

## BOTTERI'S SPARROWS OF THE ATLANTIC COASTAL LOWLANDS OF MÉXICO

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Although the populations of Botteri's Sparrows (*Aimophila botterii*) of the Atlantic coastal lowlands of México, the Yucatán Peninsula, and British Honduras have been mentioned several times in the literature during the last three decades, relatively little has been added to our knowledge of the systematics of these populations owing to the lack of adequate series in unworn plumages. Webster (Condor, 61:136-146, 1959) in the most recent revision of the species listed only eight specimens from this entire region.

A brief résumé of the geographic variation found in this species in eastern and southern México, as presented by Webster, will provide a better background for the discussions that follow. In the northeast, ranging from Texas south to southern Tamaulipas in the lowlands, occurs the long, pointed-winged, pale grayish-brown-backed subspecies *A. b. texana*. Intergrading with this along the eastern slopes of San Luis Potosí and northern Veracruz, and extending south over the central plateau to Oaxaca and Chiapas, occurs the more variable nominate form. This is a somewhat darker, more reddish (or reddish-brown), long-winged subspecies. In the northern part of its range the wings average longer and more pointed, whereas in Chiapas they are slightly shorter and more rounded. We have also noted some Chiapas specimens that show broader black back-streaking and are somewhat richer in dorsal coloration, and thus tend to approach in color the large, darker, but rounded-winged subspecies *vantynei* of the Guatemalan highlands, and the small, dark, rounded-winged *petenica*. Particularly deep chestnut are three birds from Río Blanco, apparently on the south-east edge of the central valley of Chiapas near the Guatemala border, in the British Museum (Natural History); ventrally these are dull like *petenica*.

*A. b. petenica* ranges on the Atlantic coastal lowlands from southern Veracruz, south and eastward to the Yucatán Peninsula and the Petén area of Guatemala. Until now, *petenica* has been considered the blackest of the subspecies. It is this form and its small, dark allies which some authors, including A. H. Miller (in Miller *et al.*, Pacific Coast Avifauna No. 33, 1957), have maintained as a full species. This was based on "trenchant size and color differences and lack of knowledge of intergradation" (p. 378). Apparently Miller did not consider the gradient toward smaller size and rounder wings in the Chiapas populations of *botterii* to represent intergradation with the altitudinally isolated lowland *petenica*. Nor did he notice that the measurements of *A. b. goldmani* (which he included in *A. b. botterii*) are actually smaller than those of *A. b. vulcanica*, considered by him a race of *A. "petenica"*. The full specific status for *petenica* becomes even more untenable with the discovery that the form of "*petenica*" described beyond clearly intergrades with *botterii* in southern Veracruz, and that its influence is expressed even as far northwest as the type locality of *A. b. botterii* at "Orizaba," Veracruz.

Howell (Auk, 82:438-464, 1965) made the most comprehensive survey of the lowland populations. He considered that, based on the "generally yellowish color of the bend of the wing region," birds from the Atlantic lowlands of Oaxaca, Veracruz, and Tabasco could be recognized as distinct, bearing the name *sartorii*, type locality Huatusco, Veracruz (Ridgway, Bull. U.S. Natl. Mus. 50, pt. 1, 1901). Howell wrote

"otherwise, *sartorii* is extremely close to *petenica* in size and color" (p. 461). Actually, with the larger series now available, we could not separate specimens using this character.

We have examined eight specimens from the foothills region of central Veracruz including three from Huatusco (including the type of *sartorii*), two from Jalapa (or Xalapa), and three from "Orizaba" (including the type of *botterii*). All (except the type of *sartorii*) were examined by Phillips in the British Museum (Natural History). One, a male taken by Beristain and Fepeda in July 1888 at Huatusco, has a long but rounded wing (chord 65 mm), and is nearly typical in coloration of *botterii* of plateau populations. Another Huatusco specimen, a female taken August 1888 by García and González, is mostly black above except on the nape, but the black is restricted to the centers of the feathers on the upper tail coverts. Its wing, which measures 62 mm, is frayed but was apparently pointed. It is *petenica*-like in dorsal coloration, yet it is too large for that form. Likewise, the type of *sartorii*, a female, although *petenica*-like in color, is too large for *petenica*. Its wing, measuring 59.7 mm (*vide* Ridgway, *ibid.*, p. 260), overlaps in this measurement only with male *petenica* (see measurements presented by Webster, *ibid.*). We agree with Webster that *sartorii* is intermediate, but the larger measurements indicate to us that the Huatusco population is somewhat closer to *botterii*. It should be noted that intermediates between the paler *botterii* and the blacker form described beyond would probably replicate *petenica*-type coloration.

The type of *botterii* itself is slightly intermediate toward the Tabasco population, having more black in the back than all but one (a female from La Noria, Puebla, Puebla, 26 May 1888) of the over 50 plateau specimens examined by us. This female is like a larger specimen of the Huatusco variety, and all three "Orizaba" birds fall between the Huatusco extremes in the amount of black dorsally. There is no consistency in wing shape; one or two of the "Orizaba" birds have pointed wings, but the type and the extensively black La Noria female have rounded wings. Indeed, the ninth primary of the type of *botterii* is shorter than the second; it falls short of the third by about 2.3 and 3.3 mm in the two wings.

Of the two Xalapa birds taken in May 1888, one is richly colored below like the type series of *botterii*, and approaches these in size, but is mostly black above (agreeing dorsally with the type of *petenica*). The other, sexed as a male, resembles *petenica* below and in size, but has less black above, the feathers being extensively edged with gray.

It is thus difficult to see even a tendency toward the segregation of two species in the heterogeneous series from Veracruz and Puebla, let alone "trenchant color and size differences."

Paynter (Peabody Museum Bull. No. 9, p. 297, 1955) reported a series of six worn and molting specimens, the first from the Yucatán Peninsula, and referred them tentatively to *A. petenica petenica*. He thought that when adequate material became available the Yucatán population would be separable as a new form. In recent trips to the Yucatán Peninsula, the authors, accompanied by Kenneth C. Parkes, have collected fresh-plumaged specimens in November 1963 and January 1965 from partially flooded savannas, 3.5 kilometers south of Progreso, Yucatán, as well as a small series from Tabasco in February 1965. These series, along with the excellent material available in the Museum of Zoology at Louisiana State University, from British Honduras, and from Tabasco, have permitted us to analyze the geographic variation to be found in these populations.

The authors wish to express their thanks to Thomas R. Howell for his helpful suggestions, and to the curators of the following institutions for permission to examine specimens in their care: American Museum of Natural History, New York; British Museum (Natural History); Louisiana State University, Museum of Zoology; University of Kansas, Museum of Natural History (KANU); Robert T. Moore Laboratory of Zoology, Occidental College (RTM); University of Michigan, Museum of Zoology (MICH); U.S. National Museum; Carnegie Museum, Pittsburgh; and L. A. Fuertes Memorial Collection, Cornell University. Specimens collected by Dickerman were deposited at the University of Minnesota Museum of Natural History and Cornell University at Ithaca, New York. Phillips' trip to the British Museum was supported by a grant from the Frank M. Chapman Memorial Fund.

We find that the population occupying the central region of Tabasco represents a distinctive new subspecies which may be known as

***Aimophila botterii tabascensis* new subspecies**

*Type.* Adult (?) male, original No. 6563, collection of Allan R. Phillips (specimen now at the Instituto de Biología, Universidad Nacional Autónoma de México); taken 8 km north of Chontalpa (14 km south of Huimanguillo), Tabasco, México, in a wet prairie, 17 January 1963. Skull ossified, testes somewhat enlarged ( $3.2 \times 1.8$  mm and  $3.0 \times 2.2$  mm) body weight 20.4 g, very little fat. Measurements of type: wing chord 55.0 mm and 55.7 mm, tail (somewhat worn) 56.5 mm.

*Diagnosis.* Dorsally *tabascensis* is the blackest of all the subspecies of *botterii*, especially on the nape and rump. It virtually lacks reddish-brown edgings to the interscapular feathers, with only *petenica* approaching this degree of blackness (fig. 1). *Tabascensis* is blacker and likewise lacks the reddish-brown edgings of the dorsal plumage of *vantyneni* and of *spadiconigrescens* of Nicaragua. It is so much blacker than *botterii* as to need no direct comparison. Sides and flanks average a darker grayish brown, although it differs less ventrally than dorsally. Size small as in *petenica*.

*Range.* Known only from the type locality, intergrading with *botterii* in southern Veracruz.

*Discussion.* Delwyn G. Berrett (Unpublished Ph.D. dissertation, Louisiana State University, 1962) noted that the birds from the Balancán region of Tabasco (about 290 km east of the type locality of *tabascensis*) were browner and lighter in general than the blackish birds of the Chontalpa region, and noted that a specimen from Macuspana, about 145 km east of the type locality, matches the Balancán group. He included all Tabasco specimens in the species *A. petenica*. Contrary to our expectations, and those of Paynter cited previously, we can find no consistent characters that might separate our four fresh specimens from northern Yucatán from the larger series of *petenica* we have studied. The second specimen from the right in the illustration of *petenica* (fig. 1) is from Progreso. Of our four specimens in fresh plumage, two are paler and redder than the others. We believe, however, that because of the lack of consistency in this small series (a situation not infrequent in this species), the Yucatán populations are best considered a somewhat variable segment of the widespread *petenica*.

While *tabascensis* is now known only from the vicinity of the type locality, two females from southern Veracruz specimens are closest to it in their degree of blackness (see 2 specimens at right of series of *tabascensis* in fig. 1). These specimens (RTM) are from Arroyo Claro (11 km SE Loma Bonita, Oaxaca) and from 32 km west of

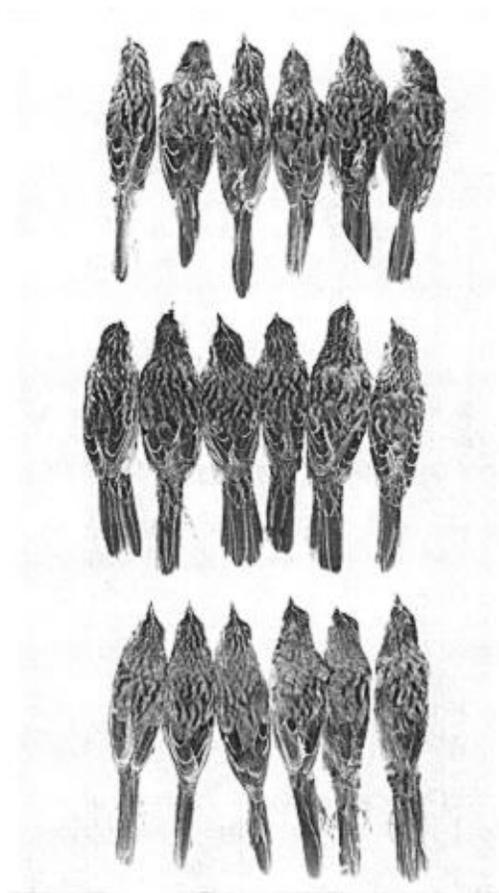


Figure 1. Dorsal view of three races of *Aimophila botteri*. Top row: *A. b. petenica*, with type of *sartorii* on far right, next to a specimen from Progreso, Yucatán. Middle row: *A. b. tabascensis*, with the two Veracruz specimens on far right. Bottom row: *A. b. botteri*.

Rodríguez Clara. Both of these localities are less than 25 km from Isla, Veracruz, whence a specimen indistinguishable in color from *petenica* is available. Thus the black genes of *tabascensis* must reach as far as the Isla region, although with the few specimens available from south-central Veracruz we cannot evaluate the intermediacy of these populations. Specimens from farther northwest at Río Blanco, 32 km WNW Piedras Negras (KANU) and from farther southeast, 54 km SE Coatzacoalcos, Veracruz (MICH), are typical *petenica*.

It is difficult to explain the presence of this rather distinct form on the Atlantic coastal lowlands of Tabasco (and Veracruz), which are out of place in the southward-increasing color-density cline. There are no major barriers from eastern Tabasco, westward and northward into central Veracruz, excepting the spotty distribution patterns of suitable, sufficiently wet grasslands, separated by forests or marshes. Other geographically variable species living in the same habitat such as the Short-billed Marsh Wren (*Cistothorus platensis*) and the Eastern Meadowlark (*Sturnella*

*magna*) are not known to have developed morphological differences within this area. The Bobwhite (*Colinus virginianus*) in a similar situation, however, has developed a local form inhabiting the islands of grassy habitat around Palenque, Chiapas, apparently separated by forests from quail populations of central Tabasco on the one hand and those of the Yucatán Peninsula on the other. However, while both the Bobwhite and Botteri Sparrows occur at Palenque and at the type locality of *tabascensis*, differential selective forces or dispersal mechanisms have permitted each to develop morphological differentiation at one of the sites but not at the other.

When Dickerman was working on the species at the United States National Museum, he found the type specimen of *A. b. vantynei* still reposing in the main series, unrecognized as a type. Thus it was not listed by Deignan (Bull. U.S. Natl. Mus. 221, 1961). Webster (*op. cit.*, p. 143), in describing the form, cited the collecting locality of the type as "Guatemala City" and "Alfaro" as the collector. Actually the specimen bears an original label from the "Collection of Anastasio Alfaro," with only "Guat." as locality, and with no collector given. The type locality of *vantynei* is thus simply "Guatemala" not "Guatemala City." Webster's citation of Guatemala City as type locality is evidently a *lapsus*.

Webster cited a second specimen supposedly from Guatemala City, an unsexed and undated adult reported by Carriker and de Schauensee (Proc. Acad. Nat. Sci. Phila., 87:449, 1935). James Bond, Curator of Birds, Academy of Natural Sciences of Philadelphia, informs us (*in litt.*) that this specimen "was purchased from a native collector who, according to R. M. de Schauensee, said it was taken near Guatemala City. The locality may be considered questionable." We suggest that the type locality of *Aimophila botterii vantynei* be restricted to Antigua, where the only specimen with full data was collected (see Griscom, Bull. Amer. Mus. Nat. Hist., 64:362, 1932).

*Specimens examined.* The type series of *A. b. spadiconigrescens*, *sartorii*, *vantynei*, and *vulcanica* and the type and large series of specimens of *A. b. botterii* were examined.

*A. b. tabascensis*: total 9, TABASCO: between Huimanguillo and Chontalpa, 7; VERACRUZ: 32 km W Rodríguez Clara, 1; Arroyo Claro (7 mi. SE Loma Bonita, Oaxaca), 1.

*A. b. petenica*: total 38, VERACRUZ: Isla, 1; 54 km SE Coatzacoalcos, 1; Río Blanco (32 km WNW Piedras Negras), 1; TABASCO: Balancán, 5; Macuspana, 1; CHIAPAS: Palenque, 6; YUCATÁN: Progreso, 5; Mérida, 5; BRITISH HONDURAS: 9; GUATEMALA: La Libertad, 2; pine ridge of Poctum, 1 (type); "below" Sierra de las Minas, 1.

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