

TAXONOMIC NOTES ON THE LAUGHING FALCON

BY PIERCE BRODKORB¹

ON the basis of their large size and pale coloration, van Rossem (1938: 10) separated the laughing falcons of northwestern México as *Herpetotheres cachinnans excubitor*. The range of this form was stated to extend along the Pacific coast from Sonora to the Isthmus of Tehuantepec. Wetmore (1944: 36) united all Mexican and northern Central American examples under the name *Herpetotheres cachinnans chapmani* Bangs and Penard, on the grounds that the characters claimed for differentiation of a northwestern race were unstable. Farther south, Wetmore recognized *Herpetotheres cachinnans cachinnans* (Linnaeus), from Honduras to Perú and the Amazon Valley, and *Herpetotheres cachinnans queribundus* Bangs and Penard, from southern Brazil to Argentina. Recently van Rossem (1945: 61) reaffirmed the validity of *excubitor*.

Both van Rossem and Wetmore stated that there is no sexual difference in size, although neither author published measurements to substantiate this claim. My material confirms this conclusion. In a series from the District of Soconusco, Chiapas, the males have the wing 268–279 mm. in length, and the females, 268–276 mm. For birds from Paraguay the wing-measurements of the males are 276–292 mm.; of the females, 284–292 mm. Tail-length is not as reliable as wing-length, since the rectrices are often badly worn or abraded. Nevertheless there seems to be no sexual difference in tail-length. The tails of the Soconusco series measure 192–215 mm. in the males; 196–203 mm. in the females. For the Paraguayan birds the measurements are 213–221 mm. in the males; 214–230 mm. in the females. I have therefore combined the measurements of the sexes to allow the inclusion of non-sexed specimens.

As stated by others, this falcon undergoes a considerable amount of bleaching, so that it is necessary to make color comparisons between birds in the same stage of wear.

The present study was based on the examination of one juvenile and 71 adult specimens of the genus. I was particularly concerned with the status of the Mexican and Central American birds, and 55 of my specimens were from Middle America. During the course of the work it soon became evident that both size and color varied geographically, although as previously intimated the latter differences are often obscured by bleaching. When freshly molted feathers are compared, the geographic color differences are quite distinct.

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Along the Pacific coast of México, *Herpetotheres* is represented by large, pale birds. The wing-length is invariably 280 mm. or more in my sample. The large, pale race extends a little farther south along the coast than was originally thought for *excubitor*, since specimens from Tonalá and Pijijiapan, Chiapas, are similar to those from north-western México. *Excubitor* also extends through the arid interior highlands of Chiapas and Guatemala and has been traced south to the highlands of Honduras. As is the case with certain other Pacific coast forms, it also occurs in the Motagua Valley of Guatemala. Wetmore's specimen from Progreso, with a wing of 307 mm., is from the heart of the Motagua Valley.

In southern Veracruz the population is variable. Five of the seven specimens from that state are large, but the other two are as small as the peninsular race. In coloration, Veracruzian birds are a little darker on the average than those from northwestern México. It appears to have been largely on the basis of the variability of the Veracruz birds that Wetmore placed *excubitor* in synonymy. In analyzing the Veracruz data presented by Wetmore (1943: 242) I find that three of his five specimens were large and the other two were small. Wetmore's specimens were examined during the present study; the smallest is considerably worn.

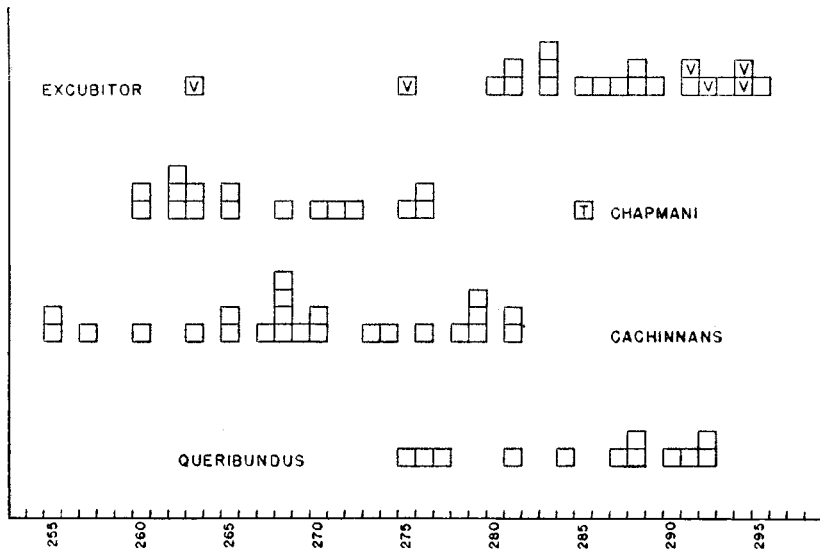
I believe that the instability of the characters of the Veracruzian population, as exemplified by these two specimens, is due to intergradation between *excubitor* and *chapmani*. If the subspecific characters of *Herpetotheres* are selected environmentally, it is not surprising to find a mixed population in an area of intermediate geographical position, especially where climatic factors are also intermediate. Since more than two-thirds of the Veracruz specimens fall in the larger size class, I intend to treat this intermediate population as atypical *excubitor*.

In the District of Soconusco, on the southeastern Pacific coastal plain of Chiapas, the population of laughing falcons consists of small and richly colored birds. In my series the maximum wing-length is 279 mm. I assume this race to be true *cachinnans*, although comparison with more adequate South American material might call for the separation of the Soconuscan birds. I have not seen enough specimens from northern South America to pass an opinion on the validity of *Herpetotheres cachinnans fulvescens* Chapman from Alto Bonito, western Colombia, nor on *Herpetotheres cachinnans maestus* Bangs and Noble from Bellavista, Perú. Wetmore placed both these names in the synonymy of *cachinnans*.

Herpetotheres cachinnans chapmani inhabits the Caribbean coastal

plain, from northern Chiapas south to Nicaragua. Here again the laughing falcons are small, but they differ from *cachinnans* in being paler colored, both on the dorsal surface and in the buffy coloration of the under parts. Except for one specimen from Tenosique, Tabasco, with a wing-measurement of 285 mm., the maximum wing-length in my series is 276 mm.

If 280 mm. is taken as the minimum wing-length for *excubitor*, on the one hand, and 279 mm. as the maximum for *cachinnans* and *chapmani* on the other, only five of my 55 Middle American specimens do not fall on the proper side of the line, even when Veracruz birds are in-



TEXT-FIGURE 1.—Wing-length (mm.) in the subspecies of *Herpetotheres cachinnans*. Each square represents one specimen. The letter V indicates a specimen from the state of Veracruz. The letter T indicates a specimen from Tenosique, Tabasco, discussed in the text.

cluded under *excubitor*. In view of these facts I believe that the action in synonymizing *excubitor* was unjustified. My data indicate that it is more strongly differentiated than *queribundus* (Text-figure 1).

The four races of the laughing falcon which I recognize currently are outlined below.

1. *Herpetotheres cachinnans excubitor* van Rossem. Type locality, Volcán de Colima, Jalisco. Size large (wing, 280–294 mm.; tail, 214–240); coloration of dorsal and ventral surfaces pale. Pacific coast of México, from Guirocoba, Sonora, south to Pijijiapan, Chiapas; crossing over the Isthmus of Tehuantepec to Veracruz and perhaps (sight

record) to southern Tamaulipas; south in the interior highlands through Chiapas (Chicomuselo) and Guatemala, including the Motagua Valley (Progreso and Quiriguá) to central Honduras (Escuela Agrícola Panamericana and Subirana).

MEASUREMENTS.—Wing: 280, 281, 281, 283, 283, 285, 286, 287, 288, 288, 289, 291, 293, 295; average of fourteen, 285.7 mm.

Tail: 206 (worn), 211 (worn), 214, 215, 219, 221, 222, 222, 225, 225, 226, 240; average of twelve, 220.5 mm.; average of ten, 222.9 mm.

Intergrades from Veracruz, wing: 263 (worn), 275, 283, 291, 292, 294, 294; average of seven, 284.7 mm.; average of six, 288.2 mm.

Intergrades from Veracruz, tail: 195 (worn), 215, 216, 219, 220, 232, 233; average of seven, 218.7 mm.; average of six, 222.5 mm.

2. *Herpetotheres cachinnans chapmani* Bangs and Penard. Type locality, Santa Lucía, Quintana Roo. Size small (wing, 260–276 mm.; tail, 193–212); coloration pale. Caribbean lowlands of Central America, from Aguacate, northern Chiapas, through the Yucatán peninsula, and south to the Río Escondido, Nicaragua.

MEASUREMENTS.—Wing: 260, 260, 262, 262, 262, 263, 263, 265, 265, 268, 270, 271, 272, 275, 276, 276, 285 (Tenosique); average of seventeen, 267.7 mm.; average of sixteen, 266.6 mm.

Tail: 190, 193, 198, 202, 204, 204, 206, 210, 211, 212, 212, 215, 218, 224, 227 (Tenosique); average of fifteen, 207.7 mm.; average of fourteen, 206.1 mm.

3. *Herpetotheres cachinnans cachinnans* (Linnaeus). Type locality, Surinam. Size small (wing, 255–281 mm.; tail, 190–216 mm.); coloration of dorsal surface more blackish brown, of ventral surface richer buffy. Both coasts of Central America, north on the Caribbean side to Costa Rica, on the Pacific side to Esperanza, Chiapas, and south in South America to northwestern Perú and the Amazon Valley.

MEASUREMENTS.—Soconusco, Chiapas, wing: 255 (molting), 257 (worn), 268, 268, 269, 270, 273, 274, 276, 279, 279; average of eleven, 269.8 mm.; average of nine, 272.9 mm.

Soconusco, tail: 189 (worn), 192, 196, 198, 199, 201, 203, 206, 212, 215, 215; average of eleven, 202.4 mm.; average of ten, 203.7 mm.

Costa Rica and Panamá, wing: 255, 260, 265, 268, 268, 270, 279, 281, 281; average of nine, 269.7 mm.

Costa Rica and Panamá, tail: 190, 201, 202, 209, 210, 214, 214, 216; average of eight, 207.0 mm.

Colombia, British Guiana, and northern Brazil, wing: 263, 265, 267, 278; average of four, 268.3 mm.

Colombia, British Guiana, and northern Brazil, tail: 197, 198, 201, 206; average of four, 200.5 mm.

4. *Herpetotheres cachinnans queribundus* Bangs and Penard. Type locality, Pernambuco, Brazil. Size large (wing, 276–292 mm.; tail, 213–230); coloration pale, apparently even paler than in *excubitor*. Southern South America, east of the Andes, from southern Brazil to northern Argentina.

MEASUREMENTS.—Wing: 275 (worn), 276, 277, 281, 284, 287, 288, 288, 290, 291, 292, 292; average of twelve, 285.1 mm.; average of eleven, 286.0 mm.

Tail: 198 (worn), 201 (worn), 204 (worn), 207 (worn), 210 (worn), 213, 214, 214, 215, 216, 221, 230; average of twelve, 211.7 mm.; average of seven, 217.1 mm.

The geographic differences shown by *Herpetotheres* are correlated with climatic conditions. The larger races inhabit, in general, areas of lower temperatures than the smaller races. The paler races are restricted to the more arid parts of the range. The similarity between the forms at the geographic extremes of the genus, *excubitor* and *queribundus*, is in contradiction to Jordan's Law.

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TWO NEW PERUVIAN HUMMINGBIRDS OF THE GENUS *COELIGENA*

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RECENTLY, in looking over certain Peruvian hummingbirds, I discovered that there was a notable distinction between examples of *Coeligena torquata insectivora* of central Perú and specimens from the northern part of that country heretofore referred to the same subspecies. The distinction is so marked that specific separation at first seemed possible, although fuller study dispelled this supposition. The new form may be known as follows.