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Systematic Notes on the Bird Family Cracidae. No. 4 *Ortalis garrula* and *Ortalis ruficauda*

By Charles Vaurie[1]

Ortalis garrula

Ortalis garrula ranges from southeastern Honduras (Arenal), and probably extreme eastern Honduras north of the Rio Coco, south to northern Colombia to the Jurado and Truando rivers in the northern Choco, and east to the lower Magdalena Valley and the southwestern, western, and northwestern foothills of the Santa Marta Massif. The range is illustrated in figure 1 which indicates the localities from which I have seen specimens, with the exception of the two records from the northern extremity of the range in Honduras and Nicaragua which have not been published and were kindly supplied to me by Dr. T. R. Howell and Dr. B. L. Monroe, Jr.

The populations of this species belong to two distinct groups: the *cinereiceps* group, which inhabits Central America south to the Atrato River in Colombia, and the nominate *garrula* group, which replaces the first group farther east. The birds of the nominate *garrula* group average distinctly larger than those of the *cinereiceps* group, are somewhat whiter below the breast and at the tip of the tail, and are a little more olive, less brownish, above, but they are similar in all other respects, with the important exception of the color of the head. In the *cinereiceps* group the crown and hind neck are gray (as the scientific name indicates), and the

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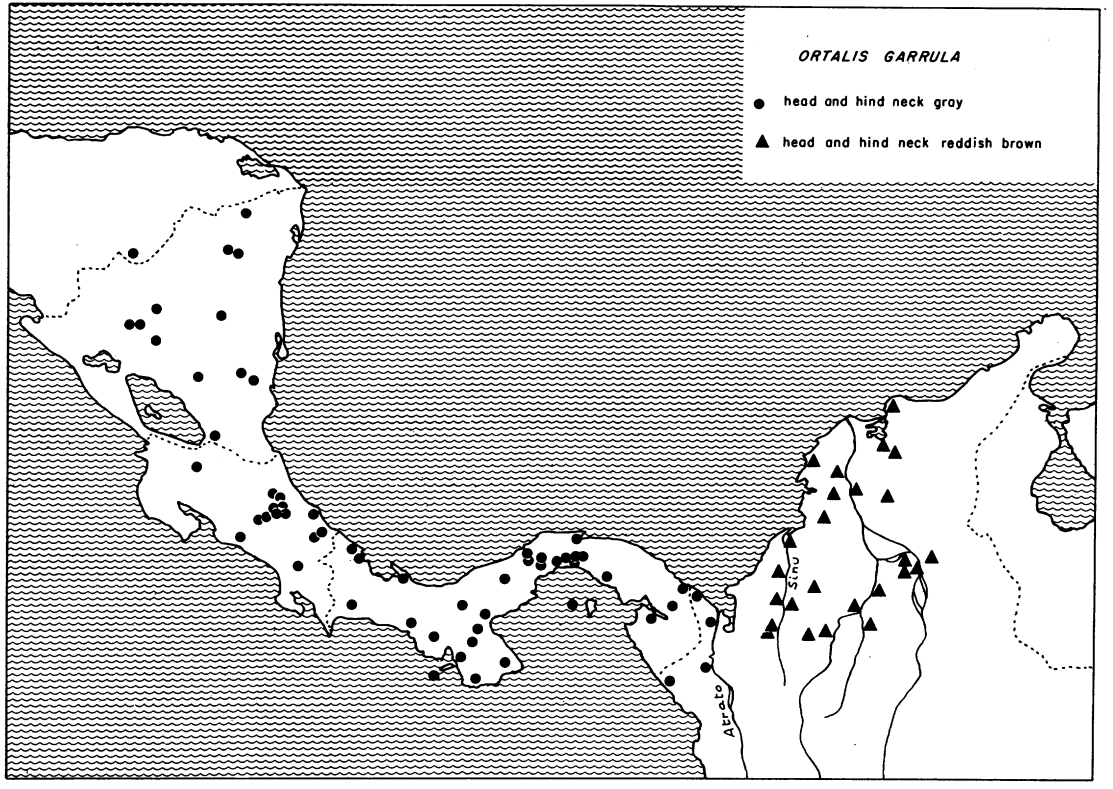

FIG. 1. Distribution of *Ortalis garrula*.

ear coverts, sides of the neck, and feathers of the lower throat vary from dusky or sooty gray to brownish gray, whereas in nominate *garrula,* the crown, hind neck, and ear coverts are reddish brown, and the feathers at the base of the throat are brownish, with or without a tinge of reddish.

The two groups are considered to be conspecific by such authors as Peters (1934), Hellmayr and Conover (1942), Ridgway and Friedmann (1946), and de Schauensee (1949), but the conspicuous difference in the color of the head (which did not seem to be bridged by intermediates), and the well-marked difference in size, led me to investigate this treatment. I have concluded that the authors mentioned were correct, because all the measurements and proportions of the easternmost populations of the *cinereiceps* group converge with those of nominate *garrula,* whereas the reverse would have been expected if the two groups were not conspecific. Moreover, the two groups interbreed, at least occasionally, because de Schauensee (1950) has reported a specimen from Tierra Alta, on the right bank of the Rio Sinu, in which the color of the crown is intermediate, but two other specimens that I have seen from Tierra Alta are "typical" nominate *garrula.* Specimens taken on the left bank of the Rio Sinu near the mouth of the Rio Verde and at Nazaret, 12 miles northwest of Tierra Alta, fail also to show intermediate characters. I am indebted to de Schauensee for calling my attention to the specimen that seems to show hybrid characters and for lending it to me for further study.

The intermediate character of this specimen is very evident, but close inspection of specimens from Puerto Obaldia in extreme eastern San Blas seems to suggest also the existence of a slight degree of gene flow between the two groups. These specimens are a little more brownish, less gray, at the base of the throat than is normal for *cinereiceps,* and the tips of the tail are also slightly paler, less buffy brown, than is usual for *cinereiceps.* Some of these specimens have also two or three brownish feathers among the gray ones of the crown. Griscom (1932, p. 319) stated that the population from the region of Puerto Obaldia was "exactly intermediate" in coloration between *cinereiceps* and nominate *garrula.* Such a statement is a great exaggeration, but the coloration shows a very slight tendency to approach that of nominate *garrula,* and the convergence in measurements is quite certain. I have also seen two specimens from Acandi in Colombia, 24 kilometers east of Puerto Obaldia, but they are not now available to me and, unfortunately, I failed at the time to examine them closely for intermediate characters.

The measurements given in table 1 and illustrated graphically in figures 2 and 3 show that the population of Nicaragua is the smallest.

TABLE 1

MEASUREMENTS OF ADULT MALES OF *Ortalis garrula* AND *Ortalis ruficauda*
(The number in parentheses in the range denotes the size of the sample.)

Form and/or Population	Wing	Tail	Tarsus	Exposed Culmen
cinereiceps				
Nicaragua				
Mean	207.0	215.1	58.9	24.6
Range	199–215 (7)	205–225 (6)	56–60 (7)	23–27 (7)
σ	5.13	7.18	2.08	1.70
Costa Rica and Bocas del Toro				
Mean	208.9	221.0	59.3	24.4
Range	196–225 (19)	204–241 (19)	54–65 (19)	22–27 (19)
σ	6.59	9.40	2.65	1.45
Panama[a]				
Mean	215.9	233.0	61.9	24.8
Range	203–232 (17)	213–250 (16)	55–67 (17)	22–27 (17)
σ	6.23	11.95	3.66	2.59
Eastern Panama[b]				
Mean	222.0	237.0	62.0	26.5
Range	215–235 (9)	215–252 (9)	57–68 (9)	23–29 (9)
σ	6.04	12.30	3.37	2.21
garrula				
Mean	239.4	262.6	66.0	27.6
Range	223–255 (19)	250–288 (19)	60–72 (19)	23–31 (19)
σ	7.46	10.24	2.98	1.90
ruficauda				
Mean	230.3	253.7	61.9	26.1
Range	220–245 (14)	234–283 (14)	55–69 (14)	24–30 (14)
σ	7.87	12.28	3.69	1.62
ruficrissa[c]				
Mean	224.0	245.0	61.7	25.9
Range	212–241 (7)	225–263 (7)	60–66 (7)	24–28 (7)
σ	11.10	13.95	2.60	1.41

[a]With the exceptions of Bocas del Toro and eastern Panama.

[b]From Darien, eastern San Blas, and Colombia west of the Rio Atrato.

[c]No specimens from the zone of secondary intergradation (*baliolus*), or of the slightly differentiated local form (*lamprophonia*) are included.

Nicaragua (and Honduras) represent the northwestern extremity of the range, and all the measurements increase southeastward to form a virtually perfect cline to eastern Panama and western Colombia. Nominate *garrula* inhabits the southeastern extremity of the range and represents the end of the cline, but in three of the measurements (lengths of the wing, tail, and tarsus) the cline takes a definite "step" when the range of nominate *garrula* is reached, which may have been caused by a former gap in distribution between the Rio Atrato and the Rio Sinu.

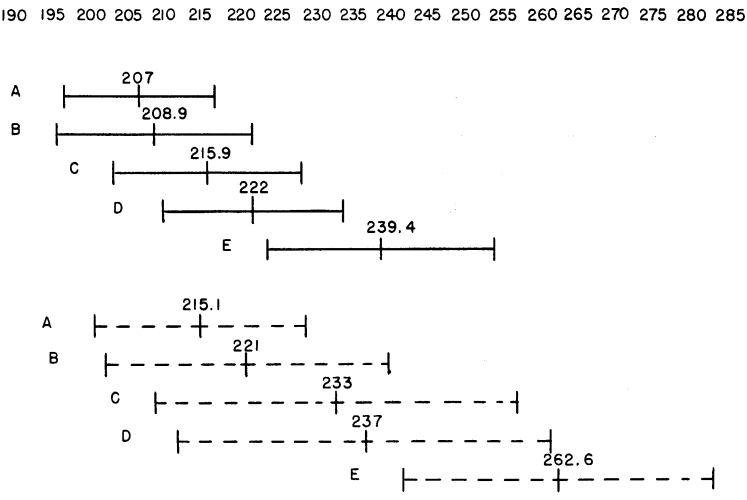

FIG. 2. Geographical variations of the lengths of the wing (solid lines) and of the tail (broken lines) of adult males of *Ortalis garrula*. Vertical bars represent the mean and two standard deviations above and below.

Key: A, Nicaragua; B, Costa Rica and Bocas del Toro; C, Panama with the exceptions of Bocas del Toro and eastern Panama; D, Darien, eastern San Blas, and Colombia west of the Rio Atrato; E, nominate *garrula*.

The proportion of the length of the wing to that of the tail is similar in the two groups, but the tarsus and bill of nominate *garrula* are proportionately shorter. The ratios of the lengths of the tarsus and bill to that of the wing also follow a cline in which the ratios of nominate *garrula* constitute another "step." The ratios between the length of the wing and tail, wing and tarsus, and wing and bill are, respectively: Nicaragua: 0.96, 0.30, 0.66; Costa Rica and Bocas del Toro: 0.95, 0.31, 0.69; Panama (with the exceptions of Bocas del Toro and eastern Panama): 0.93, 0.34, 0.73; eastern Panama and western Colombia: 0.94, 0.38, 0.76; nominate *garrula:* 0.92, 0.44, 0.87.

The convergence in the measurements and proportions and the fact that a certain amount of interbreeding occurs show, I believe, that the two groups are conspecific. Nevertheless, it is evident that they do not grade smoothly into each other, suggesting that they are connected by a zone of secondary intergradation which probably follows the head of the Gulf of Uraba. The latter was formerly much more extensive during recent geologic time, according to Haffer (1959, p. 10), penetrating deeply inland as a large bay of the Caribbean which may have isolated the two groups from each other. The gulf is now but a small remnant

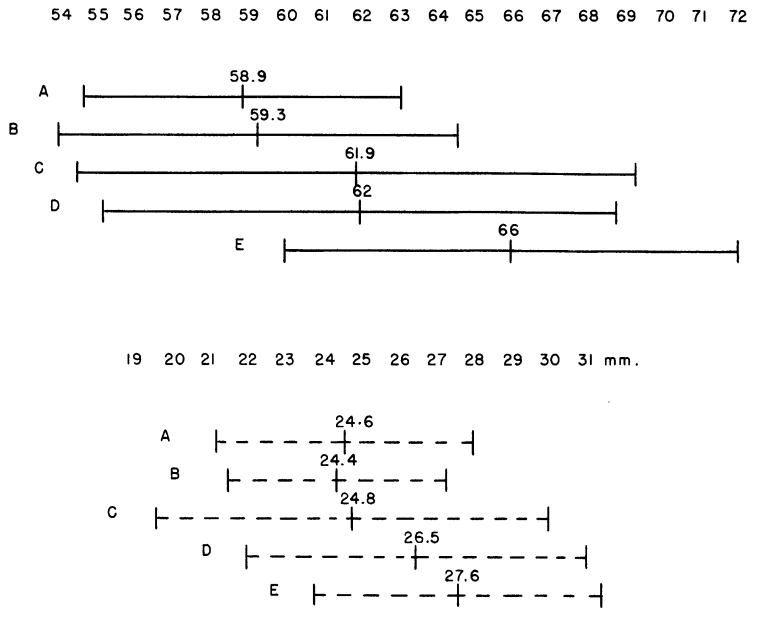

FIG. 3. Geographical variations of the length of the tarsus (solid lines) and of the exposed culmen (broken lines) of adult males of *Ortalis garrula*. Vertical bars represent the mean and two standard deviations above and below.

Key: A, Nicaragua; B, Costa Rica and Bocas del Toro; C, Panama with the exceptions of Bocas del Toro and eastern Panama; D, Darien, eastern San Blas, and Colombia west of the Rio Atrato; E, nominate *garrula*.

of this bay, according to Haffer, and it is probable that the shrinking of this bay has promoted secondary contact. At any rate, the gap or ecological barrier does not seem to have persisted long enough to insure the reproductive isolation of the two groups.

It would be instructive to have specimens taken around the Gulf of Uraba, but none seem to have been collected. All the birds that I have seen were taken at Acandi (or too far north), or on the left bank of the Atrato at Unguia and on the Rio Salaqui, or in the valley of the Rio Sinu. Haffer (1959) collected around the Gulf of Uraba, but the only specimens he secured were a male and one female from Sautata which is situated on the left bank of the Atrato, about 21 kilometers south of Unguia. These specimens have apparently the normal coloration of the *cinereiceps* group.

This species does not seem to have been collected in the region between the Rio Atrato and the Rio Sinu. The lowlands around the head

of the Gulf of Uraba would seem to be suitable for it ecologically but, farther south, Edwin O. Willis informs me that a tongue of very wet forest extends northward along the western slopes of the Serrania de Abibe to about the level of the Alto de Carepa. He did not observe *Ortalis* in this forest which presumably is not suitable for it ecologically. The clearing of this forest should, however, favor the expansion of the zone of secondary intergradation.

To turn to the subspecies and their nomenclature: it would seem most constructive to recognize only two well-differentiated subspecies representing two phylogenetic units (nominate *garrula* with a reddish brown head, and *cinereiceps* with a gray head), especially when we consider that the populations of the *cinereiceps* group are not strongly differentiated and that their geographical variation is predominantly clinal. But as some authors may find it convenient to recognize subspecies in the *cinereiceps* group, I present my opinion.

The smallest and darkest birds are those of Nicaragua. This population has been named *saturatus* by Miller and Griscom, 1921, type locality, near Matagalpa, Nicaragua, but these authors compared *saturatus* only to *cinereiceps* G. R. Gray, making no mention of *frantzii* Cabanis, 1869, which was based on a specimen from Costa Rica. The birds of Costa Rica are slightly paler and average somewhat bigger than those of Nicaragua, representing the next stage on the cline, but the difference is too slight to warrant nomenclatural recognition, and *saturatus* has been synonymized with *frantzii*.

The clines in color and size continue to Panama where the birds (*cinereiceps* G. R. Gray) average larger and are paler on the head and under parts than the birds of Costa Rica; their upper parts are also more rufescent, less olive-brown. Slud (1964, p. 76) stated that the birds of Costa Rica are intermediate on the cline from *frantzii* to *cinereiceps* G. R. Gray, but nevertheless divided them into two subspecies: *frantzii* on the "Caribbean slope from southeastern Honduras to northern Costa Rica," and *cinereiceps* G. R. Gray on "both slopes" of southern Costa Rica "to eastern Panama." It is quite evident, however, that two subspecies cannot be recognized in Costa Rica. The best that can be said is that the birds of northeastern Costa Rica tend to resemble those of Nicaragua, whereas those of the southwest show a tendency toward those of southwestern Panama (Chiriqui). In northwestern Panama (Bocas del Toro) the birds are, on the other hand, more similar to those of southeastern Costa Rica.

Clinal variation always poses a problem for nomenclatural separation, but if subspecies are recognized in the *cinereiceps* group, all the birds

of Costa Rica and those of Bocas del Toro as well should be referred to *frantzii.* Peters (1934, p. 20) believed that the type locality of *frantzii* was "probably the eastern part [of Costa Rica]" but, to my knowledge, Peters did not examine the type of *frantzii,* and his surmise that it was collected in eastern Costa Rica may be incorrect, because Frantzius (1869), who collected the type, appears to have traveled too widely in Costa Rica for this to be certain.

All the specimens that I have seen from southwestern Panama (Chiriqui) eastward to central Panama, including the Azuero Peninsula, are similar. Their name is *cinereiceps* G. R. Gray, 1867, type locality, "Northwest coast of America," but the original label of the type, which I have seen in the British Museum, fails to indicate any locality or date. It was collected by Kellett and Wood who visited the Pearl Islands for about three weeks in the spring of 1846, so Aldrich (1937, p. 55) has restricted the type locality to these islands. A specimen that I have seen from these islands, taken on Isla del Rey, is similar to the birds of southwestern and central Panama, and, to the best of my recollection, the type of *cinereiceps,* which I have examined in London, is similar also to the birds of these regions of Panama.

In the same paper, Aldrich separated the population of the Azuero Peninsula from *cinereiceps* G. R. Gray, naming it *olivacea,* type locality, Paracoté, Montijo Bay, 1 mile south of the mouth of the Angulo River. Aldrich stated that *olivacea* differs from *cinereiceps* by being "distinctly" darker, more olive-brown, and "somewhat larger," but, as I cannot confirm any of these differences, I synonymize *olivacea* with *cinereiceps* G. R. Gray. Hellmayr and Conover (1942) and Ridgway and Friedmann (1946) have recognized *olivacea* on the basis of larger size, but not on differences in coloration which they questioned or denied. In the specimens that I have measured, 13 males collected from Chiriqui eastward to central Panama (Canal Zone, Rio Bayano, and Chiman) have a wing length of 203–232 (215.8) and a tail length of 215–250 (233), and these measurements are virtually identical or very similar to those of four males from the Azuero Peninsula (which include two of the paratypes of *"olivacea"*) which measure, respectively, 210–228 (216.2) and 215–250 (228.5).

The other two forms to be considered in the *cinereiceps* group are *mira* Griscom, 1932, and *chocoensis* de Schauensee, 1950. The type locality of *mira* is Ranchon, which is apparently in extreme eastern San Blas on or very near the coast between Permé and Puerto Obaldia, and that of *chocoensis* is the Rio Jurado, northern Choco, Colombia. They are both dark and large forms at the end of the cline of increasing size of the

cinereiceps group, *chocoensis* being about as saturated as *frantzii* from Nicaragua or slightly more so, whereas the best that one can say about *mira* is that it is neither so dark as *chocoensis* nor so pale as *cinereiceps* G. R. Gray. There is little justification for recognizing two subspecies at the end of the *cinereiceps* group that are very doubtfully separable, but it is unfortunate that *chocoensis,* which represents the extreme, was described later than *mira.*

The range of *mira* probably extends westward along the Caribbean slope, but I doubt that it reaches the Canal Zone, although two specimens from Gatun in the collection of the United States National Museum are darker than normal for *cinereiceps* and match the coloration of *mira* from Puerto Obaldia. Aldrich (*loc. cit.*), who has called attention to these birds, suggested that they might represent *mira,* but he did not identify them as such because he had no material of *mira* for comparison, but they were later identified as *mira* on the labels by Wetmore.

The other specimens that I have seen from the Caribbean slope are not unusually dark, however, and these (one female from Gatun, two unsexed specimens from Lion Hill which was situated not far from Gatun, and one female from Mandinga on the border of Panama and San Blas) and the two dark birds from Gatun are too small, on the whole, for *mira.* One of the last two is a male with a wing length of only 203 mm., which actually represents the smallest extreme in the range of individual variation of *cinereiceps* (table 1), whereas four males of *mira* measure 220–235 (225).

The other dark bird is a female with a wing length of 212, the other female from Gatun measuring 214, and the one from Mandinga 212. These measurements are similar to those of female *mira,* four specimens of which measure 210–214 (212), but in the two unsexed birds from Lion Hill, the wing measures only 205 and 208. The population from the Caribbean slope of central Panama shows perhaps some tendency toward *mira,* but, on the evidence mentioned, it seems undesirable to extend the range of the latter west to the Canal Zone.

Wetmore has also labeled as *mira* a specimen taken in central Panama at El Llano in the valley of the Rio Bayano, but, in my opinion, the population of this region is indistinguishable from *cinereiceps.* The specimen is a male with a wing length of 217 mm., a measurement that is virtually identical with the mean wing length (215.9) of *cinereiceps,* but too small for that of *mira* (see above). Furthermore, it is quite pale and matches the coloration of "typical" *cinereiceps,* but not that of the birds from eastern San Blas or that of the two dark birds from Gatun discussed above. In short, it seems to me that the range of *mira* should be restricted

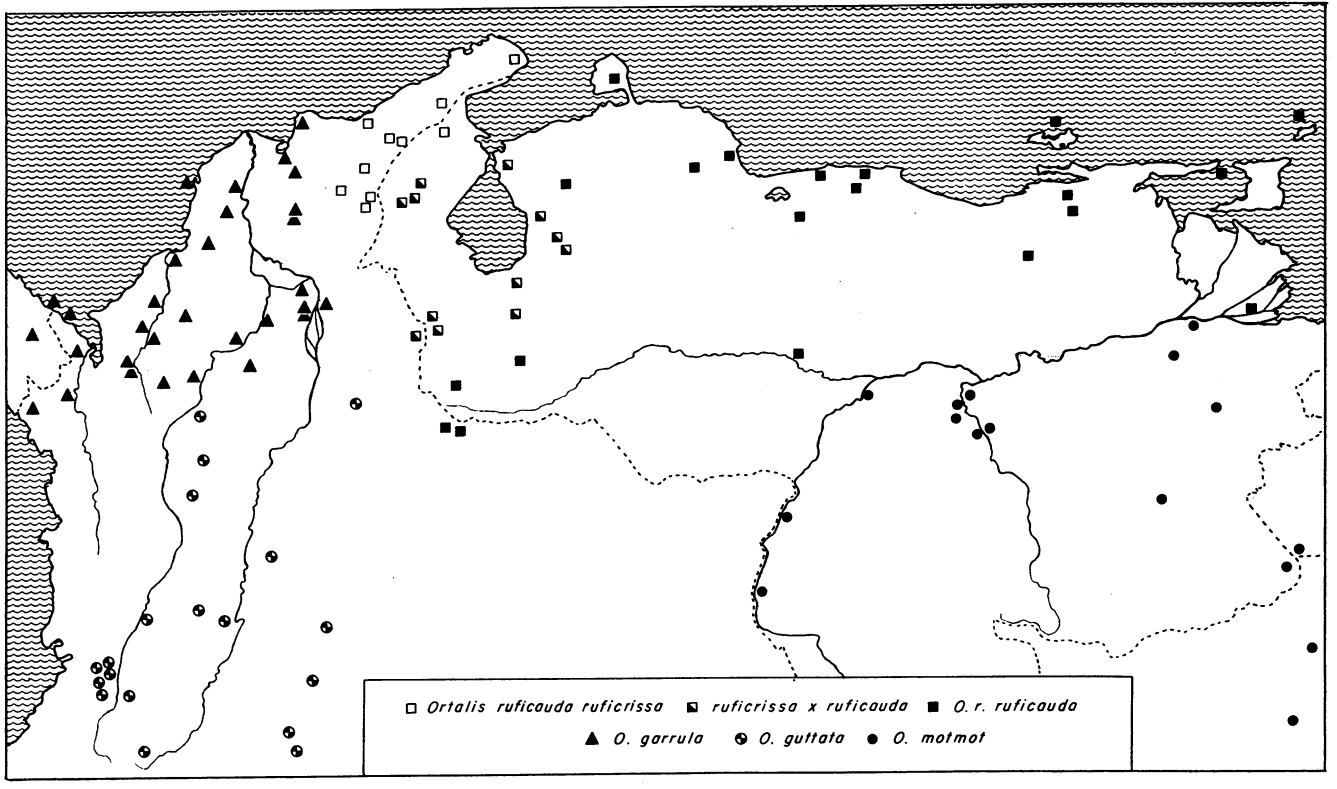

FIG. 4. Distribution of the genus *Ortalis* in northern South America.

to Darien and eastern San Blas, although it may extend also west to central San Blas.

Nominate *garrula* Humboldt, 1805, type locality, "Rivière de la Madeleine," Colombia, does not appear to vary geographically.

Ortalis ruficauda

This species ranges (fig. 4) westward through northern Venezuela, north of the Orinoco and the Rio Arauca, to northeastern Colombia to the region north of Cucuta, the region of Codazzi in eastern Magdalena, and the southeastern, eastern, and northeastern foothills of the Santa Marta Massif to the base of the Guajira Peninsula. It inhabits also the Serrania de Macuire at the tip of the Guajira Peninsula, the northwestern corner of the Comisaria de Arauca of Colombia on the lower Rio Covaria and lower Rio Bojaba, Margarita Island, and Tobago, but not Trinidad.

It varies geographically, and the populations (nominate *ruficauda*) from the eastern part of its range differ very conspicuously from the populations (*ruficrissa*) at the western extremity of the range, by having the outer tail feathers broadly tipped with chestnut, as against pure white in *ruficrissa.* The latter differs also from nominate *ruficauda* by having a somewhat shorter wing and tail (table 1) and by being paler throughout. *Ruficrissa* is more olive-brown on the back, rump, and upper tail coverts, less brownish, than nominate *ruficauda,* and is more ashy, less slaty gray, on the crown and nape, and much less rufescent on the under parts and "thighs." The crissum and the under tail coverts of *ruficrissa* are rufous, but they are considerably paler than those in nominate *ruficauda* which vary from russet to reddish chestnut.

Nominate *ruficauda* ranges from Tobago and eastern Venezuela west to the states of Falcon, Lara, Barinas, Tachira, and Apure in Venezuela, and the northwestern corner of the Comisaria de Arauca in Colombia, but the range of true *ruficrissa* is relatively restricted and extends only from the region of Codazzi north to the Guajira Peninsula, including neighboring northwestern Zulia in Venezuela near the foot of the Guajira Peninsula where it is found on the border of Colombia and on the Guasare and Socuy rivers.

The two forms were considered to be separate species until recently, but they are connected by a zone of secondary intergradation around Lake Macaraibo (fig. 4), in which the coloration of the population varies individually, including the color of the tail. The fact that the two forms might be conspecific was first suggested by Phelps (1943) when he reported that the tips of the tail were more or less buffy, not pure white, in

specimens collected south and southeast of Lake Macaraibo and also north of Cucuta in Colombia, and were thus intermediate (*"así intermedio"*) between the color of the tail in *ruficauda* and that in *ruficrissa.* Phelps and Phelps (1958, pp. 82, 83) decided later that the two forms are conspecific.

The first intermediates were discovered, however, by Osgood and Conover (1922), although they failed to recognize them as such because the tips of the tail of their specimens were whitish. Osgood and Conover had two adults from Orope, Tachira, which they named *Ortalis ruficrissa baliolus,* because they differ from *ruficrissa* in having a darker gray head and in being "much more rufescent, especially on the under parts from the lower breast to the crissum," the latter and the under tail coverts being "much darker rufous chestnut." A third specimen, an immature and paler bird from the Rio Cogollo in Zulia, was characterized by Osgood and Conover as intermediate between *ruficrissa* and *baliolus.*

The two specimens from Orope, which I have seen, are virtually as dark as nominate *ruficauda,* with the exception of the tail which is whitish. Five other specimens that I have examined from the states of Merida and Trujillo vary a great deal individually, especially the under parts. Three are more or less similar to average nominate *ruficauda,* but one is darker and much more ochraceous and rufescent than any specimen of nominate *ruficauda* that I have seen, but the fifth is quite pale and only slightly darker than *ruficrissa.* In all five specimens the tips of the tail vary from pale buff to pinkish buff or pale cinnamon. In other words, the coloration of the birds (*baliolus*) from the zone of secondary intergradation varies a great deal individually, bridging the difference between nominate *ruficauda* and *ruficrissa,* except in the color of the tail which is whitish, more or less buffy, or pale cinnamon, but not chestnut.

Another form which is not intermediate in any way and differs from *ruficrissa* only in minor characters was discovered by Wetmore (1953) in the Serrania de Macuire at the eastern tip of the Guajira Peninsula. He named it *lamprophonia.* This isolated population which apparently has a very restricted range is known only from the original series of two males and two females which I have examined. These specimens are somewhat smaller than *ruficrissa,* have weaker feet, and are paler, being more whitish below and slightly more grayish above, although their coloration is matched by an occasional specimen of *ruficrissa.*

Their measurements, which were not taken by me in a manner comparable with that of Wetmore, are for the lengths of the wing, tail, tarsus, and exposed culmen, respectively: 200, 210; 222, 227; 56, 58; 25, 26 in the males; 201, 206; 220, 220; 55, 57; 24, 26 in the females. These

measurements are smaller than those of male *ruficrissa* given in table 1. The measurements of female *ruficrissa,* which are not given in the table, are, respectively, 201–222, 230–250, 56–62, and 24–28 in four specimens. *Lamprophonia* thus appears to be somewhat smaller than *ruficrissa,* although the actual difference remains to be ascertained, because some of the specimens of *lamprophonia* still show traces of molt or are clearly not fully adult as shown by their retention of some juvenal feathers.

The geographical variation of *ruficauda* is best expressed, however, by the recognition of only two subspecies, nominate *ruficauda* and *ruficrissa.* These two subspecies represent the two phylogenetic units of this species and are well differentiated by a number of characters, whereas *lamprophonia* is only a very local form which differs from *ruficrissa* merely in minor characters, and *baliolus* is an unstable form from a zone of secondary intergradation. It is not meaningful to recognize *lamprophonia* and *baliolus.*

The nomenclature of the four forms that have been named, together with their type localities, and the allocation of the two synonyms are as follows: *Ortalida ruficauda* Jardine, 1847, Tobago. *Ortalida ruficrissa* Sclater and Salvin, 1870, Valledupar, Magdalena, Colombia. Synonyms: *Ortalis ruficrissa baliolus* Osgood and Conover, 1922, Orope, "State of Zulia" [but in Tachira], Venezuela; and *Ortalis ruficrissa lamprophonia* Wetmore, 1953, above Nazaret, Serrania de Macuire, Guajira, Colombia. An old synonym of nominate *ruficauda* which requires no discussion, the type of which I have examined, is *Ortalis bronzina* G. R. Gray, 1867, Venezuela.

ACKNOWLEDGMENTS

This study was based on the material in the collection of the American Museum of Natural History, and on the collections of the Academy of Natural Sciences of Philadelphia, the British Museum (Natural History), the Carnegie Museum, the Chicago Natural History Museum, and the United States National Museum of the Smithsonian Institution. I am indebted to the authorities of these institutions for their help and friendly reception during my visits and their cooperation in lending me selected specimens for further study. I am grateful to Mr. William H. Phelps, Jr., for discussing with me the intergrades between *O. ruficauda ruficauda* and *O. ruficauda ruficrissa,* to Mr. Rodolphe Meyer de Schauensee for calling my attention to a critical specimen of *O. garrula* and sending it to me, to Dr. Alexander Wetmore for discussing with me the geographical variation of the forms of the *cinereiceps* group, and to Drs. Thomas R. Howell and Burt L. Monroe, Jr., for information about the distribution

in Honduras and Nicaragua. At the American Museum, my colleagues Mr. Eugene Eisenmann and Dr. Edwin O. Willis have kindly read and criticized my discussion of *O. garrula* and given me the benefit of their experience concerning Panama and northern Colombia.

SPECIMENS EXAMINED

Ortalis garrula frantzii

NICARAGUA: El Eden, 1 ♂; Santa Rosita, near El Eden, 1 ♀; Matagalpa, 1 ♂, (type of *saturatus*); Las Cañas, 6 miles east of Matagalpa, 1 ♂; Savala, Matagalpa, 1 ♂; Muy Muy, 1 ♂; Rio Grande, 1 ♀; Rio Escondido, 1 ♂; Rama, 1 unsexed; Chontales, 1 ♀; Los Sabalos, San Juan River, 1 ♂.

COSTA RICA: Guapiles, 1 ♂, 1 ♀; Llanuras, Guacimo, 2 ♀; Jimenez, 1 ♂; 2 ♀; Bonilla, Cartago, 1 ♂; [Hacienda] Guayabo, 5 ♂, 3 ♀, 1 unsexed; Aquiares, 2 ♂; Juan Viñas, 1 ♀, 1 unsexed; San José, 1 unsexed; Limon, 1 ♂; Atalanta, 1 ♀; Talamanca, 1 ♂, 2 ♀; Miravalles, 2 ♂, 1 ♀; Pozo Azul, 1 ♂; Buenos Aires, 1 ♂, 2 ♀; no locality, 1 ♂, 1 unsexed.

PANAMA: Bocas del Toro: Crimacola, 3 ♂, 4 ♀, 1 nestling; Almirante, 1 ♂, 1 ♀; Changuinola, 1 ♂.

Ortalis garrula cinereiceps

PANAMA: *Chiriqui:* Boqueron, 1 ♂, 1 ♀. *Veraguas:* Sona, 1 ♂; Castillo, 1 ♀; Cordillera de Tole, 1 unsexed; Santa Fé, 1 ♂; Paracoté, 2 ♂; Cebaco Island, 1 ♂; no locality, 1 ♂. *Los Santos:* Cerro Hoya, 1 ♀; Cerro Largo, Cape Mala Peninsula, 1 ♂. *Herrera:* El Rincon, Cienaga Macana, 1 ♀; Santa Maria, 1 ♀. *Cocle:* El Uracillo, Rio Indio, 1 ♀; Nata, 1 ♂, 1 ♀. *Panama:* El Llano, Rio Bayano, 2 ♂; Chepo, Rio Bayano, 2 ♀; Chico, 1 ♀; Pacora, 1 ♂; Tocumen, 1 ♀; Chiman, 3 ♂, 1 ♀; Isla del Rey, 1 ♂. *Canal Zone:* Gatun, 1 ♂, 2 ♀; Lion Hill Station, 2 unsexed; Juan Mina, 1 ♀; Farfan, 1 ♂; Paraiso, 1 unsexed; no locality, 1 unsexed. *San Blas:* Mandinga, 1 ♀. Panama, no locality, 1 unsexed (type of *cinereiceps*).

Ortalis garrula mira

PANAMA: *Darien:* Rio Tuicusa, 1 ♂; Chepigana, 1 ♂. *San Blas:* Puerto Obaldia, 4 ♂, 4 ♀.

COLOMBIA: *Choco:* Acandi, 1 ♂, 1 ♀.

Ortalis garrula chocoensis

COLOMBIA: *Choco:* Unguia, 3 ♂, 3 ♀; Rio Salaqui, 1 ♂; Rio Jurado, 1 ♀ (type of *chocoensis*).

Ortalis garrula garrula

COLOMBIA: *Magdalena:* Mamatoco, Santa Marta, 2 ♀; Fundacion, Santa Marta, 1 ♂, 1 ♀; no locality, Santa Marta, 3 unsexed; Trojas de Cataca, 1 ♂, 3 ♀; El Dificil, 2 ♀; Puerto Sagoc, 1 ♀; Camp Costa Rica, 1 ♀. *Bolivar:* Cartagena, 1 unsexed; San Juan Nepomuceno, 1 ♂, 1 unsexed; Calamar, 2 ♂, 1 unsexed; Puerto Zapote, 1 ♀; Jaraquiel, 1 ♀; Boca de Chimi, 1 ♀; Rio Viejo, 1 ♂;

Norosi, 1 ♂; La Raya, Rio Cauca, 1 ♂, 3 ♀; Cotoso, 3 miles northwest of Coloso, 1 ♀; Pueblo Nuevo, 9 miles north of Planeta Rica, 2 ♂; upper Rio San Jorge, 2 ♂, 1 ♀; Catival, upper Rio San Jorge, 1 ♂, 1 ♀; Socarré, Rio Sinu, 1 ♂, 1 ♀; Nazaret, 12 miles northwest of Tierra Alta, Rio Sinu, 1 ♀; Tierra Alta, Rio Sinu, 1 ♂, 2 ♀. *Antioquia:* Nechi, 4 ♂, 2 ♀; Cuturu, 1 ♂, 2 unsexed; Rio Taraza, 12 kilometers northwest of Puerto Antioquia, 1 ♂.

Ortalis ruficauda ruficauda

LESSER ANTILLES: Grenadine Islands: Bequia Island, 2 ♂, 3 ♀, 2 unsexed.

TOBAGO: Roxborough, 1 ♀; Spey Side, 1 ♀; no locality, 1 ♀, 2 unsexed (includes type of *ruficauda*).

VENEZUELA: *Sucre:* Cristobal Colon, Paria Peninsula, 3 ♂, 3 ♀; Cuchivano, 2 ♀; Cocollar, 1 ♀. *Nueva Esparta:* Margarita Island, 1 ♀. *Anzoategui:* Cantaura, 1 ♀. *Miranda:* Santa Lucia, 1 ♂, 1 ♀. *Distrito Federal:* Puerto la Cruz, 2 ♂, 2 ♀; Rio San Julian, 4 ♂, 2 ♀. *Carabobo:* El Trompillo, 1 ♀. *Yaracuy:* El Hacha, 1 ♀; *Falcon:* Tucacas, 2 ♂. Venezuela, no locality, 1 ♂, 1 unsexed (type of *bronzina*).

COLOMBIA: *Arauca:* La Ceiba, Rio Covaria, 4 ♀; Rio Bojaba, 1 ♂.

Ortalis ruficauda "baliolus"

VENEZUELA: *Trujillo:* Motatan, 1 ♀; Sabana de Mendoza, 1 ♂. *Merida:* Ejido, 1 unsexed; Limones, 1 ♂, 2 unsexed. *Tachira:* Orope, 2 ♂ (includes type of *baliolus*). *Zulia:* Rio Cogollo, 1 ♂.

Ortalis ruficauda ruficrissa

COLOMBIA: *Magdalena:* Cascara, 15 miles south of Codazzi, 1 ♀; Hacienda la Esperanza, 12 miles south of Codazzi, 1 ♂; Camperucho, 1 ♂, 1 ♀; Valledupar, 1 unsexed (type of *ruficrissa*); El Conejo, 10 miles east of Fonseca, 1 ♂, 1 ♀; La Cueva, Fonseca-Riohacha trail, 2 ♂, 1 ♀; Dibulla, 1 ♂. *Guajira:* Maicao, 1 ♂.

Ortalis ruficauda "lamprophonia"

COLOMBIA: *Guajira:* Nazaret, Serrania de Macuire, 2 ♂ (includes type of *lamprophonia*), 2 ♀.

LITERATURE CITED

ALDRICH, JOHN WARREN

1937. *In* Aldrich, John Warren, and Benjamin Patterson Bole, Jr., The birds and mammals of the western slope of the Azuero Peninsula, Republic of Panama. Sci. Publ. Cleveland Mus. Nat. Hist., vol. 7, pp. 1–196.

DE SCHAUENSEE, RODOLPHE MEYER

1949. The birds of the Republic of Colombia, pt. 2. Caldasia, vol. 5, pp. 381–644.

1950. Colombian Zoological Survey, pt. 5.–New birds from Colombia. Not. Nat., no. 221.

FRANTZIUS, ALEXANDER VON

1869. Ueber die geographische Verbreitung der Vögel Costaricas and deren Lebensweise. Jour. für Ornith., vol. 17, pp. 195–204, 289–318, 361–379.

GRISCOM, LUDLOW

1932. The ornithology of the Caribbean coast of extreme eastern Panama.

Bull. Mus. Comp. Zoöl., vol. 72, pp. 303–372.

HAFFER, JÜRGEN

1959. Notas sobre las aves de la region de Uraba. Lozania, no. 12.

HELLMAYR, CHARLES, AND BOARDMAN CONOVER

1942. Catalogue of birds of the Americas and the adjacent islands, pt. 1, no. 1. Publ. Field Mus. Nat. Hist., zool. ser., vol. 13, pt. 1, no. 1.

OSGOOD, WILFRED H., AND BOARDMAN CONOVER

1922. Game birds from northwestern Venezuela. Publ. Field Mus. Nat. Hist., zool. ser., vol. 12, no. 3, pp. 19–47.

PETERS, JAMES LEE

1934. Check-list of birds of the world. Cambridge, Harvard University Press, vol. 2.

PHELPS, WILLIAM H.

1943. Las aves de Perija. Bol. Soc. Venezolana Cien. Nat., vol. 8, no. 56, pp. 265–338.

PHELPS, WILLIAM H., AND WILLIAM H. PHELPS, JR.

1958. Lista de las aves de Venezuela con su distribucion, vol. 2, pt. 1. Bol. Soc. Venezolana Cien. Nat., vol. 19, no. 90, pp. 1–317.

RIDGWAY, ROBERT, AND HERBERT FRIEDMANN

1946. The birds of North and Middle America, pt. 10. Bull. U. S. Natl. Mus., no. 50.

SLUD, PAUL

1964. The birds of Costa Rica, distribution and ecology. Bull. Amer. Mus. Nat. Hist., vol. 128.

WETMORE, ALEXANDER

1953. Further additions to the birds of Panama and Colombia. Smithsonian Misc. Coll., vol. 122, no. 8, pp. 1–12.