



OCCASIONAL PAPERS OF THE MUSEUM OF
ZOOLOGY

LOUISIANA STATE UNIVERSITY

BATON ROUGE, LOUISIANA

NOTES ON THE AVIAN GENUS *ARREMONOPS* WITH
DESCRIPTION OF A NEW SUBSPECIES FROM HONDURAS

By BURT L. MONROE, JR.

THE genus *Arremonops* has been a taxonomic problem for years. Since a revision of the genus by Todd (1923), in which he recognized seven species, the number has been reduced to as few as two on the basis of present-day broad species concepts. Problems concerning specific limits in this genus arise primarily because of the existence of geographically isolated populations that are regarded as conspecific by some taxonomists and specifically distinct by others.

The most ardent lumpers recognize at least two main groups in the genus, hereafter referred to in this paper as the "*conirostris-chloronota* complex" and the "*rufivirgata-superciliosa* complex." North of Panama, the *conirostris-chloronota* complex consists of the forms *chloronota*, *centrata*, and *richmondi*, while the *rufivirgata-superciliosa* complex consists of the forms *rufivirgata*, *ridgwayi*, *crassirostris*, *verticalis*, *chiapensis*, *sinaloae*, *sumichrasti*, and *superciliosa*. The present study deals almost exclusively with the above-listed forms; however, material representing all known South America races was examined and will be mentioned later in this paper.

In the *rufivirgata-superciliosa* complex, only a single form (*tocuyensis*) exists in South America. It is of no major concern in the current study. In the *conirostris-chloronota* complex, however, there are two distinct groups of South American forms, namely, the *conirostris* group and the *striaticeps* group. To the latter belong the Middle American forms *centrata* and *rich-*

mondi; thus the use of the specific name *conirostris* in lieu of *striaticiceps* depends upon whether the two groups are considered conspecific. Currently they are so regarded by most authors. I have examined adults and juvenals of all South American races and agree that all are conspecific. The Central American form *chloronota* is specifically distinct from *conirostris*, as will be demonstrated in this paper. The characters by which *chloronota* is distinguished from *A. conirostris richmondi*, including size and juvenal plumage, hold throughout the South American groups, with the exception of bill color; the South American race *inexpectata* possesses a solid black bill, unique among the *chloronota-conirostris* complex, but in the other characters corresponds well to the group.

The discovery of a new *Arremonops* in north-central Honduras indicates sympatry between *chloronota* (of which the new form is a subspecies) and *conirostris*. The two have not been taken at precisely the same locality, but one has been collected only five miles from where the other is known to occur. Moreover, the nominate race of *chloronota* has been taken only twenty air miles from *A. conirostris* and in the same sort of habitat. With the specific status of *chloronota* thus so strongly indicated, I examined a series of 301 specimens of Middle American forms of the complex and reviewed ethological studies of *chloronota* and *conirostris* (primarily the work of Skutch, 1954). The differences between the two species are discussed in this paper.

In connection with the study of the *conirostris-chloronota* complex, I examined 192 specimens representing all Middle American forms of the *rufivirgata-superciliosa* complex. Although the present work deals primarily with the *conirostris-chloronota* complex, pertinent information concerning the *rufivirgata-superciliosa* complex is also presented.

One further point should be mentioned at this time. The gender of the generic name *Arremonops* is feminine and not masculine, as it is often treated. The root *-ops* may be derived from any one of four Greek words, some feminine and some masculine. However, Ridgway (1896: 605) in the original description says: "The name chosen for the new genus is selected on account of the very close affinity of the birds in question to those of the genus *Arremon* . . ." The only one of the four Greek words that falls within the meaning implied above is *opsis*, translated as "appearance" or "aspect." The word *opsis* is feminine; furthermore Ridgway treated *Arremonops* as feminine in his original description as indicated by the feminine endings to the adjectival specific names.

COMPARISON OF *A. CHLORONOTA* AND *A. CONIROSTRIS*

As mentioned earlier the discovery of a new race of *A. chloronota* within the range of *A. conirostris* demonstrates the specific status of *chloronota*. Since the revision of the genus *Arremonops* by Todd (1923), the form *chloronota* has generally been regarded as a race of *conirostris*. This relationship has been based primarily on the statement of Todd (1923: 41) that *chloronota* ". . . is in fact merely a smaller and little darker edition of *A. striaticeps richmondi*, and might indeed be considered as conspecific with that bird. The bill is relatively as well as absolutely shorter than in *richmondi*, however, and the black stripes on the pileum are narrower, and in some specimens indistinctly streaked with brownish . . ." Despite his reference above, Todd retained *chloronota* as a species.

The first author to consider *chloronota* and *conirostris* conspecific was Austin (1929: 390) who, in commenting on a specimen from El Cayo, British Honduras, stated: "This specimen is slightly larger than five other individuals of *chloronotus* from Quintana Roo and Guatemala, and the black crown stripes show no brown tinge whatsoever . . ." On this basis, he considered the British Honduras specimen as establishing intergradation with *A. conirostris centrata* (= *A. c. richmondi*) of Honduras. Actually, the differences exhibited by this specimen are of an individual nature and do not indicate any approach to true *conirostris*.

The most significant difference between the two species is the presence of a distinct juvenal plumage in *A. conirostris*, unlike that of any other *Arremonops*, as far as I am aware. This plumage has been described by Skutch (1954: 115); basically it differs from the adult plumage in the presence of a yellow (usually bright yellow on the throat) or yellowish-green suffusion over the entire under parts (in contrast to the gray of the adult), in the presence of well-defined, dark brown streaking on the breast, in the lack of gray on the head (accompanied by lack of definition of the crown stripes), and in the presence, usually, of some dark streaking on the upper parts in general. This juvenal plumage is retained, at least in part, for about two months (Skutch, *loc. cit.*), the time being further substantiated by the fact that of 156 specimens of *conirostris* examined by me, 24 were partially or totally in juvenal plumage.

Very little is known of the young stages of *A. chloronota*. Skutch's work with the group included *chloronota* in Guatemala, but the major portion of his observations were of *conirostris* in Costa Rica. Apparently he

was unable to follow the development of the young of *chloronota*, for he mentions (1954: 108) only a single nest found and says nothing concerning the young birds. Two specimens from San Pedro Sula and Finca Fé, one mile northwest of Jaral, Honduras, in juvenal plumage (the only ones of a series of 137 *chloronota* examined that exhibited juvenal characteristics) may be described as follows: entire upper parts dull olive-green (much duller than in adult); crown with stripes indistinct, forming a more or less uniform brownish patch; under parts grayish, but with feather tips and areas along the shaft olive, presenting an indistinctly streaked appearance; flanks and under tail coverts brighter green than remainder of under parts. In comparison with the young of *A. conirostris*, it lacks any yellow on the under parts and possesses only indistinct streaking, lacking the bold, brown streaks of *conirostris*.

With reference to the adults, one can find a number of morphological differences that separate the *conirostris* group from *chloronota*. The most striking of these differences are found in the structural characteristics of the legs and feet. The legs and feet of *A. conirostris* are much stouter than those of *A. chloronota* (a fact not easily demonstrated by measurements), with relatively, as well as absolutely, longer tarsi, toes, and claws. The hind claw is especially larger, longer, and more strongly curved (with a chord measurement of 9 mm or more in *conirostris* compared with 9 mm or less in *chloronota*, this difference despite the large amount of variability within each species). There is no overlap at all between species in the measurements of tarsus and hind toe. All other measurements (bill, wing, etc.) also demonstrate the larger size of the *conirostris* group. (See Table 1.)

In addition, the bill color differs between adults of the two species. *A. conirostris* possesses a uniformly black upper mandible and a sharply bicolored lower mandible, the latter black with a yellowish area (in life) on the basal, ventral half, extending distally along the gonys and about halfway toward the tip. This area is always sharply demarked from the black. In *A. chloronota*, there is some variability in bill color, sometimes with a bicolored lower mandible, but the light area is never clearly demarked from the dark, usually blending gradually into it.

Skutch (1954: 108) also demonstrated differences in egg size, with the lowest extreme of 28 eggs of *conirostris* (from Costa Rica) measuring 23.8 x 17.5 mm, while the two eggs of *chloronota* for which he gives dimensions (from Guatemala) measured 20.6 x 16.7 and 20.2 x 16.7 mm. These measurements indicate eggs slightly different in shape as well as in size.

Of significant importance in the comparison of the two species are the vocalizations. I quote from Skutch (1954: 105):

The language of the race *chloronotus*, as I heard it in the Motagua Valley of Guatemala in 1932, is noticeably different from that of the more southern race, *richmondi*, which we here chiefly consider. It [*chloronotus*] had two songs, one a pretty, ringing *ching ching ching ching ching*, and another which reminded me of that of the Cardinal, although it was not so loud and clear. No utterance that I have heard from *richmondi* remotely resembles the Cardinal's song. The call of the Guatemalan bird was a sharp *pink*, more metallic and less nasal than that of its Costa Rican relative.

Skutch (1954: 103-104) also described in detail the complicated renditions of *conirostris*, none of which resembled any song of *chloronota*, but the above quotation is sufficient to demonstrate the differences in the vocalizations. Field studies that I conducted in Honduras during 1962-63 confirmed these differences.

The new Honduran race differs from *A. c. chloronota* in being shorter tailed, in having a smaller bill, in possessing a faint buffy wash on the breast, and in having the crown stripes more contrasting, with the median crown and superciliary stripes being almost white as opposed to the gray ones in *chloronota*. In the character of the crown stripes (the most distinctive feature of the race) it is most closely approached by two specimens of the nominate race from Puerto Morelos, Quintana Roo, and two from Lake Yojoa, Honduras. Indeed, it is difficult to distinguish the specimens except by the buffy wash on the breast and the shorter tail of the new form. In the character of the shorter tail (and thus a smaller tail/wing ratio), as well as in other characteristics of size and proportions, the new race is similar to the *superciliosa* group of the *rufivirgata* complex, differing from these birds in the bright green (not olive-green) back and the black and white (not brown and brownish white) crown stripes. The new bird could possibly be regarded as a link between *chloronota* and *superciliosa*, at least morphologically, but conspecificity between *chloronota* and *rufivirgata* cannot be considered due to the wide sympatry of *chloronota* and *A. rufivirgata verticalis*. If future work shows that the *superciliosa* group is specifically distinct from *rufivirgata*, additional study of the *chloronota-superciliosa* relationship should be made to determine specific limits within the complex.

THE STATUS OF "CENTRATA"

The population of *conirostris* from La Ceiba, Honduras, was described

by Bangs (1903: 156) under the name *Arremonops conirostris centratus*. It was diagnosed as slightly smaller (especially in bill size), darker and purer gray on the breast, less olive-green or brownish on the flanks, darker green on the tail and wings (lacking the reddish or brownish-olive cast of *richmondi*), darker on the back, and paler yellow on the bend of wing and wing linings. The evaluation of Todd (1923: 41) was that *centrata* is a weakly differentiated race, although he felt it could be distinguished by the lack of brownish wash on the inner remiges, the paler and more uniform under parts (not darker, as originally stated), less greenish on the flanks and less buffy on the crissum.

An examination of 29 specimens from the range of *centrata* (near Progreso, San Alejo, Lancetilla, La Ceiba, Montecristo, Planes, Trujillo, and Río Patuca) has revealed the following differences from *richmondi*: the only significant difference in measurements is in the slightly smaller wing of females (see Table 2); the series, on the whole, averages slightly darker breasted, lacks any brownish wash on the remiges, and is less buffy on the crissum. No other differences were detected. Darker breasted birds occur throughout the range of *richmondi*, as do birds lacking brownish wash on the wings and possessing less buffy on the crissum. In wing measurement there is so much overlap that only about 15 per cent of all specimens (both sexes) can be distinguished. I do not think these differences warrant recognition of the race *centrata*, and I recommend that it be considered a synonym of *richmondi*.

RELATIONSHIPS WITHIN THE *RUFIVIRGATA* COMPLEX

The *Arremonops rufivirgata* complex in Middle America consists of several allopatric, nonintegrating populations, of somewhat doubtful status at the specific level. These populations are as follows: (a) *rufivirgata-ridgwayi-crassirostris*, intergrading races in southern Texas and northeastern Mexico, characterized by a long tail and relatively indistinct crown stripes; (b) *verticalis*, a form from the Yucatán Peninsula, eastern Tabasco, northern Petén, and northern British Honduras, distinguished by a long tail and well-defined crown stripes, the latter brown streaked with black; (c) *chiapensis*, a race from central Chiapas, characterized by a long tail, well-defined brown crown stripes, and very buffy under parts; (d) *sinaloae-sumichrasti*, intergrading forms of western Mexico, distinguished by a short tail and relatively well-defined, brown crown stripes; and (e) *superciliosa*, a race from northwestern Costa Rica, scarcely distinguishable from *sumichrasti*.

There can be little doubt that groups (d) and (e) above are conspecific. Both occur on the Pacific slope (although separated geographically by most of Central America). Morphologically they are very much alike and in external structural characteristics they are identical. Both are short tailed (40 specimens representing all three races involved measuring less than 55.0 mm in tail length, and having a tail/wing ratio ranging from .75 to .82).

Groups (a), (b), and (c) are all Atlantic slope inhabitants; all have long tails (82 specimens of the *rufivirgata* group, 42 of *verticalis*, and 12 of *chiapensis* all measured more than 54.0 mm in tail length, and, more significantly, ranged from .88 to .97 in tail/wing ratio). The race *verticalis* appears to be related to the *rufivirgata* group since the single Tabasco specimen of the former is somewhat intermediate towards *crassirostris* in having the gray crown stripes more olive than in any other *verticalis* specimen. The race *chiapensis* is similar in proportions to *verticalis*, differing chiefly in the brown, unstreaked crown stripes and buffy under parts; its relationship seems to be with the other Atlantic slope races rather than with the short-tailed Pacific slope birds.

SYNOPSIS OF THE MIDDLE AMERICAN *CHLORONOTA*
AND *CONIROSTRIS* GROUPS

ARREMONOPS CHLORONOTA CHLORONOTA (Salvin)

Embernagra chloronota Salvin, Proc. Zool. Soc. London, 1861 [= 1862]: 202. (In Prov. Verae Pacis calida [= Choctum, Guatemala]; type in Salvin-Godman Collection, British Museum).

Diagnosis.—Differs from *A. conirostris richmondi* in lacking a well-defined immature plumage (young *chloronota* are without yellow on the under parts and the streaking below, if present, is indistinct); in being much smaller, especially in the slenderness of the legs and feet and in the shorter length of tarsus and hind toe; in the hind claw being much less robust and less strongly curved, as well as shorter; in having the lower mandible not sharply bicolored in life; and in having dissimilar vocalizations.

Measurements.—See Table 1.

Range.—Lowland forests, dense forest edges, and second-growth fields below 3,000 feet from Tabasco, northern Chiapas, Campeche, southern Yucatán, and Quintana Roo south through British Honduras and eastern Guatemala (Petén and the Lake Izabal region) to extreme northwestern

Honduras (east to the Comayagua-Ulúa river valley and south to Lake Yojoa).

Specimens examined.—TABASCO, 24: Balancán, 6; Frontera, 5; 9 mi. south of Huimanguillo, 1; Macuspana, 1; Montecristo, 2; 1 mi. east of Teapa, 5; Reforma, 1; Tenosique, 2; 8 mi. southeast of Tenosique, 1. CHIAPAS, 6: Monte Libano, 1; Palenque, 3; Simojovel, 1; Yajalón, 1. CAMPECHE, 12: Aparote, 3; Champotón Camp, 5; Pacáyún, 3; San Juan, 1. YUCATÁN, 11: Chichén Itzá, 11. QUINTANA ROO, 7: La Vega, 4; Puerto Morelos, 3. BRITISH HONDURAS, 17: El Cayo, 4; Gallon Jug, 4; Hill Bank, 3; Manatee Lagoon, 2; near San Pedro, 4. GUATEMALA, 31: Chuntuqui, Petén, 4; La Libertad, Petén, 1; Paomón, Petén, 1; El Sotz, Petén, 5; Uaxactún, Petén, 11; Los Amates, 2; Izabal, 1; "Guatemala," 1; Quirigúa, 5. HONDURAS, 20: San Pedro Sula, 6; Amapa, 4; Lake Yojoa, 2; San José de Santa Bárbara, 1; Finca Fé, 6; near Jaral, 1. NO LOCALITY, 1.

ARREMONOPS CHLORONOTA TWOMEYI new subspecies

Type.—Adult male; no. 134070, Carnegie Museum, Coyoles, Honduras; 15 June 1950; collected by Arthur C. Twomey and Roland W. Hawkins.

Diagnosis.—Similar to the nominate race, but with median crown and superciliary stripes much paler, grayish white rather than gray, thus contrasting more sharply with the black lateral crown stripes; breast and flanks paler, the former washed lightly with buff rather than gray; upper parts averaging brighter green; size smaller, especially in bill depth and tail length (thus also with a lower tail/wing ratio).

Measurements of type.—Wing, 66.0; tail, 54.0; tail/wing ratio, .82; tarsus, 22.5; culmen from nostril, 10.1; bill depth at nostril, 6.7; hind toe with claw, 13.8; hind claw, 6.7. For measurements of other specimens, see Table 1.

Range.—Known only from Coyoles (in the Aguán River valley, Department of Yoro) and San Esteban (in the Sico River valley, Department of Olancho), north-central Honduras.

Specimens examined.—HONDURAS, 8: Coyoles, 7; San Esteban, 1.

ARREMONOPS CONIROSTRIS RICHMONDI Ridgway

Arremonops richmondi Ridgway, Auk, 15, 1898: 228 (Greytown, Nicaragua; type in the U. S. National Museum).

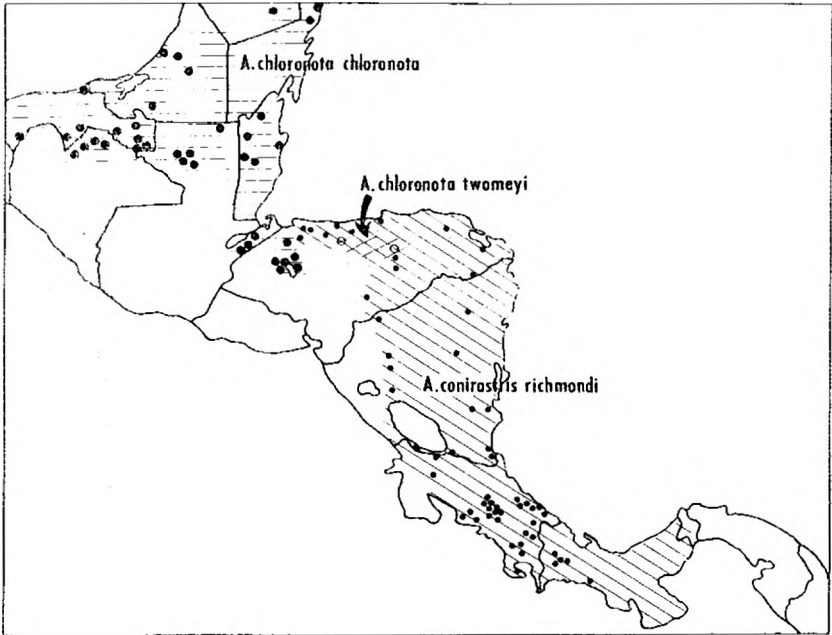


FIGURE 1. Distribution of the Middle American races of *Arremonops chloronota* and *A. conirostris*. Localities from which specimens were examined are indicated on the map as follows: large solid dots, *A. chloronota chloronota*; open circles, *A. chloronota twomeyi*; small solid dots, *A. conirostris richmondi*.

Arremonops conirostris centratus Bangs, Bull. Mus. Comp. Zool., 39, 1903: 156 (Ceiba, north coast of Honduras; type in Bangs Collection, Museum of Comparative Zoology).

Diagnosis.—The species differs from *A. chloronota* in possessing a well-defined juvenal plumage (with extensive yellow or yellowish-green under parts and with bold dark streakings on the breast); in being larger in all measurements, especially in the much stouter legs and feet and longer tarsus and hind toe; in the hind claw being much more robust and more sharply curved, as well as longer; in having the lower mandible in life sharply bi-colored, black with a basal, ventral yellowish area extending along gonys about halfway to tip; in having dissimilar vocalizations.

Measurements.—See Table 1.

Range.—Forested areas, forest edges, and dense second-growth below 6,000 feet from eastern Honduras (east of the Comayagua-Ulúa River valley)

south from Nicaragua and Costa Rica to western Panama (east to the Canal Zone).

Specimens examined.—HONDURAS, 44: 6 miles NE Progreso, 1; San Alejo, 1; Montecristo, 1; Lancetilla, 2; Planes, 1; La Ceiba, 20; Trujillo, 2; Patuca River, 1; near Dulce Nombre de Culmí, 1; El Boquerón, 8; Jamastrán Valley, 2; Puerto Lempira, 1; Segovia River, 3. NICARAGUA, 24: Eden, 6; San Juan, 1; junction Río Mico and Río Siquai, 3; Los Sábalo, 2; San Francisco, 1; Matagalpa, 4; Jinotega, 1; Río Grande, 1; Río Tuma, 1; Jalapa, 1; Río Escondido, 2; Greytown, 1. COSTA RICA, 87: Pt. Jimenez, 2; Las Agujas, 1; Limón, 12; El General, 7; Turrialba, 1; Carrillo, 6; Juan Viñas, 3; Guayabo, 7; Matina, 2; Miravalles, 2; San Emilio, 2; La Lola, 3; Guapiles, 7; El Hogar, 1; Pozo Azul de Pirris, 9; El Pozo de Terraba, 1; Buenos Aires, 1; Río Sixaola, 3; Tunnel Camp, Cartago Prov., 1; Manila, 1; Boruca, 2; Volcán Irazú, 1; Pandoro, 1; Bonilla, 6; Pigres, 3; Naranjo de Cartago, 1; Pozo del Río Grande, 1. PANAMA, 9: Lerida, Boquete, 5; Chiriquí, 1; Bajo Mano, 1; Horqueta, 1; Alto de Quiel, 1.

TABLE 1. MEASUREMENTS IN MILLIMETERS OF SPECIMENS EXAMINED
(*ARREMONOPS CHLORONOTA-CONIROSTRIS* COMPLEX)

	<i>chloronota chloronota</i>	<i>chloronota twomeyi</i>	<i>conirostris richmondi</i>
MALES			
Wing	64.0 -72.0 (67.9)	64.0 -67.0 (65.4)	73.0 -82.0 (77.5)
Tail	54.0 -63.0 (58.3)	51.5 -54.0 (52.3)	63.0 -71.5 (67.9)
Tail/wing ratio	.80-.90(.86)	.78-.82(.80)	.84-.91(.87)
Tarsus	20.9 -25.2 (23.6)	22.0 -23.0 (22.5)	25.4 -29.6 (28.0)
Culmen from nostril	8.9 -10.9 (9.9)	8.8 -10.1 (9.3)	10.5 -13.0 (11.5)
Bill depth at nostril	7.0 - 9.0 (8.0)	6.4 - 6.9 (6.7)	8.3 - 9.4 (8.8)
Hind toe with claw ¹	12.8 -15.7 (14.3)	12.6 -13.8 (13.1)	16.2 -20.0 (17.7)
Hind claw	6.9 - 9.0 (8.0)	6.7 - 6.9 (6.8)	9.1 -11.1 (10.1)
FEMALES			
Wing	59.5 -67.0 (63.7)	62.0 -66.5 (63.8)	67.0 -76.5 (72.1)
Tail	51.5 -58.5 (55.3)	50.0 -52.5 (51.8)	60.0 -67.0 (62.9)
Tail/wing ratio	.82-.89(.86)	.80-.82(.81)	.83-.92(.87)
Tarsus	22.0 -24.6 (23.2)	22.0 -23.0 (22.7)	25.8 -28.9 (27.3)
Culmen from nostril	8.7 -10.5 (9.5)	8.4 - 9.3 (8.9)	10.3 -12.4 (11.1)
Bill depth at nostril	7.0 - 8.9 (7.7)	6.3 - 7.1 (6.8)	7.8 - 9.3 (8.6)
Hind toe with claw ¹	12.7 -15.4 (14.1)	12.6 -13.4 (12.9)	16.1 -18.6 (17.4)
Hind claw	6.9 - 9.0 (7.9)	6.5 - 7.3 (6.8)	9.0 -10.7 (9.9)

¹Measured with dividers on the dorsal side, from the point where the upper edge joins the metatarsus, to the distal end of the claw.

TABLE 2. MEASUREMENTS IN MILLIMETERS OF SPECIMENS EXAMINED
(COMPARISON OF *A. CONIROSTRIS* "CENTRATA"
AND *A. C. RICHMONDI*)

	<i>conirostris</i> "centrata" ²	<i>conirostris</i> <i>richmondi</i> ³
MALES		
Wing	73.0 -81.0 (76.4)	74.5 -82.0 (77.8)
Tail	63.0 -70.0 (67.2)	64.5 -71.5 (68.1)
Tail/wing ratio	.84-.90(.88)	.84-.91(.87)
Tarsus	26.3 -28.7 (27.7)	25.4 -29.6 (28.0)
Culmen from nostril	11.3 -12.1 (11.7)	10.5 -13.0 (11.5)
Bill depth at nostril	8.3 - 9.1 (8.7)	8.3 - 9.4 (8.8)
Hind toe with claw	16.9 -20.0 (18.1)	16.2 -19.4 (17.6)
Hind claw	9.4 -11.1 (10.2)	9.1 -11.0 (10.1)
FEMALES		
Wing	67.0 -74.0 (70.5)	69.5 -76.5 (72.4)
Tail	60.0 -65.5 (61.6)	60.5 -67.0 (63.2)
Tail/wing ratio	.85-.90(.88)	.83-.92(.87)
Tarsus	26.0 -28.3 (27.1)	25.8 -28.9 (27.3)
Culmen from nostril	10.7 -11.9 (11.1)	10.3 -12.4 (11.1)
Bill depth at nostril	8.0 - 8.9 (8.4)	7.8 - 9.3 (8.6)
Hind toe with claw	16.4 -18.4 (17.4)	16.1 -18.6 (17.4)
Hind claw	9.2 -10.7 (9.7)	9.0 -10.7 (9.9)

²29 specimens from northern Honduras.

³135 specimens from southeastern Honduras, Nicaragua, Costa Rica, and Panama.

SUMMARY

The current study indicates that *Arremonops conirostris* (eastern Honduras to South America) and *A. chloronota* (southeastern Mexico to northern Honduras) are specifically distinct. In addition to morphological differences of adults (including stouter legs and feet and larger size of *conirostris*), there are important differences in juvenal plumage (with a well-defined juvenal plumage in *conirostris*, lasting about two months) and in vocalizations.

A new race (*A. chloronota twomeyi*) is described from north-central Honduras, within the range of *A. conirostris*, thus establishing virtual sympatry between the two species. Although morphologically different in plumage coloration, *twomeyi* conforms closely to the *superciliosa* group of *A. rufivirgata* on the basis of external structural characteristics (wing, tail, and bill lengths, and tail/wing ratio), indicating a possible link to that species. Conspecificity of *chloronota* and *rufivirgata* is ruled out because of the wide sympatry of *chloronota* and *A. rufivirgata verticalis*.

Arremonops conirostris centvata is deemed an untenable race and is placed in the synonymy of *A. c. richmondi*.

Relationships within Middle American populations of *A. rufivirgata* are also discussed. Two well-marked groups exist within the species, the short-tailed Pacific slope *superciliosa* group and the long-tailed Atlantic slope *rufivirgata* group. The latter group contains three allopatric, nonintergrading subgroups, but close relationship among these three is indicated. For the present, all forms are regarded as conspecific, with the consideration that the two main groups may be specifically distinct.

ACKNOWLEDGMENTS

I wish to thank the following individuals and their associated museums or institutions for the loan of specimens in connection with this study: James Bond, Academy of Natural Sciences of Philadelphia; Dean Amadon, American Museum of Natural History; Kenneth C. Parkes and Arthur C. Twomey, Carnegie Museum; Austin L. Rand and Emmet R. Blake, Chicago Natural History Museum; Raymond A. Paynter, Jr., Museum of Comparative Zoology; Alden H. Miller, Museum of Vertebrate Zoology; Oliver L. Austin, Jr., Florida State Museum, University of Florida; Robert W. Storer, University of Michigan Museum of Zoology; Alexander Wetmore and Philip S. Humphrey, United States National Museum; and John William Hardy, Moore Laboratory of Zoology, Occidental College.

LITERATURE CITED

Austin, Oliver L., Jr.

1929. Birds of the Cayo District, British Honduras. *Bull. Mus. Comp. Zool.*, 69: 363-394.

Bangs, Outram

1903. Birds and mammals from Honduras. *Bull. Mus. Comp. Zool.*, 39: 141-157.

Ridgway, Robert

1896. A manual of North American birds. 2nd ed. xiii + 653 p.

Skutch, Alexander F.

1954. Life histories of Central American birds. *Pacific Coast Avifauna*, 31: 1-448.

Todd, W. E. Clyde

1923. A synopsis of the genus *Arremonops*. *Proc. Biol. Soc. Washington*, 36: 35-44.