effectively isolating the Sierra de Tuxtla insofar as species normally limited to an altitudinal range of 2,500 to 5,000 feet are concerned. The extent of this isolation has been discussed in detail by Wetmore¹⁹ and its effectiveness in the origin of new races already has been attested by five other

¹⁸San Luis Potosí—vicinity of Xilitla, 21. Veracruz—4 km. W of Tlapacoyan, 2; Dos Caminos, 3; near Tezuitlán, 3; Jalapa, 7; Jico, 2; Mirador, 1; vicinity of Fortín, 3; Ojochico, 4; Orizaba, 1. Hidalgo—El Barrio, 2. Puebla—Huanchinango, 3. Oaxaca—Mt. Zempoaltepec, 4.

¹⁹"The birds of southern Veracruz, Mexico," Proc. U. S. Nat. Mus., 93, 1943: 215-340.

well-marked forms of birds described by him, endemic to the region. The survival of *Chlorospingus ophthalmicus* in this detached range has resulted in a population no less distinct. We have been able to find no example of the nominate race that closely approaches *wetmorei* in any of the major characters detailed above.

Specimens examined.—Five, all from the Sierra de Tuxtla or adjacent lowlands, as follows: Volcán San Martín, 4; Tres Zapotes, 1.

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