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A REVISIONARY STUDY OF THE WREN
THRYOTHORUS PLEUROSTICTUS

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ONE of the commonest and most characteristic birds of the arid Pacific region of southern Mexico and northern Central America is *Thryothorus pleurostictus*. It enters the Atlantic drainage basin only on the Isthmus of Tehuantepec, in the Grand Valley of Chiapas, and in the Motagua Valley of Guatemala, localities which, because of their aridity, show strong affinities to the Pacific region.

During my work on the birds of Chiapas, I found that two subspecies of this wren occur within the state. As the most recent revisers are utterly at variance in their treatment of the races of this wren, it was necessary to study the species in some detail in order to identify the Chiapan birds.

ACKNOWLEDGMENTS.—The 135 specimens on which this study is based are in the University of Michigan Museum of Zoology (fifty-seven specimens), in the United States National Museum, including the collection of the Biological Survey (fifty-seven specimens), and in the Dickey collection at the University of California at Los Angeles (twenty-one specimens). I am obliged to the authorities of these two latter institutions, through Mr. Aldrich and Mr. van Rossem, for the loan of material. I am especially indebted to Mr. van Rossem, who sent his notes on the types of *pleurostictus* and *nisorius* and

other valuable information. Field work incident to collecting part of the material belonging to the University of Michigan was made possible by a grant from the Board of Governors of the Horace H. Rackham School of Graduate Studies. The map was prepared by Miss Grace Eager.

HISTORY.—Five races of this wren have been described, namely:

1. *pleurostictus* Sclater, 1860. Verapaz, Guatemala [*errore*, = Gualán].
2. *nisorius* Sclater, 1869. Real Arriba, Mexico [*ubi?*].
3. *ravus* Ridgway, 1903. San Juan del Sur, Nicaragua.
4. *lateralis* Dickey and van Rossem, 1927. Lake Olomega, El Salvador.
5. *oblitus* van Rossem, 1934. Barra de Santiago, El Salvador.

In 1904 Ridgway¹ recognized the three forms then described, *nisorius*, *pleurostictus*, and *ravus*. Griscom,² in 1932 and 1934, also recognized these, as well as *lateralis*, which had been separated meanwhile. He further suggested the probability that a fifth form along the northern Pacific coast would prove distinct from toponymical *pleurostictus* of the Motagua Valley. Hellmayr³ in 1934 was able to distinguish only two forms, *pleurostictus* and *ravus*. In the same year van Rossem⁴ provided a name for the northern Pacific coast birds, besides recognizing all previously described races.

SPECIFIC CHARACTERS.—The adults of this wren are brown above, the rump, upper tail coverts, and often the tail being more reddish brown than the anterior upperparts. The remiges and rectrices are more or less regularly barred with

¹ Robert Ridgway, *Birds of North and Middle America*, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3 (1904): 629–32.

² Ludlow Griscom, "The Distribution of Bird-life in Guatemala," *Bull. Amer. Mus. Nat. Hist.*, 64 (1932): 291; *idem*, "The Ornithology of Guerrero, Mexico," *Bull. Mus. Comp. Zool.*, 75, No. 10 (1934): 422.

³ Charles E. Hellmayr, *Catalogue of Birds of the Americas*, *Zool. Ser. Field Mus. Nat. Hist.*, 13, Pt. 7 (1934): 180–82.

⁴ A. J. van Rossem, "Critical Notes on Middle American Birds," *Bull. Mus. Comp. Zool.*, 77, No. 7 (1934): 398–400.

black. The edge of the wing is white, and there are often white tips to the outer middle wing coverts. There is a long white superciliary stripe, and below this a shorter brown postocular stripe. The lower part of the sides of the neck is narrowly striped with black and white. The underparts are white, more or less tinged with brown on the flanks, and broadly and regularly barred with black on the sides, flanks, crissum, and under wing coverts. The throat and middle of the belly are in some cases immaculate, in others more or less completely marked by black spots or mottling.

The juvenal plumage differs from that of the adult in having all the markings less distinct and less contrasted. The white is duller and tinged with buffy. The black bars are replaced by dusky markings which are narrower and less regular. There is besides a distinct necklace of dusky brown streaks.

GEOGRAPHICAL VARIATION.—There is no marked individual variation in dorsal color among birds of the same race, except when attributable to season or intergradation with another race. The geographical variation of dorsal coloration is more pronounced and consists of three main types—buffy brown, rufous brown, and dark brown. These differences are quite apparent in recently taken specimens, but are often somewhat obscured by foxing in material of greater museum age. The darkest race occurs in the center of the range, the buffy races are to the north, and three of the four rufous races occur in the south. The darkest race inhabits the region of heaviest rainfall, but climatological data are not ample enough to show whether or not there is any relation between the other types of dorsal color and precipitation.

The extent of the black markings of the underparts may be variable to a considerable degree in the same locality, as Hellmayr⁵ has already remarked. Still there can be no question that on the whole the birds from the north are the most heavily marked, and those from the south have the markings more restricted. The width of the black bands on the wings and tail also varies individually and to some extent geographi-

⁵ *Loc. cit.*

cally, paralleling the variation in the markings of the underparts.

There is a gradual reduction in length of wing and tail from north to south. However, the tail becomes shorter more rapidly than does the wing, so that the proportion of tail length to wing length also changes from north to south.

The geographical distribution of these three variable characters is summarized in Table I.

TABLE I

Locality	Dorsal Color	Black Markings	Size
Balsas Valley	Buffy	Most	Largest
Oaxaca	Rufous	Medium	Large
Western Chiapas	Buffy	Medium	Large
Soconusco, etc.	Dark	Medium	Large
Motagua Valley	Rufous	Few	Smallest
El Salvador	Rufous	Few	Small
Nicaragua and Costa Rica	Rufous	Few	Small

Thryothorus pleurostictus nisorius Sclater

Thryothorus nisorius Sclater, *Proc. Zool. Soc. London*, 37 (1869): 592, Pl. 45 (original description; type from Real Arriba, in Berlin Mus.; ex *Troglodytes nisorius* Lichtenstein, *Nomencl. Av. Mus. Berol.*, 1854, p. 34 [*nomen nudum*]).

Thryophilus nisorius Sclater and Salvin, *Nomencl. Av. Neotrop.*, 1873, p. 7 (Mexico).—Salvin and Godman, *Biol. Centrali-Amer.*, 1 (1880): 87 (Real Arriba).—Sharpe, *Cat. Birds Brit. Mus.*, 6 (1881): 214 (Real Arriba).—Sharpe, *Hand-list*, 4 (1903): 79 (Mexico).

Thryophilus pleurostictus nisorius Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3 (1904): 631 (Real Arriba; Puente de Ixtla, Morelos; description, bibliography).

Thryophilus pleurostictus (? *nisorius*) Griscom, *Bull. Mus. Comp. Zool.*, 75, No. 10 (1934): 422 (Guerrero).

Thryophilus pleurostictus pleurostictus [*nec* Sclater] Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3 (1904): 629, part (Apiluluca [*sic*] and Río Balsas, Guerrero).

Thryothorus pleurostictus pleurostictus Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7 (1934): 180, part (Puente de Ixtla, Morelos; Apiluluca [*sic*] and Río Balsas, Guerrero; criticism).

CHARACTERS.—Size largest; upperparts Buffy Brown; black markings more extensive than in any other race, covering the throat and middle of the belly.

MEASUREMENTS.—Male: wing, 67–71 mm.; tail, 55.5–60.5 mm.; culmen, 19–19.5 mm.; tarsus, 20–22 mm.; tail, wing ratio, 82.8–85.2 per cent (three specimens).

Female: wing, 62.5 mm.; tail, 51.5 mm.; culmen, 18.5 mm.; tarsus, 20.5 mm.; tail, wing ratio, 82.4 per cent (one specimen).

DISTRIBUTION.—Upper Río Balsas drainage basin in states of Mexico (Real Arriba), Morelos (Puente de Ixtla), and Guerrero (Río Balsas and Apipilulco⁶).

REMARKS.—Van Rossem has kindly put at my disposal his notes on the type of *Thryothorus nisorius*. It is No. 4650 in the Berlin Museum, a male collected by Ferdinand Deppe at Real Arriba (Map 1). Van Rossem gives the wing measurement as 68 mm., and the tail as 56.5 mm. He states that the type is “typical of the race—that is to say very heavily marked below.”

The type locality, Real Arriba, has never been definitely located. Nelson thought that it was probably in the state of Puebla, and this assumption has been followed by Ridgway, van Rossem, and others.⁷ Deppe’s itinerary has never been

⁶ This is the spelling used by the Ferrocarriles Nacionales de México.

⁷ *Setophaga* [*Basileuterus*] *rufifrons* Swainson was described from a specimen collected by Bullock somewhere in Mexico. Before Swainson’s description was published Deppe had also taken the species. Todd (“A Revision of the Wood-warbler Genus *Basileuterus* and Its Allies,” *Proc. U. S. Nat. Mus.*, 74 [1929]: 92) wrote: “Salvin and Godman state that Deppe’s skins were taken at Real Arriba [*sic*], in the State of Vera Cruz (¶), and largely on this account I propose to designate this as the type locality.”

There can be little justification for ignoring the itinerary of the original collector (Bullock) and substituting a locality of another collector, nor is any practical advantage gained by restricting the type locality to a place which has never been definitely located, even as to state. The basis for the assumption that Real Arriba is in Veracruz is not clear, since there is no such statement at the place indicated, nor as far as I can find, elsewhere in the writings of Salvin and Godman. If, as I attempt to demonstrate, Real Arriba is in the state of Mexico, or even if it is in Puebla as has been generally supposed by other authors,

published, nor has a report been published on his collections, beyond the description of new forms and a few other isolated records, but these are enough to show that he traveled widely in the states of Veracruz, Mexico, Hidalgo, Morelos, Puebla, and Oaxaca.

Records of about a dozen species of birds from Real Arriba have found their way into the literature, mostly in the *Biologia Centrali-Americana*. These are as follows:

<i>Ortalis vetula poliocephala</i>	<i>Dendroica nigrescens</i>
<i>Trogon mexicanus mexicanus</i>	<i>Myioborus miniatus miniatus</i>
<i>Empidonax fulvifrons fulvifrons</i>	<i>Basileuterus belli belli</i>
<i>Thryothorus pleurostictus nisorius</i>	<i>Basileuterus rufifrons</i> subsp.
<i>Myadestes obscurus</i> subsp.	<i>Melospiza kieneri rubricatum</i>
<i>Vireo griseus</i> subsp.	<i>Junco phaeonotus phaeonotus</i>
<i>Vermivora superciliosa mexicana</i>	

Such a combination of forms is only possible somewhere in the drainage basin of the upper Balsas, and must, moreover, be in proximity to both mountains and lowlands. Therefore, if Real Arriba is in Puebla at all, it must be in the southwestern corner of the state. According to the list of species, it might as well be in Morelos, Mexico, or Guerrero. Deppe apparently never visited Guerrero. Although he collected in both Morelos and in Puebla, it is not known that he went beyond Cuernavaca or Tehuacán, places still beyond the limits of certain of the Real Arriba species. Moreover, no one, myself included, has been able to find a name similar to Real Arriba on the maps of Guerrero, Morelos, or Puebla. Maps of the state of Mexico show a place called Real de Arriba, situated on a stream in the upper Balsas drainage basin and in close proximity to mountains. This place is some four miles southeast of Temascaltepec, which Deppe is known to have visited. All the evidence points to this place as being Deppe's locality. It cannot be

the acceptance of Todd's restriction would necessitate the transfer of the name *rufifrons* to a different race than the one to which he intended to restrict it, and the *rufifrons* of Todd and other authors would require a new name. It would be best to defer any such action, however, until the type is examined, since Bullock traveled in the ranges of at least three subspecies of this warbler.

finally proved until another collector visits the spot to see whether Deppe's species actually occur there.

Specimens of this wren from Río Balsas, Guerrero, are not quite as large nor quite as heavily marked with black below as the skin from Puente de Ixtla, which agrees well with Sclater's plate. Since the difference in size is not great and the variability of the black markings in other races is well known, I have no hesitation in referring the Río Balsas birds to *nisorius*.

MATERIAL EXAMINED.—Morelos: Puente de Ixtla, 1, U.S.N.M. Guerrero: Río Balsas, 4, U.S.N.M. Total, 5 specimens.

Thryothorus pleurostictus oaxacae, new subspecies

Thryothorus pleurostictus [*nec* Sclater, 1860] Sclater and Salvin, *Proc. Zool. Soc. London*, 1870, p. 551, part (Mexico).—Lawrence, *Bull. U. S. Nat. Mus.*, No. 4, (1876): 13 (Santa Efigenia, Guichicovi, and "Tapana," Oaxaca; habits, description of nest, eggs).

Thryophilus pleurostictus Sclater and Salvin, *Nomencl. Av. Neotrop.*, 1873, p. 7, part (Mexico).—Salvin and Godman, *Aves, Biol. Centrali-Amer.*, 1(1880): 86, part ("San Juan del Río,"⁸ Santa Efigenia, Guichicovi, and "Tapana," Oaxaca).—Sharpe, *Cat. Birds Brit. Mus.*, 6(1881): 213, part ("Tehuantepec,"⁹ Oaxaca).—Zeledón, *Anal. Mus. Nac. Costa Rica*, 1(1887): 105 (Mexico).—Sharpe, *Hand-list*, 4(1903): 79, part (southwest-

⁸ The locality San Juan del Río is some distance beyond the nearest locality at which other collectors have found this wren. When originally reporting on this specimen, Sclater and Salvin gave no locality except "Mexico," although three of the five species treated in the same paper were listed from San Juan del Río. Of the fifth species it is definitely stated that the exact locality is not given on the label. Ten years later the wren record was repeated in the *Biologia* with the locality San Juan del Río added. This appears to be mere guesswork, since the fifth species is said, in the *Biologia*, probably to have been collected at San Juan del Río or Putla. Hellmayr also doubted the authenticity of the locality San Juan del Río, which he changed to San Juan. In view of the circumstances, it seems best to disregard the record entirely.

⁹ The locality Tehuantepec, based on Sumichrast material, probably refers to the district and not to the town. When he meant the town, Sumichrast apparently invariably wrote Tehuantepec City. It is significant that in his own paper Sumichrast did not include Tehuantepec among the localities at which he took this wren, and, besides, Nelson and Goldman did not secure it there either.

- ern Mexico).—Skutch, *Auk*, 57, No. 3(1940): 303, part (Matías Romero, Oaxaca; song, description of nest, eggs).
- Tryophilus pleurostictus* [sic] Sumichrast, *Naturaleza*, 5(1882): 242, part (Guichicovi, Santa Efigenia, and Cacoprieto, Oaxaca).
- Thryophilus pleurostictus pleurostictus* Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3(1904): 629, part (Chimalapa, "Tapana," Santa Efigenia, Guichicovi, and "San Juan del Río," Oaxaca; description, bibliography).—Dickey and van Rossem, *Proc. Biol. Soc. Wash.*, 40(1927): 4, part (Santa Efigenia, Oaxaca).—Bangs and Peters, *Bull. Mus. Comp. Zool.*, 68, No. 8(1928): 399 (Chivela, Lagunas, and Tapanatepec, Oaxaca).
- Thryophilus pleurostictus* subsp. Griscom, *Bull. Mus. Comp. Zool.*, 75, No. 10(1934): 422 (Guerrero).
- Thryothorus pleurostictus pleurostictus* Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7(1934): 180, part ("San Juan," Santa Efigenia, Chivela, Tapanatepec, "Tapana," Guichicovi, and Chimalapa, Oaxaca; criticism, bibliography).
- Pheugopedius pleurostictus oblitus* van Rossem, *Bull. Mus. Comp. Zool.*, 77, No. 7(1934): 399, part (Oaxaca).

TYPE.—University of Michigan Museum of Zoology, No. 95726; female adult; Santa Cruz Bay, Oaxaca; March 9, 1938; W. H. Burt.

CHARACTERS.—Differs from *nisorius* in having the wing a little shorter and the tail proportionately as well as actually shorter; upperparts more rufous, between Sayal Brown and Snuff Brown; black markings on underparts less extensive, the throat and middle of the belly often immaculate white.

MEASUREMENTS.—Male: wing, 64.5–69.5 mm.; tail, 51.5–56 mm.; culmen, 18–19.5 mm.; tarsus, 21.5–23.5 mm.; tail, wing ratio, 76.9–82.0 per cent (eight specimens).

Female: wing, 61–64 mm.; tail, 47.5–50.5 mm.; culmen, 17–18.5 mm.; tarsus, 19.5–21.5 mm.; tail, wing ratio, 77.2–82.1 per cent (nine specimens).

DISTRIBUTION.—Pacific coastal plain of Guerrero and Oaxaca, from Acapulco and Egido Nuevo to Tapanatepec and Santa Efigenia, extending into the Atlantic drainage basin of the Isthmus of Tehuantepec as far north as Guichicovi, Matías Romero, and Chimalapa.

REMARKS.—Birds from the coast of central Guerrero are decidedly intermediate toward *nisorius*. There are available

three skins from Acapulco and one from Egidio Nuevo. Two of those from Acapulco have grayer backs like those of *nisorius*, but the remaining Acapulco specimen and the one from Egidio have foxy backs like those of *oaxacae*. In size (Table II) and extent of black markings, too, they are not typical of either form, and if I assign them to *oaxacae* rather than to *nisorius*, it is mainly on geographical considerations.

TABLE II

	Wing in mm.	Tail in mm.	Tail: Wing Ratio in Per Cent
<i>nisorius</i> (3 ♂)	67 -71	55.5-60.5	82.8-85.2
Acapulco and Egidio Nuevo (3 ♂)	66 -68.5	51.5-56.5	78.0-83.0
<i>oaxacae</i> (8 ♂)	64.5-69.5	51.5-56	76.9-82.0
<i>nisorius</i> (1 ♀)	62.5	51.5	82.4
Acapulco (1 ♀)	65.5	50.5	83.0
<i>oaxacae</i> (9 ♀)	61 -64	47.5-50.5	77.2-82.1

The majority of birds from the Isthmus of Tehuantepec go best with topotypical *oaxacae* from Santa Cruz Bay and Puerto Ángel, but they are perhaps rather more heavily spotted below and about one-third of them are intermediate in dorsal coloration to the race inhabiting the western part of Chiapas.

MATERIAL EXAMINED.—Guerrero: Egidio Nuevo, 1, U.S.N.M.; Acapulco, 3, U.S.N.M. Oaxaca: Puerto Ángel, 3, U.S.N.M.; Santa Cruz Bay, 1, U.M.M.Z.; "Tehuantepec," 1, U.S.N.M.; Huilotepec, 1, U.S.N.M.; Guichicovi, 1, U.S.N.M.; Barrio, 1, U.S.N.M.; Santo Domingo, 1, U.S.N.M.; "Tapaná," 2, U.S.N.M.; Santa Efigenia, 9, U.S.N.M.; Chivela, 2, U.M.M.Z. Total, 26 specimens.

Thyrothorus pleurostictus acaciaram, new subspecies

Thryophilus pleurostictus [sic, nec *pleurostictus* Selater] Sumichrast, *Naturaleza*, 5(1882): 242, part (Tonalá, Chiapas).

Thryophilus pleurostictus pleurostictus Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3(1904): 629, part (Chiapas).—Dickey and van Rossem, *Proc. Biol. Soc. Wash.*, 40(1927): 4, part ("mountains near Tonalá,"¹⁰ Tuxtla, and San Bartolomé,¹¹ Chiapas).

¹⁰ The birds labeled "mountains near Tonalá" by Nelson and Gold-

Thryothorus pleurostictus pleurostictus Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7 (1934): 180, part (Chiapas).

TYPE.—University of Michigan Museum of Zoology, No. 109324; male adult; Kilómetro Veintiséis,¹² 10 kilometers west of Tuxtla Gutiérrez, Chiapas, altitude 800 meters; March 23, 1941; P. Brodkorb, original No. 14966.

CHARACTERS.—Upperparts between Buffy Brown and Drab and therefore rather similar to those of *nisorius*, from which, however, it differs in smaller size and in having the black markings of the throat and median underparts much more restricted.

Differs from *oaxacae* in having decidedly grayer, less rufous brown, upperparts and in being a trifle more heavily marked with black.

MEASUREMENTS.—Male: wing, 63–68.5 mm.; tail, 48–56 mm.; culmen, 18.5–20 mm.; tarsus, 21–23 mm.; tail, wing ratio, 71.5, 77.2–84.7 per cent (twenty-five specimens).

Female: wing, 59–66 mm.; tail, 46.5–52.5 mm.; culmen, 17–19 mm.; tarsus, 20.5–21.5 mm.; tail, wing ratio, 76.2–84.0 per cent (seventeen specimens).

DISTRIBUTION.—Western part of the Pacific lowlands of Chiapas, from Arriaga to Tonalá, across the mountains near Santa Isabel and Ocote, and into the Grand Valley from Tuxtla Gutiérrez and Chiapa de Corzo to San Vicente and Mazapa.

REMARKS.—Eighteen of the twenty-two birds from the Grand Valley agree in dorsal color with the long series from the Pacific plains and the mountains, but the remaining four (two from Tuxtla Gutiérrez, one from Chiapa de Corzo, and one from San Bartolomé) are considerably darker and more rufous. The darkness is not a seasonal character, since all four

man were actually taken at Ocote, Chiapas, as Major Goldman informs me. Ocote is shown on some maps. It is about 18 kilometers northeast of Arriaga and just across the divide on the Atlantic side of the Sierra Madre.

¹¹ The official name of San Bartolomé has been changed to Villa Carranza.

¹² Kilómetro 26 is exactly halfway by road between Tuxtla and Berriozábal.

birds were collected in March and April, months which are otherwise adequately represented in the series. Three of the skins were collected thirty-seven years ago, so that foxing may be a factor, but this cannot be the entire explanation, for the Chiapa bird was taken during the present year. I suspect that intergradation with *oaxacae* takes place not only on the Pacific side of the Isthmus of Tehuantepec, as already demonstrated, but also on the Atlantic side in the unexplored country between Chimalapa and Tuxtla Gutiérrez. If such is the case, the darkness of occasional birds in the lower part of the Grand Valley could easily be explained.

Two of eleven specimens from Tonalá are intermediate to *oblitus* in dorsal color.

MATERIAL EXAMINED.—Chiapas: Arriaga, 7, U.M.M.Z.; Tonalá, 11, U.M.M.Z.; Kilómetro Treinta,¹³ near Santa Isabel, 6, U.M.M.Z.; Ocote, 4, U.S.N.M.; Tuxtla Gutiérrez and vicinity, 7, U.M.M.Z., 4, U.S.N.M.; near Chiapa de Corzo, 1, U.M.M.Z.; San Bartolomé, 2, U.S.N.M.; San Vicente, 1, U.S.N.M.; Chicomuselo, 2, U.M.M.Z.; Malpaso, 1, U.M.M.Z.; Nuevo Amatenango, 2, U.M.M.Z.; Mazapa, 2, U.M.M.Z. Total, 50 specimens.

Thryothorus pleurostictus oblitus (van Rossem)

Thryophilus pleurostictus pleurostictus [*nec* Sclater] Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3(1904): 629, part (Chiapas).—Dickey and van Rossem, *Proc. Biol. Soc. Wash.*, 40(1927): 4, part (San Benito,¹⁴ Chiapas).—Griscom, *Bull. Amer. Mus. Nat. Hist.*, 64(1932): 291, part (Ocós and Hacienda California, Guatemala; criticism).

¹³ This is the locality which I have in another connection ("New Birds from Southern Mexico," *Auk*, 57(1940): 547, 549) called "Cerro de la Gineta." It is the pass across the Sierra Madre between the towns of Arriaga and Cintalapa. Arriaga is at Kilometer 48 and Santa Isabel at Kilometer 28, the markers being numbered from Tres Cruces, where it is planned that the projected link of the Pan-American highway will eventually join the Cintalapa road. Sumichrast's locality Gineta Mountains is about 25 kilometers northwest of mine, although part of the same range. Santa Isabel does not show on maps, as it is a new colony, formed since the expropriation of lands. It is about 6 or 7 kilometers west of Ocote. All my hunting at this point was on the Atlantic side of the divide.

¹⁴ The official name of San Benito has been changed to Puerto Madero.

- Thryothorus pleurostictus pleurostictus* Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7 (1934): 180, part (Chiapas).
- Pheugopedius pleurostictus oblitus* van Rossem, *Bull. Mus. Comp. Zool.*, 77, No. 7 (1934): 399, 400, part (original description; Barra de Santiago, El Salvador, type in Dickey coll.).
- Thryothorus pleurostictus oblitus* Dickey and van Rossem, *Field Mus. Nat. Hist. Zool. Ser.*, 23 (1938): 426 (Barra de Santiago, El Salvador; criticism).

CHARACTERS.—Upperparts the darkest of any form, between Bister and Snuff Brown; median underparts on average more heavily marked with black than in *oaxacae* or *acaciarum*, but much less than in *nisorius*; size about as in *oaxacae* and *acaciarum*, therefore smaller than *nisorius*.

MEASUREMENTS.—Male: wing, 62–68.5 mm.; tail, 48–54 mm.; culmen, 18.5–20 mm.; tarsus, 20.5–23.5 mm.; tail, wing ratio, 76.2–82.8 per cent (sixteen specimens).

Female: wing, 62–65.5 mm.; tail, 47.5–50 mm.; culmen, 18.5–19.5 mm.; tarsus, 22–22.5 mm.; tail, wing ratio, 75.6–80.0 per cent (three specimens).

DISTRIBUTION.—Pacific lowlands, from Mojarras, Chiapas, to Barra de Santiago, El Salvador.

REMARKS.—As already stated, two of the series of eleven skins of *acaciarum* from Tonalá already show an approach to *oblitus*. The single specimen from Mojarras is definitely *oblitus*, although not quite as dark as is the average of the race. One of four birds from Pijijiapan is somewhat intermediate, but nearer *oblitus*; the other three are definitely *oblitus*. This race is most typical in the District of Soconusco, the birds from there being the darkest seen. Scarcely anything is known about this wren in Guatemala, since Griscom's two localities are within six miles of the Chiapas border. The single specimen examined from Barra de Santiago, El Salvador, although toptypical of the race, is, as might be expected from the fact that it is at the extreme edge of the range, hardly typical of the form as defined here. It has a considerably lighter back than the Soconusco birds and is matched by the one from Pijijiapan which I have called intermediate to *acaciarum*.

MATERIAL EXAMINED.—Chiapas: Mojarras, 1, U.M.M.Z.;

Pijijiapan, 4, U.M.M.Z.; Playa de Gigero, 1, U.M.M.Z.; Honduras, 1, U.M.M.Z.; Finca Jalapa, 1, U.M.M.Z.; Finca Esperanza, 5, U.M.M.Z.; Huehuetán, 4, U.S.N.M.; San Benito, 2, U.S.N.M. El Salvador: Barra de Santiago, 1, D.R.D. Total, 20 specimens.

Thryothorus pleurostictus pleurostictus Selater

Thryothorus pleurostictus Selater, *Ibis*, 2, No. 5(1860): 30 (original description; "in prov. Verae Pacis," *errore*, = Gualán, Guatemala; type in Selater coll., now in Brit. Mus.).—Selater, *Cat. Coll. Amer. Birds*, 1862, p. 21, Pl. 4.—Baird, *Review Amer. Birds*, 1864, p. 123, part (Guatemala).—Selater and Salvin, *Proc. Zool. Soc. London*, 1870, p. 551, part (Guatemala).

Troglodytes pleurostictus Gray, *Hand-list*, 1(1869): 189 ("Vera Paz").

Thryophilus pleurostictus Selater and Salvin, *Nomencl. Av. Neotrop.*, 1873, p. 7, part (Guatemala).—Salvin and Godman, *Aves, Biol. Centrali-Amer.*, 1(1880): 86, part (Guatemala).—Sharpe, *Hand-list*, 4(1903): 79, part (Guatemala).—Dearborn, *Field Mus. Nat. Hist. Orn. Ser.*, 1, No. 3(1907): 134 (Gualán, Guatemala).

Thryophilus pleurostictus pleurostictus Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3(1904): 629, part ("Vera Paz," Guatemala).—Griscom, *Bull. Amer. Mus. Nat. Hist.*, 64(1932): 291, part (criticism; Gualán, Guatemala, substituted as type locality).—Carriker and De Schauensee, *Proc. Acad. Nat. Sci. Phila.*, 87(1935): 440 (Gualán and Yzabal?, Guatemala).

Thryothorus pleurostictus pleurostictus Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7(1934): 180, part ("Vera Paz" and Gualán, Guatemala; criticism).

Pheugopedius pleurostictus pleurostictus van Rossem, *Bull. Mus. Comp. Zool.*, 77, No. 7(1934): 399, 400 (Gualán, Guatemala; characters; note on type).

CHARACTERS.—Upperparts very rufous, lighter than Snuff Brown; black markings of underparts restricted to sides, flanks, and crissum; black tail and wing bars narrow; size the smallest of any race.

Very similar in color to *oaxacae*, but much smaller and perhaps brighter rufous above and less heavily marked below.

MEASUREMENTS.—Male: wing, 57 mm.; tail, 43 mm.; culmen, defective; tarsus, 19 mm.; tail, wing ratio, 75.4 per cent (one specimen).

The measurements of the unsexed type, as taken by van Rossem, are as follows: wing, 56.5 mm.; tail, 45 mm.; culmen, 15.6 mm.; tarsus, 19.7 mm.; tail, wing ratio, 79.6 per cent.

DISTRIBUTION.—Definitely known only from Gualán in the Motagua Valley of Guatemala. The original locality Verapaz is erroneous, as Griscom has shown. The record from Yzabal, which was questioned by the authors recording it, needs confirmation, for Yzabal is in a much wetter district than is Gualán.

MATERIAL EXAMINED.—Guatemala: Gualán, 1 D.R.D.

Thryothorus pleurostictus lateralis
(Dickey and van Rossem)

Thryophilus pleurostictus [nec Sclater] Salvin and Godman, *Aves, Biol. Centrali-Amer.*, 1(1880): 86, part (Conchagua, El Salvador).—Sharpe, *Cat. Birds Brit. Mus.*, 6(1881): 213, part (Honduras).—Sharpe, *Hand-list*, 4(1903): 79, part (Honduras).

Thryophilus pleurostictus pleurostictus Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3(1904): 629, part (Conchagua, El Salvador; Honduras).

Thryophilus pleurostictus lateralis Dickey and van Rossem, *Proc. Biol. Soc. Wash.*, 40(1927): 3 (original description; Lake Olomega [type], Divisadero, Puerto del Triunfo, Volcán Conchagua, and Río Goascorán, El Salvador; type in Dickey coll.).

Pheugopedius pleurostictus lateralis van Rossem, *Bull. Mus. Comp. Zool.*, 77, No. 7(1934): 400 (eastern and northern El Salvador, southern Honduras, and possibly northwestern Nicaragua; criticism).

Thryothorus pleurostictus lateralis Dickey and van Rossem, *Field Mus. Nat. Hist. Zool. Ser.*, 23(1938): 426 (Lake Olomega, Volcán de Conchagua, Puerto del Triunfo, Divisadero, Río Goascorán, Miraflores, and Lake Guija, El Salvador; criticism; habits, nest, eggs).

Thryothorus pleurostictus rarus [nec Ridgway] Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7(1934): 181, part (La Unión and Lake Olomega, El Salvador; criticism).

CHARACTERS.—Upperparts Snuff Brown; black markings of underparts usually restricted to sides, flanks, and crissum; size small, especially of the bill.

Differs from *oaxacae* in smaller size. Differs from *pleuro-*

stictus in larger size and perhaps less rufous upperparts. Differs from *nisorius*, *acaciarum*, and *oblitus* in much brighter and more rufous upperparts, less heavily marked underparts, and smaller size.

MEASUREMENTS.—Male: wing, 63–66.5 mm.; tail, 45.5–52 mm.; culmen, 17.5–18.5 mm.; tarsus, 19.5–22.5 mm.; tail, wing ratio, 72.2–78.2 per cent (eight specimens).

Female: wing, 56.5–59.5 mm.; tail, 42–43.5 mm.; culmen, 16.2–17 mm.; tarsus, 19.5–20.5 mm.; tail, wing ratio, 73.1–74.3 per cent (four specimens).

REMARKS.—*T. p. lateralis* was described as differing from *ravus* by having the underparts more heavily and evenly barred, by slightly lesser size in general, and by decidedly smaller bill. The color of the upperparts ranges through the same shades of reddish brown in the two forms.

Like Hellmayr I am not much impressed with the supposed difference in the ventral markings. While at first glance there seems to be an average difference, closer inspection shows that this is mostly if not entirely due to differences in the preparation of the skins. Most of the Nicaraguan birds have not been sewed up, leaving a wide gap of white cotton exposed, whereas the Salvadoran skins are not only sewed up, but the barred flank feathers are placed over the white belly feathers. As for the Costa Rican skins, some of them are not sewed up, and the others have the bellies stuffed out more than usual, in both cases overemphasizing the amount of white. In a series of three birds from Punta Piedra, Costa Rica, prepared by the same collector, there occur both extremes of markings on the underparts.

Among the specimens examined by me, those sexed as males of *lateralis* and *ravus* have practically the same wing length, the average for *lateralis* being 64.9 mm., and for *ravus* 65.0 mm. The extremes for *lateralis* are 63–66.5 mm., and for *ravus* 60–66.5 mm. In the specimens sexed as females, however, there is an absolute difference in wing length. Females of *lateralis* measure 56.5–59.5 mm. (average 58.0), and of *ravus* 60–66 mm. (average 61.8). This makes one suspect that the sexing of

some of the specimens is incorrect, for in none of the other races is there a size difference in females but not in males. Moreover, of two birds collected by Ridgway at Santo Domingo, Costa Rica, the one which is supposed to be the female is considerably larger in all its measurements than the one sexed as the male. I believe that the labels of these two birds were inadvertently interchanged. If these two specimens are omitted from consideration, the wing measurements of *ravus* are as follows: male, 65–66.5 mm. (average 65.9); female, 60–64 mm. (average 60.9). Compared with *lateralis*, *ravus* then has an average wing length 1 mm. shorter in males and 2.9 mm. shorter in females. Considered individually, slightly under half (two males and nine females) of the twenty-four apparently reliably sexed specimens of the two forms can be told apart on wing length.

Again omitting the same two questionably sexed specimens of *ravus*, I find no difference at all in tail length of the two forms. In male *lateralis* the tail measures 45.5–52 mm., and in *ravus* 48–51 mm., with the average of both forms being 49.9 mm. In females the tail of *lateralis* measures 42–43.5 mm. (average 42.9), in *ravus* it is 43.5–48 mm. (average 45.6). Considered individually, no males and seven females of a total of twenty-three specimens, or less than one-third, can be separated on tail length.

There does not seem to be any difference in the tail length compared with that of the wing. Males of *lateralis* have the tail 72.2–78.2 per cent of the wing, against 72.7–76.7 per cent in *ravus*. In females the proportion is 73.1–74.3 per cent in *lateralis*, 71.9–77.5 per cent in *ravus*. Thus, not a single specimen is separable by this criterion.

The culmen of male *lateralis* measures 17.5–18.5 mm., and 18.5–19.5 mm. in *ravus*. The bill of female *lateralis* is 16.2–17 mm., of *ravus* 17–18.8 mm. Individually, fourteen out of nineteen specimens of the two forms can be separated on bill size. Besides, as is so often the case with bill differences, the bill of *ravus* is not only longer, but is often also visibly heavier or bulkier, a fact which is not adequately expressed by the

standard methods of measuring. Since nearly three-fourths of the specimens used are separable on bill size, it seems possible to recognize *lateralis* on the basis of this character. Larger series may show that the difference does not hold.

MATERIAL EXAMINED.—El Salvador: Lake Guija, 1, D.R.D.; Divisadero, 2, D.R.D.; Puerto del Triunfo, 1, D.R.D.; Lake Olomega, 7, D.R.D.; Hacienda Miraflores, 1, D.R.D.; Volcán de Conchagua, 2, D.R.D.; Río Goascorán, 1, D.R.D. Honduras: Monte Redondo, 1, U.S.N.M. Total, 16 specimens.

Thyrothorus pleurostictus ravus (Ridgway)

Thyrothorus pleurostictus [*nec* Selater] Baird, *Review Amer. Birds*, 1864, p. 123, part (Gulf of Nicoya, Costa Rica.—Selater and Salvin, *Proc. Zool. Soc. London*, 1870, p. 551, part (Costa Rica).

Thyrophilus pleurostictus Lawrence, *Ann. Lyc. Nat. Hist. New York*, 9(1868): 92 (Gulf of Nicoya, Costa Rica).—Frantzius, *Journ. f. Orn.*, 17, No. 101(1869): 291 (Costa Rica).—Selater and Salvin, *Nomencl. Av. Neotrop.*, 1873, p. 7, part (Costa Rica).—Boucard, *Proc. Zool. Soc. London*, 1878, p. 51 (Puntarenas, Costa Rica).—Salvin and Godman, *Aves, Biol. Centrali-Amer.*, 1(1880): 86, part (Corinto and San Juan del Sur, Nicaragua; Tempate and Bebedero, Costa Rica).—Sharpe, *Cat. Birds Brit. Mus.*, 6(1881): 213, part (Nicaragua and Costa Rica).—Zeledón, *Cat. Aves Costa Rica*, 1882, p. 3.—Nutting, *Proc. U. S. Nat. Mus.*, 6(1883): 373, 381, 391 (San Juan del Sur, Sucuyá, and Ometepe, Nicaragua).—Zeledón, *Proc. U. S. Nat. Mus.*, 8(1885): 105 (Costa Rica).—Underwood, *Ibis*, 7th ser., 2, No. 8(1896): 433 (Volcán de Miravalles, Costa Rica).—Lantz, *Trans. Kansas Acad. Sci.*, 16(1899): 224 (Granada, Nicaragua).—Sharpe, *Hand-list*, 4(1903): 79, part (Costa Rica).—Skutch, *Auk*, 57, No. 3(1940): 303, part Nicoya and Barrahonda, Costa Rica; habits, nest).

Thyrophilus pleurostictus ravus Ridgway, *Proc. Biol. Soc. Wash.*, 16(1903): 167 (original description; San Juan del Sur, Nicaragua, type in U. S. Nat. Mus.).—Ridgway, *Bull. U. S. Nat. Mus.*, No. 50, Pt. 3(1904): 631 (San Juan del Sur, Sucuyá, Ometepe, Granada, and Corinto, Nicaragua; Tempate, Bebedero, Puntarenas, Gulf of Nicoya, and Volcán de Miravalles, Costa Rica; description, bibliography).—Bangs, *Auk*, 24, No. 3(1907): 305 (Barranca, Costa Rica).—Carriker, *Ann. Carnegie Mus.*, 6(1910): 757 (Santo Domingo de San Mateo, Bahía de Salinas, Bebedero, Miravalles, Bolson, Bagaces, Tenorio, Coralillo, Mojica, and Esparta, Costa Rica;

habits).—Dickey and van Rossem, *Proc. Biol. Soc. Wash.*, 40(1927): 4 (León, Volcán el Viejo, and Chinandega, Nicaragua; Punta Piedras and Las Cañas, Costa Rica; criticism).

Thryothorus pleurostictus ravus Hellmayr, *Field Mus. Nat. Hist. Zool. Ser.*, 13, Pt. 7(1934): 181, part (Nicaragua; Nicoya Peninsula, Río Grande de Tárcoles, Las Cañas, Esparta, and Bebedero, Costa Rica; criticism, bibliography).

Pheugopedius pleurostictus ravus van Rossem, *Bull. Mus. Comp. Zool.*, 77, No. 7(1934): 400 (Nicaragua and northern Costa Rica; criticism).

CHARACTERS.—Upperparts Snuff Brown; black markings below usually restricted to sides, flanks, and crissum; black tail bars of medium width; size small.

Differs from *lateralis* only in somewhat larger size; especially of the bill. Differs from *pleurostictus* in larger size, and in having the back slightly darker. Differs from *oaxacae* in slightly shorter wing and proportionately shorter tail; perhaps less heavily marked with black below. Differs from *oblitus* in slightly smaller size, less heavily marked underparts, and much more rufous back.

MEASUREMENTS.—Male: wing, 65–66.5 mm.; tail, 48–51 mm.; culmen, 18.5–19.5 mm.; tarsus, 21.5–22.5 mm.; tail, wing ratio, 72.7–76.7 per cent (seven specimens).

Female: wing, 60–64 mm.; tail, 43.5–48 mm.; culmen, 17–18.8 mm.; tarsus, 20–21.5 mm.; tail, wing ratio, 71.9–77.5 per cent (five specimens).

DISTRIBUTION.—Pacific lowlands of Nicaragua and northwestern Costa Rica, as far as the Nicoya Peninsula and Río Grande de Tárcoles. Dickey and van Rossem assigned specimens from as far north as Volcán el Viejo, Chinandega, and León, Nicaragua, to *ravus*. The only Nicaraguan birds which I myself have examined are from the southern part of the country.

MATERIAL EXAMINED.—Nicaragua: Ometepe, 2, U.S.N.M.; Sucuyá, 2, U.S.N.M.; San Juan del Sur, 1, U.S.N.M.; not further specified, 2, U.S.N.M., 2, U.M.M.Z. Costa Rica: Santo Domingo, 2, U.S.N.M.; Bahía de Salinas, 1, U.S.N.M.; Punta Piedra, 3, D.R.D.; Las Cañas, 1, D.R.D. Total, 16 specimens.

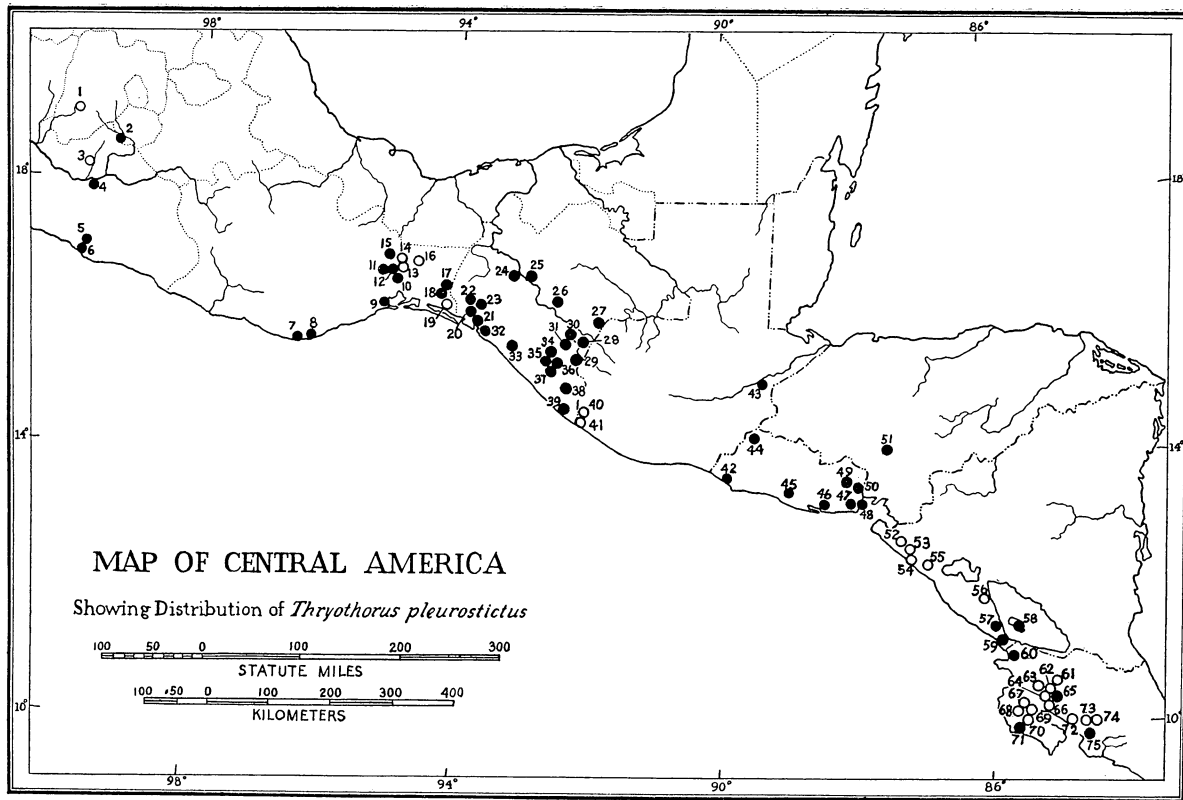
KEY TO THE SUBSPECIES

- A. Upperparts more grayish, about Buffy Brown
- a. Heavily marked with black on throat and middle of belly; size larger, male with wing, 67-71 mm., tail, 55.5-60.5 mm.
nisorius.
- aa. Throat and middle of belly with few or no black markings; size smaller, wing of male, 63-68 mm., tail, 48-56 mm.*acaciarum.*
- AA. Upperparts more rufous, about Snuff Brown or Bister
- b. Upperparts darker brown, near Bister; middle of belly usually distinctly marked with black*oblitus.*
- bb. Upperparts lighter and more rufous, about Snuff Brown; middle of belly usually immaculate white
- c. Smaller; wing of male, 57 mm., tail, 43 mm.*pleurostictus.*
- cc. Larger; wing of male, at least 63 mm.; tail, at least 45.5 mm.
- d. Tail longer, 51.5-56 mm. (♀ 47.5-50.5); tail: wing ratio, 76.9-82.0 per cent (♀ 77.2-82.1)*oaxacae*
- dd. Tail shorter, 45.5-52 mm. (♀ 42-48); tail: wing ratio, 72.2-78.2 per cent (♀ 71.9-77.5)
- e. Bill smaller, 17.5-18.5 mm. (♀ 16.2-17)*lateralis*
- ee. Bill larger, 18.5-19.5 mm. (♀ 17-18.8)*ravus*

Pierce Brodkorb

MAP 1. DISTRIBUTION OF *Thryothorus pleurostictus*

- nisorius*
1. Real Arriba, Mexico
 2. Puente de Ixtla, Morelos
 3. Apipilulco, Guerrero
 4. Río Balsas, Guerrero
- oaxacae*
5. Egido Nuevo, Guerrero
 6. Acapulco, Guerrero
 7. Puerto Angel, Oaxaca
 8. Santa Cruz Bay, Oaxaca
 9. Huilotepec, Oaxaca
 10. Chivela, Oaxaca
 11. Santo Domingo, Oaxaca
 12. Barrio, Oaxaca
 13. Lagunas, Oaxaca
 14. Matías Romero, Oaxaca
 15. Guichicovi, Oaxaca
 16. Chimalapa, Oaxaca
 17. Santa Efigenia, Oaxaca
 18. Tapanatepec, Oaxaca
 19. Cacoprieto, Oaxaca
- acaciarum*
20. Arriaga, Chiapas
 21. Tonalá, Chiapas
 22. Santa Isabel, Chiapas
 23. Ocote, Chiapas
 24. Tuxtla Gutiérrez, Chiapas
 25. Chiapa de Corzo, Chiapas
 26. San Bartolomé, Chiapas
 27. San Vicente, Chiapas
 28. Nuevo Amatenango, Chiapas
 29. Mazapa, Chiapas
 30. Chicomuselo, Chiapas
 31. Malpaso, Chiapas
- oblitus*
32. Mojarras, Chiapas
 33. Pijijiapan, Chiapas
 34. Honduras, Chiapas
 35. Finca Jalapa, Chiapas
 36. Playa de Gígero, Chiapas
 37. Finca Esperanza, Chiapas
 38. Huehuetán, Chiapas
 39. San Benito, Chiapas
 40. Hacienda California, Guatemala
 41. Ocos, Guatemala
 42. Barra de Santiago, El Salvador
- pleurostictus*
43. Gualán, Guatemala
- lateralis*
44. Lake Guija, El Salvador
 45. Hacienda Miraflores, El Salvador
 46. Puerto del Triunfo, El Salvador
 47. Lake Olomega, El Salvador
 48. La Unión and Volcán de Conchagua, El Salvador
 49. Divisadero, El Salvador
 50. Río Goascorán, El Salvador
 51. Monte Redondo, Honduras
- ravus*
52. Volcán El Viejo, Nicaragua
 53. San Gerónimo and Chinandega, Nicaragua
 54. Corinto, Nicaragua
 55. León, Nicaragua
 56. Granada, Nicaragua
 57. Sucuyá, Nicaragua
 58. Ometepe, Nicaragua
 59. San Juan del Sur, Nicaragua
 60. Bahía de Salinas, Costa Rica
 61. Volcán de Miravalles, Costa Rica
 62. Tenorio, Costa Rica
 63. Bagaces, Costa Rica
 64. Mojica, Costa Rica
 65. Las Cañas, Costa Rica
 66. Bebedero, Costa Rica
 67. Coralillo and Bolsón, Costa Rica
 68. Tempate, Costa Rica
 69. Barra Honda, Costa Rica
 70. Nicoya, Costa Rica
 71. Punta Piedra, Costa Rica
 72. Puntarenas, Costa Rica
 73. Esparta, Costa Rica
 74. Barranca, Costa Rica
 75. Santo Domingo, Costa Rica
- Solid circles represent localities from which specimens were examined.
- Open circles represent recorded localities from which specimens were not examined.



MAP 1



