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THE RUFOUS-FACED CRAKE (*LATERALLUS XENOPTERUS*) AND ITS PARAGUAYAN CONGENERS

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The Black Rail (*Laterallus jamaicensis*) and other crakes of the genus *Laterallus* are among the least known American birds, and Ripley (1977:192) points out that "of all the rail family, this group of species collectively is the least studied." This is not surprising because they are secretive birds living in dense grassy places. But one relatively tame species, the Galapagos Rail (*L. spilonotus*) has been well studied in the field (Franklin et al. 1979). A second species, the Red-and-White Crake (*L. leucopyrrhus*) is commonly kept in aviaries where some of its habits have been reported (Meise 1934, Everitt 1962, Levi 1966). Museum specimens of *Laterallus* are few, hence their distribution and status are poorly known; anatomical material is even scarcer.

The least known species of the group, the Rufous-faced Crake (*L. xenopterus*), was first taken in Paraguay in 1933 and described the following year (Conover 1934). It was not found again until Philip Myers rediscovered it in 1976 and Rick Hansen in 1978 (Myers and Hansen 1980). The species has not been illustrated previously, probably because the tail was missing from the type specimen and information on the color of the soft parts was not available.

In 1979, I spent 5 weeks in Paraguay with a field party from the University of Michigan Museum of Zoology led by Philip Myers, III. One of my aims was to collect and find out as much as possible about the secretive crakes of this country. Two other species of *Laterallus*, the Red-and-White Crake and the Rufous-sided Crake (*L. melanophaius*), were already known from Paraguay. On my last day in the field, Dr. Myers presented me with a fresh specimen of the Gray-breasted Crake (*L. exilis*). The nearest localities from which this bird was previously known are in the

The Rufous-faced Crake *(Laterallus xenopterus)* and its Paraguayan congeners, the Red-and-White Crake *(L. leucopyrrhus)* top, the Gray-breasted Crake *(L. exilis)* middle left, and the Rufous-sided Crake *(L. melanophaius)* middle right. The Rufous-faced Crake is shown two-thirds life size and the last three, one-third life size. From a painting by William A. Lunk.

Amazon Valley, nearly 1500 miles to the north. Although we never heard or saw a crake in the wild, we captured specimens of all four in mammal traps and were able to obtain information on habitat, associated mammals and soft-part colors (the last by photographing fresh specimens in color). Study skins and these photographs were used by William A. Lunk in preparing the accompanying plate. Specimens of all the known species of *Laterallus* were examined in or borrowed from the following museums: American Museum of Natural History (AMNH), Field Museum of Natural History, Museum of Comparative Zoology, Academy of Natural Sciences of Philadelphia and National Museum of Natural History.

The colors and patterns of the 4 Paraguayan species are well shown in the plate. Of particular interest are those of the under tail coverts, which are black in *L. xenopterus*, black barred with white in *L. exilis*, rufous in *L. melanophaius*, and white laterally and black medially in *L. leucopyrrhus*. These feathers are displayed conspicuously during tail bobbing, a common behavior pattern in rails, which is known for at least *L. leucopyrrhus* (Levi 1966:25) and *L. spilonotus* (Franklin et al. 1979:213–214). Presumably it occurs in all species, and it may be important in species recognition.

The heavy, white barring on the scapulars and upper wing coverts is one of the striking characteristics of the Rufous-faced Crake and is presumably the basis for the specific name *xenopterus* (xen- = strange, pteron = wing). Although I can find no reference in the literature to barring on the upper surface of the wings of the other Paraguayan species of *Laterallus*, barring is found in varying degrees on at least a few examples of each. The Red-and-White Crake is the most variable in this barring. The wing coverts of 1 specimen (AMNH 472,173) are extensively and irregularly marked with white bars up to 4 mm in width that are bordered with narrower black bars. Two other examples have white bars 2–2.5 mm wide, 5 have bars less than 2 mm wide and 6 lack white bars. In addition, 13 of 20 specimens of *L. leucopyrrhus* have diffuse rufous barring on the wing coverts. Rufous-sided Crakes also may have narrow barring on the upper wing coverts and scapulars: 9 specimens I examined have well-marked barring, 16 have faint barring and 32 are unbarred. In all instances the barring was narrow, the white bars being less than 2 mm in width. Gray-breasted Crakes show a variable amount of narrow white barring on the upper wing coverts. Specimens used in preparing the plate included those showing the maximum amount of white barring found in *L. melanophaius* and *L. exilis*. This was done to emphasize the occurrence of this patterning.

Measurements of the 4 Paraguayan forms of *Laterallus* are given in Table 1. Although males average slightly larger than females, data for the

TABLE 1
MEASUREMENTS (IN MM) AND WEIGHTS (IN G) OF PARAGUAYAN SPECIES OF *LATERALLUS*

		N	Range	$\bar{x}$	SD
Wing	*exilis*	12	69–78	72.0	±2.73
	melanophaius	40	74–90	82.9	±3.30
	leucopyrrhus	18	80–86	82.4	±1.82
	xenopterus	4	83–91	86.5	±3.42
Bill from nostril	*exilis*	12	7.7–8.8	8.29	±0.33
	melanophaius	40	9.5–11.5	10.47	±0.62
	leucopyrrhus	18	8.1–9.8	9.03	±0.56
	xenopterus	4	7.5–8.7	8.00	±0.50
Bill depth	*exilis*	9	4.7–5.8	5.17	±0.39
	melanophaius	26	5.2–6.7	5.91	±0.42
	leucopyrrhus	15	5.1–6.6	5.75	±0.34
	xenopterus	4	5.9–6.2	6.03	±0.13
Tarsus length	*exilis*	11	22.5–26.0	24.07	±0.95
	melanophaius	40	28.4–35.3	31.44	±1.59
	leucopyrrhus	18	30.1–35.0	32.82	±1.23
	xenopterus	4	28.3–30.6	29.73	±1.07
Length middle toe	*exilis*	12	24.8–28.4	26.43	±1.09
	melanophaius	39	29.0–38.0	33.63	±1.85
	leucopyrrhus	15	29.6–35.1	31.41	±1.22
	xenopterus	4	27.4–28.9	28.35	±0.69
Weight	*exilis*	3	27–28	27.53	—
	melanophaius	2	46–56.6	51.30	—
	leucopyrrhus	10	34–52	45.35	±5.61
	xenopterus	3	51–53	52.00	—

sexes are combined in the table because of small size of some samples and the high proportion of unsexed specimens of *L. exilis*. Aside from differences in size indicated by wing length and weight, several differences in proportions are evident. *L. melanophaius* is notably long-billed, whereas *L. xenopterus* has a very short, high bill, as well as a relatively short tarsus and middle toe. The last two are probably associated with the species' habitat, which is densely vegetated and has a relatively firm substrate.

HABITAT

The dense, tussock-like habitat of the Rufous-faced Crake has been well described by Myers and Hanson (1980). The Red-and-White Crake was taken in the same habitat near Curuguaty, Dept. Canendiyu, and was also taken in an adjacent wetter part of the marsh among tall (2 m +)

coarse grass with scattered tree ferns. Others were taken near Tobatí, Dept. Cordillera, in a heavily grazed marsh with relatively short (50 cm) grasses over damp ground and in a coarser marsh with dense, tall (2 m+) grasses and some shrubs. All were captured in traps set in runways made through the grass by small mammals or water runoff. We encountered the Rufous-sided Crake only on the Arroyo Hondo, 24 km NNW of Carayao, Dept. Caaguazu. The 2 specimens were taken in traps on the edge of a marsh between open water with scattered vegetation and dense grasses approximately 1 m tall. Erickson and Mumford (1976:8–9) reported taking both Red-and-White and Rufous-sided crakes in the same cattail marsh at Vicosa, Minas Gerais, Brazil. The Gray-breasted Crake was taken in a runway used by swamp rats (*Holochilus brasiliensis*) along a fencerow bordering a road and a heavily grazed marsh with water depths ranging from a few centimeters to several feet. The marsh contained a mixed growth of several kinds of grasses and/or sedges. Miller (1960:235) reported collecting a Gray-breasted Crake "as it fluttered from marsh vegetation 50 cm high where the water was 10 to 15 cm deep."

From the few accounts available, it appears that the habitat of the Rufous-faced Crake may be the most restricted of the four, whereas the Rufous-sided and Red-and-White crakes are found in more varied habitat which often includes sparser vegetation and deeper water.

DISTRIBUTION

The Rufous-sided Crake is the most widely distributed of the Paraguayan species, both within the country and in South America. It is also the best represented in collections. It is found in suitable habitats throughout South America, south at least to central Argentina (near Buenos Aires) and southern Uruguay. In Paraguay, it has been recorded both in the eastern part of the country and the Chaco to the west.

The Red-and-White Crake is known from the vicinity of Rio de Janeiro south to Buenos Aires and west to eastern Paraguay. It has not been recorded from the Chaco. The record from Tucumán is in error (Olrog 1963:125). The bird is locally common and is frequently kept in zoos and aviaries.

The Rufous-faced Crake has the most limited known distribution of the four, having been taken at 3 localities in eastern Paraguay and 1 in Brazil (Myers and Hansen 1980). The locality shown on the map in Ripley (1977:205) is in error. Presumably, it was meant to show the type locality, Horqueta, Paraguay, but the locality is actually shown in Brazil.

The Gray-breasted Crake has been recorded from British Honduras to Paraguay. The single Paraguayan specimen was taken 6 August 1979, in the pantanal (palm swamp region), 24 km NW of Villa Hayes (Dept. Pres-

idente Hayes). Whether it was a migrant, a stray, or part of a resident population is unknown.

GENERIC LIMITS

Of the 10 species included in *Laterallus* by Peters (1934:189–192) one, "*hauxwelli*" (= *fasciatus*) (Black-banded Crake), has been considered a species of *Anurolimnas* by Stresemann and Stresemann (1966:149), who followed the lead of Sharpe (1894:88), and by Olson (1973:393), who felt that *viridis* (Russet-crowned Crake) also was closer to the latter genus than to *Laterallus*. Ripley (1977:157–158, 192–194), without stating his reasons, placed *castaneiceps* (Chestnut-headed Crake), the type species of *Anurolimnas*, in *Rallina* and left *fasciatus* and *viridis* in *Laterallus*. After examining specimens of the species involved, I find Olson's arguments reasonable and prefer to retain *fasciatus* and *viridis* in *Anurolimnas* with *castaneiceps* at least for the present. More recently, Blake (1977:501) has included the species *spilopterus* (Dot-winged Crake) in *Laterallus*. Although this species was described in *Laterallus*, it has long been kept in *Porzana*, on the basis of its plumage color and pattern. I know of no anatomical material of this rarely taken species, and tentatively consider it properly placed in *Porzana*. This leaves 9 species in *Laterallus*: *jamaicensis*, *spilonotus*, *exilis*, *albigularis*, *melanophaius*, *levraudi* (Rusty-flanked Crake), *ruber* (Ruddy Crake), *leucopyrrhus* and *xenopterus* (the last described too late for inclusion in Peters 1934).

SPECIES RELATIONSHIPS

The relationships among the species have never been carefully reviewed. If the species are grouped by the color of the under tail coverts they fall into groups which can be further defined on the basis of other characters. Although differing in proportions, *L. spilonotus* is clearly an insular derivative of *L. jamaicensis* and need not be discussed further. Three species, *L. melanophaius*, *L. levraudi* and *L. ruber*, have unmarked rufous under tail coverts. All three are large (for *Laterallus*) and have relatively long, slender bills. The Venezuelan species *L. levraudi* is almost entirely allopatric with *L. melanophaius* and differs from that species in having rufous, instead of black-and-white barred flanks. This difference parallels that between Paint-billed (*Neocrex erythrops*) and Colombian (*N. colombianus*) crakes, which are considered conspecific by some authors (e.g., Meyer de Schauensee 1970, Short 1975) and full species by others (e.g., Blake 1977, Ripley 1977). If not considered conspecific, they are best thought to form a superspecies. I recommend similar status for *L. levraudi* and *L. melanophaius*. *L. ruber* is more distinct, differing from *L.*

levraudi in having a gray head and completely rufous underparts. It may be a Central American representative of the *melanophaius* group.

L. albigularis, *L. exilis* and *L. jamaicensis* all have black and white barred under tail coverts, are small and thin billed and have rufous nape patches. *L. albigularis* has often been considered conspecific with *L. melanophaius*, which differs from it in color of the under tail coverts, uniformly colored upper parts and larger size. I believe that *L. albigularis* is closest to *L. exilis*, differing primarily in the rufous vs gray breast. *L. jamaicensis* is also close to *L. exilis* and *L. albigularis*, but differs considerably in the spotting and barring of the upper parts.

In addition to its tail-covert pattern, *L. leucopyrrhus* differs from its congeners in having bright coral red legs and in laying unspotted eggs. (The eggs of *L. levraudi* and *L. xenopterus* are unknown.)

L. xenopterus differs from the other species in its blue-gray legs and bill, white-barred wing coverts and scapulars, buffy chest, short, high bill, and short tarsi (as pointed out by Conover 1934). The high, arched culmen is evident in the skeleton, as is the short, more domed cranium. This species is the most divergent member of the genus, but at this stage I see no advantage in removing it from *Laterallus*.

Not only has there been little agreement about which species belong in *Laterallus*, but sequences used by various authors also have differed considerably. In Table 2 are shown 3 earlier sequences plus one which expresses my beliefs concerning the relationships among the species indicated earlier. Of the 3 other arrangements shown, only that of Peters (1934) places *L. exilis* next to *L. albigularis* and none place *L. levraudi* next to *L. melanophaius*. Furthermore, Ripley (1977) separates *L. jamaicensis* from its derivative, *L. spilonotus*, by *L. melanophaius*, *L. albigularis* and *L. leucopyrrhus*, which are not closely related either to each other or to the 2 species they separate.

SUMMARY

Four species of *Laterallus* (*melanophaius*, *leucopyrrhus*, *xenopterus* and *exilis*) are known from Paraguay. *L. melanophaius* is found in both the Chaco and eastern Paraguay, whereas *L. leucopyrrhus* and *L. xenopterus* have only been recorded east of the Rio Paraguay. *L. exilis* is here reported for the first time from the country. *L. xenopterus* differs from the other three in having a relatively short, high bill and short tarsi and toes. The latter may be an adaptation for moving about on a firmer substrate.

The species of the genus can be placed into 4 groups on the basis of the color and pattern of the under tail coverts. Other color characters and similarities of proportions within the groups are further indications of the naturalness of the grouping.

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TABLE 2
SEQUENCE IN *LATERALLUS*

Peters (1934)	Blake (1977)	Ripley (1977)	This paper
jamaicensis	*spilopterus*[3]	*faciatus*[1]	[*melanophaius*][4]
spilonotus	*jamaicensis*	*levraudi*	[*levraudi*][4]
exilis	*exilis*	*ruber*	*ruber*
albigularis	*xenopterus*	*viridis*[1]	*albigularis*
melanophaius	*albigularis*	*exilis*	*exilis*
ruber	*melanophaius*	*spilonotus*	[*jamaicensis*][4]
levraudi	*ruber*	*melanophaius*	[*spilonotus*][4]
viridis[1]	*levraudi*	*albigularis*	*leucopyrrhus*
hauxwelli[1,2]	*leucopyrrhus*	*leucopyrrhus*	*xenopterus*
leucopyrrhus	*fasciatus*[1]	*jamaicensis*	
	viridis[1]	*xenopterus*	

[1] Here considered species of *Anurolimnas*.
[2] Synonym of *fasciatus*.
[3] Considered by others a species of *Porzana*.
[4] Bracketed species members of superspecies.

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The accompanying color plate, carefully executed by William A. Lunk, not only is the first illustration of *L. xenopterus*, but also provides accurate rendering of the soft-part colors of all 4 species.

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COLOR PLATE

The color plate Frontispiece of *Laterallus* spp. by William Lunk has been made possible by an endowment established by George Miksch Sutton.