

THE NORTHERN CARDINALS OF THE CARIBBEAN SLOPE OF MEXICO, WITH THE DESCRIPTION OF AN ADDITIONAL SUBSPECIES FROM YUCATAN

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ABSTRACT.—Six subspecies of the Northern Cardinal (*Cardinalis cardinalis*) are currently recognized as inhabiting the Caribbean slope of Mexico from Texas to Isla Cozumel. The characters and distributions of these races are reviewed and corrected. An additional subspecies, best characterized by the pallor of females, is described from the coastal scrub of the northern edge of the Yucatán Peninsula.

INTRODUCTION

The Northern Cardinal (*Cardinalis cardinalis*) is a polytypic species of North America, occurring from southeastern Canada south to Baja California and Petén. Seventeen subspecies were recognized by Paynter (1970). Of these, six were attributed to the Caribbean slope of Mexico. From north to south and ignoring inland distributions north of the Yucatán Peninsula, these were *canicaudus* Chapman (Texas to Tamaulipas), *coccineus* Ridgway (Veracruz except extreme south), *littoralis* Nelson (southern Veracruz and Tabasco), *yucatanicus* Ridgway (Yucatán Peninsula in Yucatán, Campeche, and northern Quintana Roo), *flammiger* Peters (central and southern Quintana Roo, northeastern Belize, and Petén, northern Guatemala), and *saturatus* Ridgway (Isla Cozumel, Quintana Roo).

In connection with the name *flammiger* Peters (1913), it should be pointed out that this word, meaning “flame-bearer,” is a legitimate noun in apposition with the generic name; no additional suffix is needed. Paynter (1970) added “(sic)” after citing Peters’ name, thereby indicating his (erroneous) belief that Peters’ spelling was incorrect. He then unnecessarily emended the name to “*flammigerus*.”

This paper reexamines the characters of these subspecies and describes as a new subspecies a distinctive but geographically restricted population in Yucatán.

Geographic variation in female Northern Cardinals is much more striking than in males. Ridgway (1901:632) recognized twelve subspecies of *Cardinalis cardinalis* (he considered the west Mexican *carneus* a full species), which he divided into three types based on the color of the “capistrum” in females; this word is in neither the Shorter Oxford nor the unabridged Random House dictionary, but Jaeger (1959) defines it as “a halter, band, muzzle, mask.” Field guides simply call it “face,” which is a conveniently short word. In the first of Ridgway’s groups, the face of females is grayish — this group included the familiar nominate race. In the second group the face is black — this group included the four subspecies Ridgway recognized on the Caribbean slope of Mexico. The third group, with the face whitish, included those of the southwestern U.S. and northwestern Mexico, Baja California, and the Tres Marias islands. Ridgway stated that “it may seem expedient to some to consider [the three groups] as specifically distinct”; he based this opinion on the lack of any evidence of intergradation in the material available to him.

CARDINALIS CARDINALIS CANICAUDUS AND C. C. COCCINEUS

According to Miller (1957:329), *C. c. canicaudus*, a gray-faced subspecies, intergrades with *C. c. coccineus*, a black-faced subspecies, at Altamira, southeastermost Tamaulipas, but this statement is not documented. It was probably based on the statement of J.C. Phillips (1911), who identified five specimens from Altamira as *canicaudus*, and

stated specifically that the one female had the "pale, grayish capistrum" of that subspecies. Further, "the males approach *coccineus* somewhat in the color of the back, the gray edging to the feathers being more reduced than in northern specimens, but otherwise, in their small bills and the color of the underparts, they are similar to skins from Matamoros and other northern points in Tamaulipas." It seems apparent that the Altamira population shows very little intergradation with *coccineus*.

That *canicaudus* and *coccineus* do, in fact, intergrade is demonstrated by a series in the Delaware Museum of Natural History (formerly in the A. R. Phillips collection). There are three males and four females, collected at Moctezuma (21°45'N, 97°35'W), near the north end of Laguna de Tamiahua, on the northernmost coast of Veracruz. This locality is about 75 km S of Altamira. The males, unlike those described by Phillips (1911), are clearly intermediate in back color, underparts color, and bill size, varying somewhat *inter se*. In DEL 30422 the gray edgings of the mantle feathers are less conspicuous than in the other two, and it has no trace of gray edgings on the upper tail coverts. None show the narrow gray rectrix edgings typical of *canicaudus*, but in DEL 30422 and 30423 the rectrices are darker than in *coccineus*. The bill of DEL 30421 approaches the small size of *canicaudus*, whereas those of 30422 and 30423 approach the massive bills of *coccineus*.

The intermediacy in the females is even more dramatic, as *canicaudus* and *coccineus* represent the grayish-faced and black-faced groups of Ridgway (1901) respectively. The face of DEL 26904, collected 5 December 1967, is as black as that of any *coccineus*. The face color of DEL 26906, collected the same day, is a good match for that of CM 15746, a 7 December specimen of *canicaudus* from Cameron County, Texas. DEL 26905 and 39284 are intermediate. The breast and flanks of *canicaudus* females are very pale and cold, nearest Clay Color, 123B of Smithe (1981), but paler and grayer. The same areas in *coccineus* are a deep, warm buff, richer and redder than Smithe's Cinnamon, 123A. This color is approached by DEL 26905, which is *not* the specimen with the most *coccineus*-like (blackest) face. The other three are variously intermediate, with DEL 26906 the palest, but not close to the cool color of *canicaudus*.

The above comparisons with *canicaudus* were made with a series from Cameron County, Texas, approximately 215 km south of the type locality ("thirty miles west of Corpus Christi, Texas"). There is distinct variation in *C. cardinalis* within the range currently attributed to *canicaudus*; those of the Big Bend region of Texas, as already suggested by Van Tyne and Sutton (1937) are clearly different from true *canicaudus* of southeastern Texas. Whether these represent an undescribed subspecies or a peripheral population of another subspecies is beyond the scope of the present paper.

CARDINALIS CARDINALIS LITTORALIS

The next currently recognized subspecies to the south of *coccineus* is *littoralis* Nelson (1897), described from a pair from Minatitlan and three males (including the holotype) from nearby Coatzacoalcos, Veracruz. Nelson gave the range of *littoralis* as "The moist, hot, coast lowlands of Vera Cruz [*sic*], near Coatzacoalcos and Minatitlan, and undoubtedly ranging into the adjacent parts of Tabasco." Furthermore, Nelson claimed that specimens from Catemaco and Otatitlan, Veracruz, and Tuxtepec, eastern Oaxaca (about 15 km from Otatitlan) showed intergradation between *littoralis* and *coccineus*. The Catemaco area is especially well represented in the material assembled for this study.

I have examined one male paratype (USNM 144303) and two additional USNM males from Coatzacoalcos. These differ from any other cardinals examined. The underparts were described by Nelson as "rich poppy red with a wash of carmine." This descrip-

tion was published before the appearance of Ridgway's "Color standards and color nomenclature" (1912), which incidentally lists no "Poppy Red." Ridgway's earlier book (1886), however, did include "Poppy Red" (Plate VII, no. 9). This color, to my eye, is too orange to be a match for the underparts of *littoralis*. None of the Smithe colors is a good match for the underparts of *littoralis*; the closest match I have found is a somewhat worn chip of "Scarlet-Red" in Ridgway (1912, plate 1). The backs of the three Coatzacoalcos males are of a more purplish red than those of any other males examined in this study, approaching (but brighter than) the Crimson of Smithe (1981).

Although Minatitlan was included in the range of *littoralis* by Nelson, the describer, the one male I have seen (UMMZ 100320) appears to be an intergrade with *coccineus*; Brodkorb (1943) listed this specimen as *littoralis* without comment, probably on the basis of locality rather than comparison with specimens from Coatzacoalcos. Nelson claimed that specimens from Catemaco showed intergradation between *coccineus* and *littoralis*. I have not seen the specimens to which he refers, but six males from the DEL and CM collections show no intergradation in either dorsal or ventral coloration.

I have seen no female from the type locality of *littoralis*. A single female from Minatitlan (USNM 144304) is inseparable in color from *coccineus*, which agrees with the statement by Ridgway (1901:642) about female *littoralis*.

Nelson (1897), also quoted by Ridgway (1901), stated that *littoralis* "undoubtedly [ranges] into the adjacent parts of Tabasco." Unfortunately the only Tabasco specimens I have seen are from Balancan, in easternmost Tabasco. These specimens were stated by Brodkorb (1943) to "form a considerable eastward extension of the known range of this cardinal" (= *littoralis*). This is not true. These specimens are inseparable in either color or size from *yucatanicus*. This represents a southwestward extension of the published range of *yucatanicus* of only about 70 km, as it had been collected at Pacaitun, Campeche (Traylor 1941; Paynter 1955).

Two males from Acayucan (UMMZ 139556 and 139557; misspelled "Acyucan" on the labels), a locality 63 km WSW of Coatzacoalcos (and thus farther inland), are inseparable from *coccineus*, although they had been labelled "*littoralis*."

There is no doubt about the distinctness of the Coatzacoalcos males. It is difficult to believe that a non-insular subspecies of Northern Cardinal should have such a tiny range, once the specimens wrongly attributed to *littoralis* have been accounted for. It is obvious that the status of this form will not be clarified until a substantial amount of additional collecting has taken place in easternmost Veracruz and in Tabasco.

CARDINALIS CARDINALIS YUCATANICUS AND C. C. FLAMMIGER

Two subspecies are presently attributed to the mainland of the Yucatán Peninsula; *yucatanicus* Ridgway (type locality Mérida, Yucatán) and *flammiger* Peters (type locality Xcopen, [southernmost] Quintana Roo). My measurements indicate that Paynter (1955) was correct in stating that the size differences between these two races claimed by Peters (1913) were not valid. In males of *flammiger* the underparts and the edges of wing coverts and primaries are noticeably brighter than in *yucatanicus*. Dorsally male *flammiger* have a purplish tinge, reminiscent of but darker than the back color of Coatzacoalcos *littoralis*. Although Paynter (1955) mentioned no differences between *yucatanicus* and *flammiger* in females, such differences are more striking than those of males (Fig. 1). Although the general ground color of the anterior underparts overlaps substantially (with *flammiger* averaging more intensely pigmented), *yucatanicus* averages whiter on the lower abdomen. The chief difference in the underparts color involves the amount of red wash over the brown ground color. In *flammiger* the underparts from just adjacent to the black

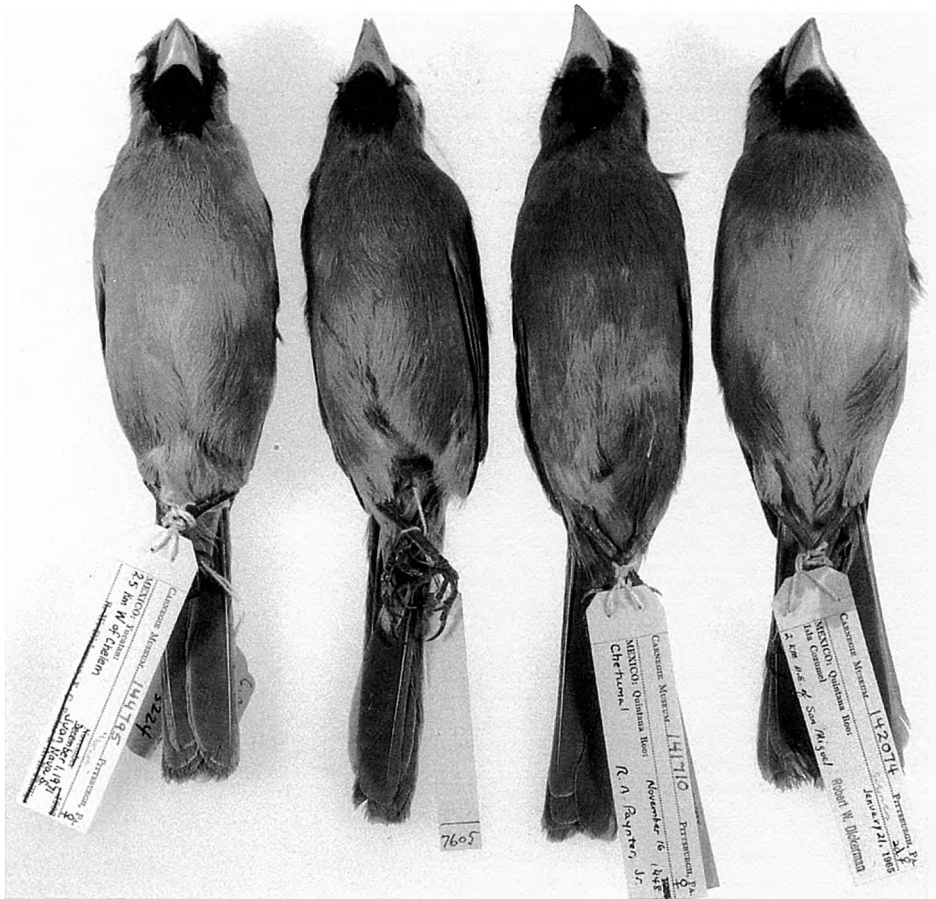


FIG. 1. Females of the 4 subspecies of *Cardinalis cardinalis* in the Yucatán area, ventral aspect. L to R, *philipsi* CM 144795, 2.5 km W Chelem, Yucatán; *yucatanicus* USNM 167789, Chichén Itzá, Yucatán; *flammiger* CM 141710, Chetumal, Quintana Roo; *saturatus* CM 142074, 2 km NE San Miguel, Isla Cozumel, Quintana Roo.

throat at least to the breast are heavily washed with red. In all specimens of this subspecies, there is at least a touch of red on the cheeks. In extreme specimens the red extends from the crest through the superciliary region to the cheeks, then connecting with the red of the breast. In *yucatanicus* this red, if present, is confined to a small area just below the black throat; in about a third of the specimens there is no red at all. In about a fourth of the specimens there is a trace of red on the cheeks. The upperparts of both subspecies are quite variable in color, and the true color in many worn individuals is impossible to determine. The edgings of the remiges are distinctly brighter red in *flammiger*, and the rectrices of unworn *yucatanicus* are more broadly edged and often tipped with gray.

A NEW SUBSPECIES OF *CARDINALIS CARDINALIS*

The low scrub zone along the northern coast of Yucatán is a highly distinctive habitat (Paynter 1955, plate 1, fig. 1; Parkes 1974). The peninsular populations of several species (*Zenaida aurita*, *Doricha eliza*, *Poliophtila albiloris*) are almost completely con-

fined to this zone. One species, *Campylorhynchus yucatanicus*, is endemic to this zone, and endemic races of two peninsula-wide species (*Colinus nigrogularis persiccus* Van Tyne and Trautman, *Arremonops rufivirgatus rhyptothorax* Parkes) have been described from the coastal scrub zone. Both of these subspecies are distinctly paler than the populations from farther south on the peninsula.

Paynter (1955) stated that the Northern Cardinal "is ubiquitous in the sisal and cactus zone on the barrier bar of northern Yucatán." However, he overlooked the fact that the cardinals of this zone represent a highly distinctive race, which, like the *Colinus* and the *Arremonops*, is much paler (in females) than the populations farther south. It is highly appropriate that this be named:

Cardinalis cardinalis phillipsi, new subspecies

HOLOTYPE.—Delaware Museum of Natural History No. 18205, adult female, collected 20 November 1965, 4 km E of Chicxulub Puerto, Yucatán, Mexico, by Allan R. Phillips, prepared by Juan Nava S. (original number ARP 8861). Wt. 37.5 g, little fat, prebasic molt nearly completed.

DIAGNOSIS (females).—The palest subspecies of the black-faced group of *Cardinalis cardinalis* (Fig. 1). Compared with *yucatanicus*, *phillipsi* has much more white or near-white in the abdominal region. The breast color is difficult to match in any color guide, but is approximately between Clay Color and Cinnamon-Buff of Ridgway (1912, plate 29). In *yucatanicus* this area is variable, but always more intense than in *phillipsi*, redder and usually darker than the Cinnamon (123A) of Smithe (1981). There is a faint hint of red below the black throat in 5 of 13 specimens of *phillipsi*. The cheeks and adjacent areas of *yucatanicus* are a rich, warm, often reddish buff, whereas those of *phillipsi* are a colder, more greenish buff. The crest of *phillipsi* is of a more orange red than that of *yucatanicus*. The rectrices in fresh-plumaged individuals have more gray on the margins, and in first-year birds the central rectrices may be entirely gray. The edgings of remiges are less intensely red; the greater wing coverts are gray with little or no red (red, usually edged with gray, in *yucatanicus*).

DIAGNOSIS (males).—Less conspicuously different from *yucatanicus* than females, but separable on several characters. Underparts paler red, back averaging grayer. Edgings of remiges distinctly paler and more orange red. Tertiaries dark brownish gray, with little or (usually) no red wash; in *yucatanicus* the tertiaries are dark gray heavily washed with dark red.

RANGE.—Confined to the scrub of the coastal strip of Yucatán, where abundant. The characters are best developed in cardinals of that part of the coast that is a barrier island. As is true of *Arremonops rufivirgatus* (Parkes 1974), intergradation is evident only a few kilometers south of the coast. A series of 7 females collected in 1940, 5 km S of the port city of Progreso, (UMMZ), includes 3 specimens that are close to "good" *phillipsi*; 2 that are slightly darker on the breast but have the whitish abdomens of *phillipsi*; and 2 that are distinctly darker, both dorsally and ventrally, and approach *yucatanicus* closely. Oddly, 5 of this series show more red on the upper breast than any *phillipsi* and more than in many *yucatanicus*. One specimen, UMMZ 108462, is as saturated with red both ventrally and dorsally as are extreme specimens of *flammiger*, although the ground color under the red is paler than in *flammiger*. It must be regarded as an aberrant individual. The males of this 1940 UMMZ series are also variably intermediate between *phillipsi* and *yucatanicus*. A single female (CM 144806) from somewhat farther south, 7 km E of the Progreso-Mérida highway on the road to the ruins at Dzibilchaltún (which begins about 10 km S of Progreso), is very close to *phillipsi* but a bit darker on the back. A single male from Isla

Holbox, Quintana Roo, off the northeasternmost corner of the peninsula (YPM 14161), appears to match *phillipsi*; a second specimen (YPM 14160) is apparently aberrant. It bears the female symbol in Paynter's hand, but this is accompanied by what appears to be a drawing of two small testes plus the word "small." If it was indeed a female, it is the darkest, most heavily saturated and reddish female specimen I have seen from anywhere. More material from this locality, especially of females, would obviously be desirable.

ETYMOLOGY.—It is particularly appropriate that this new subspecies be named for my friend and colleague of nearly fifty years, because we collected specimens (including the holotype) and recognized their distinctiveness when we were in the field together in Yucatán. Writing a formal description of this pale cardinal was one of several joint projects that we somehow never seemed to have the time to get at, and I only regret that Allan could not have been the coauthor as we had originally intended.

CARDINALIS CARDINALIS SATURATUS

The one Caribbean slope Northern Cardinal remaining to be discussed is the endemic subspecies of Isla Cozumel, Quintana Roo, *Cardinalis cardinalis saturatus*. When Ridgway (1885) described *saturatus* (as a new species), he compared it with "*coccineus*," which at that time was considered to extend into Yucatán. He described *yucatanicus* as a new subspecies of *Cardinalis cardinalis* only two years later (Ridgway 1887), and also changed the status of *saturatus* from species to subspecies. In his key, *yucatanicus* and *saturatus* collectively were separated from *coccineus* only by the larger size of the latter, although the difference between the measurements he gave for *coccineus* and *saturatus* are not impressive (wing of male *saturatus* 3.55 in., minimum for *coccineus* 3.60 in.—*yucatanicus* is indeed a smaller race, with male wing given as 3.30-3.40 in.). Color differences were given for males as "brighter colored" for *yucatanicus* and "darker colored" for *saturatus*. For females, *yucatanicus* was said to have "breast, etc., bright ochraceous-tawny, back tawny olive, the capistrum deep black," versus "breast, etc., dull tawny, back deep broccoli-brown, the capistrum brownish slate" for *saturatus*. By 1901, however, Ridgway had changed his mind about the distinctiveness of females, probably through having had access to a larger sample (9 of *yucatanicus*, 6 of *saturatus*). Of *saturatus*, Ridgway now (1901) wrote "adult female scarcely different in color from than of *C. c. yucatanicus*, but averaging rather duller." Size characters were given for *saturatus* as "wing averaging longer, bill stouter, and feet larger."

An exceptional series of 14 males and 19 females (not counting juveniles) from Isla Cozumel was available for this study. All of the characters given by Ridgway for distinguishing male *saturatus* from *yucatanicus* are obvious at a glance, including the richer color, larger feet, and more massive bill. As for females, was Ridgway more nearly correct in 1887 or in 1901 when he wrote that females were "scarcely different" in color. Comparing females of the two races, it becomes obvious that Ridgway's character of deep black "capistrum" in *yucatanicus* versus brownish slate for *saturatus* is invalid; a paler face patch is a character of first-year birds of both subspecies. There are, however, some excellent color characters for adults. The majority of adult *yucatanicus* have a variable amount of red wash on the breast, often conspicuous, whereas only four specimens of *saturatus* showed any red feathers at all. In many *yucatanicus* the ear coverts are also washed with red (a faint trace in only two *saturatus*), and the red of the crest extends anteriorly onto the forehead. In *saturatus* the red on the crown is confined to the elongated crest feathers.

Dorsally *saturatus* is distinctly darker and duller, more intensely pigmented than *yucatanicus*. In the latter the rump and upper tail coverts are slightly but perceptibly brighter than the rest of the upperparts, but in *saturatus* the upperparts are more uniform. In *saturatus* the color of the upper breast contrasts rather sharply with the paler posterior underparts; in *yucatanicus* the transition is more blended.

It therefore appears that *contra* Ridgway (1901), there are valid color differences between the females (as well as the males) of *saturatus* and *yucatanicus*. On the other hand, I know of no published comparisons between *saturatus* and *flammiger*; it must be remembered that the *yucatanicus* of Ridgway was a composite, including populations later described as *flammiger* and *phillipsi*. I find males of *saturatus* and *flammiger* to be barely separable. There is a slight average difference in dorsal color, with *saturatus* being darker and more uniform, whereas in *flammiger* there is a tendency for the rump and upper tail coverts to be brighter than the back; there is overlap through individual variation in both of these color characters. Males of *saturatus* average somewhat longer-winged than those of *flammiger*, but overlap is extensive: 14 *saturatus* 86-92.5 mm (flattened), mean 89.7, SD 2.471; 11 *flammiger* 84-90 mm, mean 86.9, SD 1.911. There is no significant difference in either bill length or depth. Without actually taking measurements, it was obvious that the supposedly diagnostic (compared with *yucatanicus*) large feet of *saturatus* are matched in many *flammiger*. If we were to rely only on males, a good case could be made for considering *flammiger* a synonym of *saturatus*. However, the differences between females of *saturatus* and those of *flammiger* are like the differences between the former and *yucatanicus*, but in an exaggerated condition because of the increase in the amount and intensity of red in *flammiger*.

Wing measurements of females were remarkably consistent within subspecies, and as in males, *saturatus* was larger, but overlap was less than in males: 14 *saturatus* 84-88 mm, mean 86.5, SD 1.248; 7 *flammiger* (several specimens were too worn to measure) 81-85, mean 82.3, SD 1.286.

DISCUSSION

To recapitulate the principal findings of this paper: Ridgway divided *Cardinalis cardinalis* into three groups based on the color of the "capistrum," i.e., face patch of females, whether black, gray, or whitish. He suggested that these three groups might be conveniently considered as three species, as he knew of no intergradation where members of any two groups met. *C. c. canicaudus* (gray throat) has been said to intergrade with black-throated *C. c. coccineus* at Altamira, Tamaulipas. Specimens from that locality are nearest *canicaudus* and show a minimum of introgression. However, a series from Laguna de Tamiahua, northernmost Veracruz, clearly demonstrates intergradation. The currently published range of *canicaudus* in the United States is too large; specimens from Brewster County, west Texas, clearly differ from specimens from southeastern Texas, whence *canicaudus* was described.

The subspecies *littoralis* Nelson is problematical. Male specimens from the type locality, Coatzacoalcos, Veracruz, match the original description very well (I saw no females), but no other specimens, including one from a locality (Minatitlan) ascribed to *littoralis* by the original describer, match those from Coatzacoalcos. No support from specimens examined was found for alleged areas of intergradation between *littoralis* and *coccineus*. Some specimens examined that were labeled *littoralis* are clearly *coccineus*. The range of *littoralis* was postulated by its describer as extending eastward into Tabasco; no specimens from western Tabasco were available, and those from eastern Tabasco, even though published as *littoralis*, are *yucatanicus*. Clearly it would be desirable to collect

fresh specimens of Northern Cardinals along a transect from southern Veracruz through Tabasco.

The two mainland subspecies of the Yucatán Peninsula are valid, with their respective ranges essentially as given by Paynter (1955), except that they are more distinctive than allowed by Paynter. The correct name for the southeastern subspecies is *flammiger*, not "*flammigerus*." The population of the northern coastal scrub of Yucatán, included within *yucatanicus* in the current literature, is a distinctively pallid subspecies here described as *C. c. phillipsi*. Its range is quite narrow.

The subspecies of Isla Cozumel, Quintana Roo, always previously compared with *yucatanicus*, is in males barely separable from *flammiger*, but females are distinctive.

ACKNOWLEDGMENTS

The specimens in the Carnegie Museum of Natural History (CM) collection were supplemented by specimens kindly loaned by curators of the following institutions: Cornell University (CU), Delaware Museum of Natural History (DEL), National Museum of Natural History (USNM), University of Michigan Museum of Zoology (UMMZ), and Yale University Peabody Museum (YPM). In addition, specimens were examined and measured at the American Museum of Natural History. I am indebted to my field companions in Mexico, Robert W. Dickerman, Juan Nava S., the late Santos Farfán B., and especially, of course, to Allan R. Phillips, whose knowledge of the geographic variation and distribution of Mexican birds was an inspiration to those of us (somewhat) younger workers in the same field.

SPECIMENS EXAMINED (JUVENILES OMITTED)

C. c. canicaudus

TEXAS: Cameron Co., 17; Refugio Co., 1.

TAMAULIPAS: Victoria & vicinity, 2. NUEVO LEON: vicinity of Linares, 1.

C. c. subspecies? [not *canicaudus* as labelled]

TEXAS: Brewster Co., 7.

C. c. canicaudus x *coccineus*

VERACRUZ: N. end Laguna de Tamiahua, 7.

C. c. coccineus

VERACRUZ: Boca del Río, 2; vicinity of Tlacotalpan, 3; Catemaco & vicinity, 13; Sontecomapan, 4; Acayucan, 2.

C. c. coccineus x *littoralis*?

VERACRUZ: Minatitlan, 2.

C. c. littoralis

VERACRUZ: Coatzacoalcos, 3.

C. c. yucatanicus

TABASCO: Balancan, 3. CAMPECHE: Sabancuy, 2; Champoton, 1.

YUCATAN: Uxmal, 1; Uman, 1; Mérida, 1; Chichén Itzá, 13; 30 km N Tizimín, 1.

QUINTANA ROO: La Vega [=Puerto Juárez], 2.

C. c. flammiger

QUINTANA ROO: Esmeralda, 1 [some maps show this locality just over the state line into Yucatán]; Vigía Chica, 1; Tabi, 3; Felipe Carillo Puerto, 6; Chacabacab, 1; Chetumal and vicinity, 13.

BELIZE: Manatee Lagoon, 2; Progreso, Corozal Distr., 1.

C. c. phillipsi

YUCATAN: Sisal, 8; vicinity of Chelem, 2; Progreso & vicinity (but not south), 7; Chicxulub Puerto (3-20 km E), 10; Santa Rosa, 1.

C. c. subspecies (phillipsi?)

QUINTANA ROO: Isla Holbox, 2.

C. c. phillipsi X yucatanicus

YUCATAN: 5-10 km S Progreso, 16.

C. c. saturatus

QUINTANA ROO: Isla Cozumel (various localities), 34.

In addition, the following specimens were examined at the American Museum of Natural History, but not taken to Pittsburgh for direct comparison with the principal series:

C. c. coccineus: VERACRUZ: Tlacotalpan, 8; Jalapa, 1; unspecified, 1.

C. c. yucatanicus: YUCATAN: Chichén Itzá, 4; "El Campo," 3; Temax, 2; Mérida, 1; unspecified, 6.

C. c. flammiger: QUINTANA ROO: Vigia Chica, 1; BELIZE: 1.

C. c. saturatus: QUINTANA ROO: Isla Cozumel, 6.

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