

NOTES ON SOME RACES OF THE ROUGH-WINGED SWALLOW

By PIERCE BRODKORB

Within the last few years a rather extensive literature has appeared on the taxonomy of the Rough-winged Swallow (*Stelgidopteryx ruficollis*). In the course of my work on the birds of southern Mexico, I found certain discrepancies between published statements and some of my material. The present paper developed from an attempt to work out the characters and ranges of the forms occurring in Mexico. Those races which do not reach this region are omitted, since I have nothing to add to Griscom's able review (Proc. New England Zool. Club, 11, 1929:67-72). Although the Mexican material studied is three times as extensive as that available to previous workers, it should be emphasized that in several cases the last word still remains to be said.

A few generalities may be drawn from the characters shown by the different subspecies. In the first place, the Mexican and North American birds are divisible into two groups characterized in part by the normal presence or absence of spots on the crissum. The two groups were at one time thought to be specifically distinct from each other and from the South American forms. All three groups are, however, connected by intermediate forms.

Within these groups the darker races occur in areas of heavy precipitation, and the paler forms inhabit more arid regions. With a few possible exceptions, size tends to increase with high altitude and high latitude. These same trends are noticeable not only among the different subspecies of a given group, but even among populations of the same race.

Stelgidopteryx ruficollis serripennis (Audubon)

Hirundo serripennis Audubon, Orn. Biog., 4 (1938):593 (Charleston, South Carolina).

Stelgidopteryx ruficollis aphractus Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., 4 (September 19, 1932):5 (Warner Valley, 9 miles south of Adel, Oregon).

Characters.—Medium dark above and below; crissum usually plain white; throat and usually the chin without buff or rufous.

Measurements.—Male (25 specimens from east of the Rockies): wing, 108-116 (110.9); tail, 47.5-54.5 (50.4). Female (13 from east of Rockies): wing, 103-107 (105); tail, 45-48.5 (47.4).

Range.—Southeastern British Columbia, Montana, North Dakota, Minnesota, northern Michigan, southeastern Ontario, New York, and Massachusetts, south to the Gulf States, and west at least to eastern Washington, Oregon, Nevada, and Texas. On migration to California, Sonora, Morelos, Chiapas, Guatemala, British Honduras, and (according to Griscom) to Panama.

Since I have seen only nine adults from the Great Basin, I have been largely guided by the statements of Wetmore (Proc. U. S. Nat. Mus., 86, 1939:202) and Miller (Condor, 43, 1941:259) in including birds from that region with *serripennis*. The characters originally ascribed to *aphractus* were darker upperparts, paler underparts, and somewhat greater average size, compared with *serripennis*. My birds from the Great Basin have the same range of variation in color as do eastern birds. Oberholser included California within the range of *aphractus*. It has since been shown that breeding birds from California belong to the race *psammochrous*, which does in fact have paler underparts than *serripennis*.

One bird from the coast of Oregon, collected on May 30, is very pale. Whether it represents an abnormal variant of *serripennis*, or whether the range of *psammochrous* extends so far north along the coast can only be decided with more adequate material than is available to me. On geographical grounds the first alternative is more probable.

As regards size, some 57 per cent of the birds measured from the combined ranges of *serripennis* and *aphractus* can be segregated to locality on wing length. The tail also

tends to be longer in the west, but with weight the trend is reversed. While a difference which holds in only slightly more than half of the specimens is hardly constant enough to warrant recognition of a northwestern race, it would be interesting to see whether a larger sample of Great Basin birds would show greater or lesser differences.

Extreme and average measurements (in mm.) and weights (in grams) of *Stelgidopteryx ruficollis serripennis*

Locality	Sex	Wing	Tail	Weight
East of Mississippi	19 ♂	108-116 (110.7)	47-54 (50.2)	14.5-18.2 (16.2) [8 ♂]
Great Plains	6 ♂	108-113 (111.7)	48-54 (51)
Great Basin	5 ♂	111-118 (115.4)	49-52 (51.6)	15.1-16.6 (15.7) [4 ♂]
East of Mississippi	11 ♀	103-107 (104.9)	45-48 (47.3)	15.7-16.5 (16.1) [2 ♀]
Great Plains	2 ♀	105	48
Great Basin	4 ♀	106-109 (107.5)	46-50 (47.4)	14.4 [1 ♀]

Although the crissum is usually plain white, the shafts of the longer under tail coverts are occasionally darkened subterminally, and about one bird in four (23 per cent of those examined) has the dark shaft area expanded into a spot on the feather. Bangs and Peters (Bull. Mus. Comp. Zool., 67, 1927:479) reported 16 out of 64 specimens (25 per cent) with spotted under tail coverts. Griscom (*op. cit.*: 72), though incorporating the same material used by Bangs and Peters, found spotted tail coverts in only three specimens among "nearly two hundred."

Material examined.—Seventy specimens from British Columbia (Trail, Vernon, and Midway), eastern Washington (Okanogan County), Nevada, Idaho, Montana, Wyoming, the Dakotas, Texas, Kansas, Ontario, Michigan, New York, and Pennsylvania; and migrants from California (Eagle Borax, Imperial County, April 21), Sonora (Tesia, March 14), Morelos (Cuernavaca, March 16), Chiapas (Pijijiapan, April 27-May 3), Guatemala (Panzós, February 23), and British Honduras (Belize, February 5). One from near Tillamook, Oregon, is also tentatively assigned here.

Stelgidopteryx ruficollis psammochrous Griscom

Stelgidopteryx ruficollis psammochrous Griscom, Proc. New England Zool. Club, 11 (December 14, 1929):72 (Oposura, Sonora).

Characters.—Paler above and below than *serripennis*; size about the same. Young slightly paler above than young *serripennis*.

Measurements.—Male (12 specimens): wing, 106-118 (112.2); tail, 45.5-52 (49.8). Female (5 specimens): wing, 104.5-109 (107.1); tail, 46.5-49 (48.1).

Range.—Southern California and Arizona, south in the Pacific drainage to Guerrero, and north along the coast at least to Los Angeles County, California. Migrates southward along the coast to Chiapas.

Originally described from Sonora, *psammochrous* was shown to be the form of southern Arizona by Oberholser (Sci. Publ. Cleveland Mus. Nat. Hist., 4, 1932:5) and of California by Wetmore (*loc. cit.*). Van Rossem (Trans. San Diego Soc. Nat. Hist., 6, 1931:268; Bull. Mus. Comp. Zool., 77, 1934:452) has stated that he was unable to distinguish *psammochrous* from *serripennis*, but he now writes (*in litt.*, April 5, 1942) that he considers it a good race with a range extending into California. Hellmayr (Cat. Birds Americas, pt. 8, 1935:47-48) also refused to recognize *psammochrous*. It appears that the reluctance to accept this race was largely due to the fact that at the time its range was not understood to be so extensive.

Of the seventeen adult specimens examined from north of Guerrero, not one has a spotted crissum, although a few individuals have subterminally darkened shafts of the longer under tail coverts.

Intergradation with *fulvipennis* occurs in Guerrero. Five breeding specimens from Chilpancingo and Omilteme have the paler underparts of *psammochrous*, but they have more rufous on the throat than that form. Above, three are pale and the other two are about as dark as *serripennis*. One bird has a large dusky spot on the crissum. Since

the size of these birds is a little larger than that of *fulvipennis* or *psammochrous*, or for that matter of *serripennis*, there remains the possibility that still another race will need to be established to accommodate these birds. The wing measures 116.5–120.5 (119.7) in three males, 105–108 mm. in two females. The tail in the males is 50.5–53.5 (52), in the females 46–48 mm.

Material examined.—Twenty-five specimens from California (Los Angeles, Imperial, and Riverside counties), Arizona (Tucson, Continental, Benson, and Fort Verde), Sonora (Tesia and Pilares), Guerrero (Chilpancingo and Omilteme), and Chiapas (Pijijiapan, April 27).

Stelgidopteryx ruficollis fulvipennis (Sclater)

Cotyle fulvipennis Sclater, Proc. Zool. Soc. London, 27 ("1859"—April 1, 1860):364 (vicinity of Jalapa, Veracruz).

Stelgidopteryx salvini Ridgway, Proc. Biol. Soc. Wash., 16 (September 30, 1903):107 (Dueñas, Guatemala).

Characters.—Darker above and below than *serripennis* or *psammochrous*; chin and often the whole throat tinged with rufous or buffy; shafts of under tail coverts usually darkened subterminally, rarely plain white; subterminal dark spots on crissum perhaps not more frequent than in *serripennis*, but when present the spots tend to be darker and larger; secondaries usually with slightly paler edges; size about as in *serripennis* and *psammochrous*. Young perhaps a trifle darker above than young *serripennis* and with the rufous markings everywhere more extensive.

Measurements.—Male (20 specimens); wing, 104–116 (110); tail, 47–53 (49.4). Female (14 specimens): wing, 101–109 (104.8); tail, 43–49 (46.8).

Range.—Lowlands and middle altitudes of southern Mexico and northern Central America, from central Veracruz (Jalapa) and Guerrero, south to El Salvador, Honduras, and (according to Griscom) to Costa Rica. Absent in Yucatan.

Van Rossem (1934, *op. cit.*:394) has shown that the type of *fulvipennis* belongs to the race which Ridgway described under the name *salvini*.

Spotting of the crissum occurs in 24 per cent of the adults examined. It is therefore scarcely more prevalent than with *serripennis*, but the shafts are more often dark in *fulvipennis* than in *serripennis*. Spotting of the crissum appears more frequently in the interior and on the Pacific coast, where it occurs in seven of 18 specimens, than on the Caribbean side, where it was found in only one specimen among the 16 examined.

Griscom (Bull. Mus. Comp. Zool., 75, 1934:392) states that the long wing is the best character for the separation of this form from *serripennis*. It is true that topotypical birds from Jalapa average a trifle larger than specimens from the eastern (though not the western) United States. Nevertheless, on both coasts there appears to be a definite size gradient from larger birds in the north to smaller ones in the south. When specimens from throughout the range of *fulvipennis* are used, the supposed difference in size between the two races disappears.

Extreme and average measurements (in mm.) of *Stelgidopteryx ruficollis fulvipennis*

Locality	Sex	Wing	Tail
Veracruz	3 ♂	111–115 (113.7)	49–51 (50.2)
Tabasco	7 ♂	107–110 (108.2)	47–49 (48.6)
Chiapas	7 ♂	105–115 (110.4)	47–53 (49.9)
El Salvador	3 ♂	104–116 (109.7)	48–50 (49.5)
Veracruz	5 ♀	103–109 (105.5)	43–48 (46.5)
British Honduras	1 ♀	105	48
Chiapas	2 ♀	107–108 (107.5)	47–49 (48)
El Salvador	6 ♀	101–106 (103.3)	44–48 (46.5)

Among breeding birds from El Salvador I find considerable variation in the color of the upperparts, a couple of specimens being even paler than some *serripennis*.

A male from Lancetilla, Honduras, shot on February 8, agrees with *fulvipennis* in color, but its large size (wing, 121; tail 52.5) indicates that it is an intergrade with

the large form of the highlands. This bird is discussed by Peters (Bull. Mus. Comp. Zool., 69, 1929:457) and by Griscom (1929, *op. cit.*:71).

Material examined.—Fifty specimens from Veracruz (Jalapa, Jesús Carranza, and Minatitlán), Tabasco (Balancán, Emiliano Zapata, Tenosique, and Santo Tomás), Chiapas (Pijijiapan, Finca Esperanza, Chicomuselo, and Ixtapa), British Honduras (Cayo), Honduras (Lancetilla), and El Salvador (Volcán de San Miguel and Puerto del Triunfo).

***Stelgidopteryx ruficollis ridgwayi* Nelson**

Stelgidopteryx ridgwayi Nelson, Proc. Biol. Soc. Wash., 14 (September 25, 1901):174 (Chichén Itzá, Yucatan).

Characters.—Upperparts considerably darker than in *fulvipennis*, but anterior underparts much paler (paler even than in *serripennis*); throat pale gray, without rufous; anterior part of loreal region whitish, contrasting with the dark crown and even darker spot before the eye; pale edges of secondaries more in contrast with the darker portion of the wings; longer under tail coverts always extensively tipped with sooty brown; size somewhat greater.

Young similar to young *fulvipennis*, but upperparts usually darker, with paler (clay color instead of chestnut) edges to the secondaries; anterior underparts paler and less tinged with rufous; crissum usually tipped with dusky, though the spots are paler and less extensive than in adults.

Measurements.—Male (4 specimens): wing, 113-119 (115.3); tail, 52.5-57 (55.3). Female (4 specimens): wing, 104-107.5 (105.5); tail, 50-52.5 (51.3).

Range.—Resident in northern Yucatan.

Material examined.—Sixteen specimens from Chichén Itzá, Yucatan.

***Stelgidopteryx ruficollis stuarti*, subsp. nov.**

Type.—Univ. Mich. Mus. Zool., No. 98395; adult ♀; Finca Panzamalá, Alta Verapaz, Guatemala, altitude 1230 meters; March 31, 1938; L. C. Stuart.

Characters.—The darkest form of the genus, both above and below. Nearest to *ridgwayi*, with which it agrees in having large blackish tips to the longer under tail coverts, a pale area on the anterior part of the loreal region, and pale edgings to the secondaries. Differs by being much darker colored, especially on the underparts; throat tinged with rufous; size somewhat larger.

Differs from *S. r. decolor* Griscom and *S. r. uropygialis* (Lawrence), from Costa Rica southward, in its much darker upperparts with the rump concolor with the back, instead of being whitish; breast and sides somewhat darker; throat only tinged with rufous and dusky, instead of being plain rufous; middle of abdomen white instead of yellow; size larger.

Measurements.—Male (2 specimens): wing, 118-119.5 (118.8); tail, 55.5-56.5 (56). Female (2 specimens): wing, 108-111.5 (109.8); tail, 52-54.5 (53.3).

Range.—Caribbean face of the mountains in southern Veracruz (Motzorongo), and Tabasco (Teapa), Mexico, and in Alta Verapaz (Secanquim, Finca Sepacuité, Finca Panzamalá), Guatemala.

The range of this new form comprises the most humid section of Mexico and northern Central America, with five times as much precipitation as Yucatan. Griscom (1929, *op. cit.*:71) had only one bird from Yucatan, but he noted that it was paler than Guatemalan birds.

The type was shot from a colony breeding in a small cave. Anthony also found this swallow breeding in caves in Verapaz (see Griscom, Bull. Amer. Mus. Nat. Hist., 64, 1932:286).

I take pleasure in naming this swallow for Dr. Laurence C. Stuart, Research Associate in the Division of Herpetology of the University of Michigan Museum of Zoology, who made rather extensive bird collections in Verapaz.

Material examined.—Four specimens from Veracruz (Motzorongo), Tabasco (Teapa), and Alta Verapaz (Finca Panzamalá).

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