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**CLYTOCTANTES ATROGULARIS, A NEW SPECIES OF
ANTBIRD FROM WESTERN BRAZIL**

SCOTT M. LANYON, DOUGLAS F. STOTZ, AND
DAVID E. WILLARD

ABSTRACT.—A new species of antbird (Formicariidae), *Clytoctantes atrogularis* sp. nov., from eastern Rondônia, Brazil is described and given the English name, Rondonia Bushbird. It is known only from a single female specimen and two sight records of males in terra firme forest near the Rio Jiparaná. The rapid rate of deforestation in Rondônia may present a serious threat to this species. *Received 7 Sept. 1989, accepted 15 May 1990.*

ABSTRACT.—Descrevemos uma nova espécie de Formicariidae, *Clytoctantes atrogularis* sp. nov., do leste de Rondônia, Brasil. A espécie é conhecida somente por um espécimen (fêmea) e duas observações (machos) em mata do terra firme, cerca do Rio Jiparaná. O rápido desmatamento em Rondônia poussa ameaça de extinção a espécie.

The Field Museum of Natural History, in collaboration with the Museu de Zoologia da Universidade de São Paulo, conducted an avifaunal survey of Cachoeira Nazaré along the west bank of the Rio Jiparaná, Rondônia, Brazil (Fig. 1) in 1986 (May, June, July, October, and November). We mist-netted a female of an unusual antbird (Formicariidae), and observed males on two occasions. Subsequent attempts to collect more specimens and observe it further were unsuccessful. Although we are reluctant to describe a new taxon on the basis of a single specimen, the bird's features are so distinctive (see Frontispiece) that we believe it represents an undescribed species. We propose to call it:

Clytoctantes atrogularis sp. nov.

RONDONIA BUSHBIRD

HOLOTYPE.—Museu de Zoologia da Universidade São Paulo 66111 (color slides of prepared specimen on file at FMNH and with the Visual Resources for Ornithology [VIREO])

Division of Birds, Field Museum of Natural History, Roosevelt Rd. at Lake Shore Dr., Chicago, Illinois 60605, U.S.A.



Rondonia Bushbird (*Clytoctantes atrogularis* sp. nov.), a new species of antbird from western Brazil.

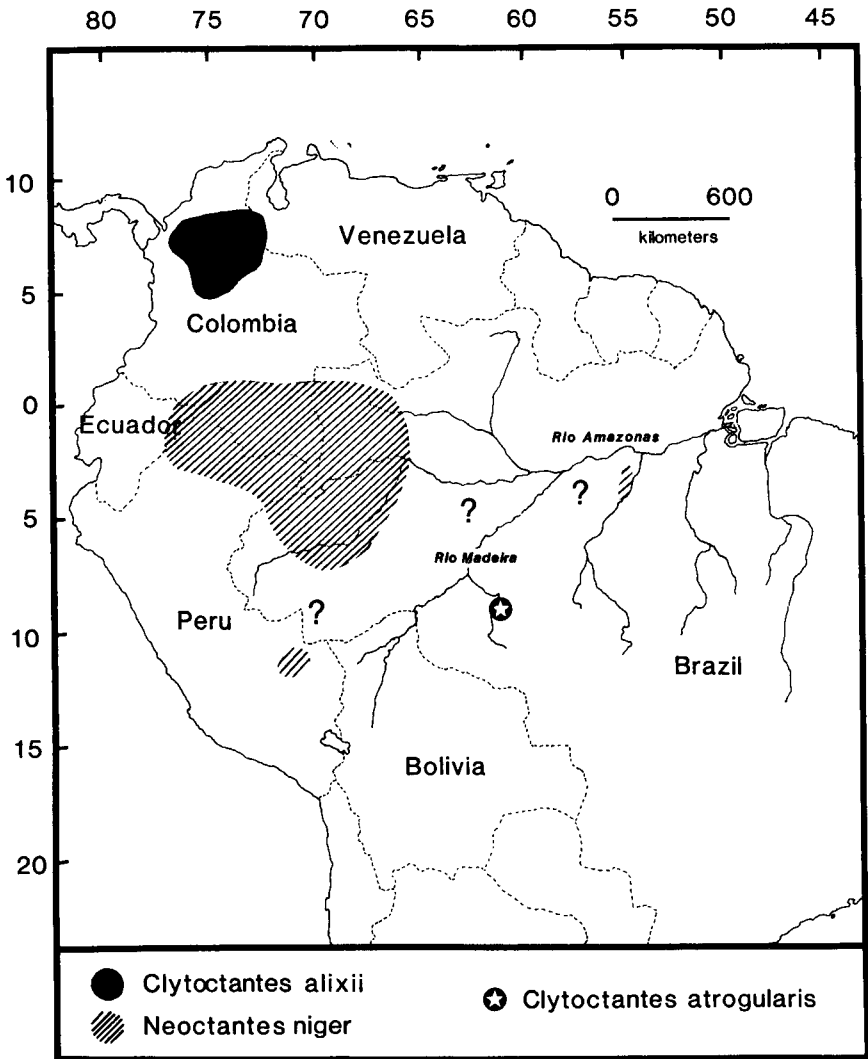


FIG. 1. Known ranges of Bushbirds. Range of *Clytactantes alixii* taken from Hilty and Brown (1986) and Meyer de Schauensee and Phelps (1978); range of *Neoctantes niger* is from Cory and Hellmayr (1924) and specimen localities known to the authors. Uncertainty about the disjunct nature of the *Neoctantes niger* distribution is indicated by (?).

at the Museum of Natural Sciences in Philadelphia); female (ovaries 5×2 mm, ova minute) with fully ossified skull from Cachoeira Nazaré on the west bank of the Rio Jiparaná, Rondônia, Brazil $9^{\circ}44'S$, $61^{\circ}53'W$, elevation 100 m; netted by David Willard on 22 October 1986, prepared by Scott Lanyon, original field number SML86-84.

DIAGNOSIS.—An intermediate sized, sexually dimorphic antbird with a heavy, laterally compressed, all black bill, the mandible of which is sharply upturned. The female plumage is predominantly chestnut with chin, throat, and upper breast jet black. The tail and tail coverts are dark gray. The female is distinguished from female *Clytoctantes alixii* by the black bib, unmarked wing coverts, and dark gray tail coverts. There are no specimens of the male, but sight records indicate that the male is entirely black.

DISTRIBUTION.—Known only from the type locality. However, two independent observations by Ted Parker and by Mort and Phyllis Isler of a male-plumaged *Clytoctantes* at Alta Floresta, Pará, Brazil could be this same species. (See Ecology and Behavior below).

DESCRIPTION OF HOLOTYPE.—The plumage is predominantly chestnut (closest to color 32 [color numbers from Smithe 1975, 1981]). The color changes from dark chestnut on the forecrown, cheeks, crown, nape, and upper back to brown (closest to color 23) on the lower back. There is a concealed white interscapular patch. Upper-tail coverts are gray (closest to color 83) and rectrices are nearly black (closest to color 82). The chin, throat, malars, and extreme upper breast feathers form a jet black (closest to color 89) bib. The bib contains a few scattered chestnut feathers in the malar region. The lower breast, sides, and abdomen are light chestnut. Flank feathers are gray with light chestnut tips. The vent and under-tail coverts are also gray. Upper wing coverts are dark chestnut and unmarked. The remiges are dark grayish brown (closest to color 20) with brown leading edges. The bill is large and laterally compressed (approximately twice as deep as it is wide) and has an upturned mandible. Soft part colors in life: bill, tarsi and feet black, irides dark brown.

MEASUREMENTS OF HOLOTYPE.—Flattened wing 79.0 mm, tail 64.5 mm, culmen length (from anterior edge of nostril) 15.0 mm, culmen length (from base of skull) 25.4 mm, culmen width (at anterior edge of nostril) 4.3 mm, culmen depth (at anterior edge of nostril) 9.5 mm, tarsus 19.5 mm, weight 31.0 g.

ETYMOLOGY.—The specific epithet refers to the black bib of the female.

SPECIMENS EXAMINED.—*Clytoctantes atrogularis*: (MZUSP holotype) from type locality. *C. alixii*: Colombia: Bolívar, Santa Rosa (USNM 4 males, 2 females); Colombia: Córdoba, Quebrada Salvajín, Río Esmeralda (USNM 2 females); Colombia: Antioquia, Puerto Valdivia (AMNH 1 male, 1 female); Colombia: Santander, El Tambor (CM 2 males); Colombia: Cesar, El Cauca (CM 1 male); Colombia: “Bogota” (AMNH 1 male [Type specimen], 1 female); *Neoctantes niger*: Colombia: Putumayo, San Antonio Guamués (FMNH 3 males, 1 female); Colombia: Putumayo, Guascayaco (FMNH 1 male, 1 female); Peru: Loreto, Iquitos (FMNH 1 male, 1 female); Peru: Madre de Dios, Río Palotoa (FMNH 1 female); Brazil: Amazonas, São Paulo de Olivença, Rio Solimões (CM 1 male); Brazil: Amazonas, Rio Juruá (MZUSP 1 male; SMNH 1 male); Brazil: Pará, Rio Tapajós, Morro do Pau (MZUSP 1 female); Brazil: Pará, Rio Tapajós, Uracagui (MZUSP 1 male); Brazil: Pará, Rio Tapajós, Urucurituba (MZUSP 1 male, 1 female). Locality names follow Paynter and Traylor (1981) and Stephens and Traylor (1983).

REMARKS

Systematic relationships.—Placement within the Formicariidae is supported by the concealed inter-scapular patch and subterminal tomial notch. Within the Formicariidae, only *Clytoctantes* and *Neoctantes* share the unusual bill shape of the new taxon, in which the upper mandibular tomia curve dorsally. When initially described, *Clytoctantes* was distinguished from *Neoctantes* by a difference in bill shape and by its larger feet (with longer claws) (Elliot 1870). These characters were examined to determine

TABLE 1
MENSURAL CHARACTERS OF *CLYTOCTANTES* AND *NEOCTANTES*

	<i>Clytoctantes atrogularis</i> ♀	<i>Clytoctantes alixii</i> ♀	<i>Clytoctantes alixii</i> ♂	<i>Neoctantes niger</i> ♀	<i>Neoctantes niger</i> ♂
Culmen width					
$\bar{x} \pm SD$	4.3	4.00 ± 0.27	4.16 ± 0.23	4.22 ± 0.41	4.29 ± 0.20
(N) range	(1)	(10) 3.7–4.5	(8) 4.0–4.7	(5) 3.9–4.8	(10) 3.9–4.6
Culmen depth					
$\bar{x} \pm SD$	9.5	8.98 ± 0.32	9.12 ± 0.39	6.96 ± 0.28	7.12 ± 0.29
(N) range	(1)	(10) 8.5–9.6	(6) 8.5–9.5	(5) 6.7–7.3	(10) 6.6–7.6
Culmen length					
$\bar{x} \pm SD$	15.0	14.89 ± 0.77	15.21 ± 0.71	12.50 ± 0.83	12.86 ± 0.70
(N) range	(1)	(9) 13.7–16.0	(8) 13.9–16.2	(6) 11.4–13.5	(9) 11.8–14.0
Tarsus					
$\bar{x} \pm SD$	19.5	20.13 ± 0.84	20.22 ± 0.29	20.32 ± 1.83	20.19 ± 2.52
(N) range	(1)	(9) 18.6–21.0	(5) 19.8–20.6	(6) 18.3–20.7	(9) 17.0–24.1
Wing					
$\bar{x} \pm SD$	79.0	76.8 ± 1.40	78.4 ± 2.19	75.8 ± 3.76	78.8 ± 5.09
(N) range	(1)	(10) 74.5–79.0	(8) 74.5–81.0	(6) 72.0–81.0	(10) 74.0–88.0
Tail					
$\bar{x} \pm SD$	64.5*	57.44 ± 2.13	59.25 ± 2.87	58.50 ± 4.51	59.4 ± 4.55
(N) range	(1)	(9) 54.0–60.0	(8) 55.0–63.0	(6) 52.0–65.0	(10) 53.0–68.0
Hallux					
$\bar{x} \pm SD$	17.3*	15.68 ± 0.53	16.15 ± 0.58	12.83 ± 0.61	12.90 ± 0.19
(N) range	(1)	(10) 14.4–16.3	(4) 15.5–19.9	(4) 12.2–13.4	(5) 12.7–13.1
Hallux claw					
$\bar{x} \pm SD$	9.7	10.33 ± 0.54	10.65 ± 0.47	6.38 ± 0.33	5.96 ± 0.49
(N) range	(1)	(9) 9.6–11.1	(4) 10.2–11.1	(4) 6.0–6.8	(5) 5.2–6.5

* indicates that *Clytoctantes atrogularis* was significantly different from female *Clytoctantes alixii* at $P < 0.05$.

Note the large variability in tarsus, wing, and tail length for both sexes of *Neoctantes*. Specimens from Peru are noticeably smaller than Brazilian specimens. Whether this is the result of a cline or whether the species is polytypic cannot be addressed without specimens from intermediate localities.

the affinities of the new taxon. Hallux length and hallux claw length are significantly larger in *C. atrogularis* than in *N. niger* (Table 1). Hallux length of the new taxon is also significantly larger than in *C. alixii*. Bill size of the new taxon is not discernibly different from that of *C. alixii* but differs significantly from *N. niger* in all three measures (Table 1, see Fig. 2). In addition, the subterminal tomial notch (the notch is used as the homologous point rather than the tip which is subject to wear) is displaced significantly above the horizontal in *C. alixii* and the holotype of *C. atrogularis* but only slightly so in *N. niger* (Fig. 2).

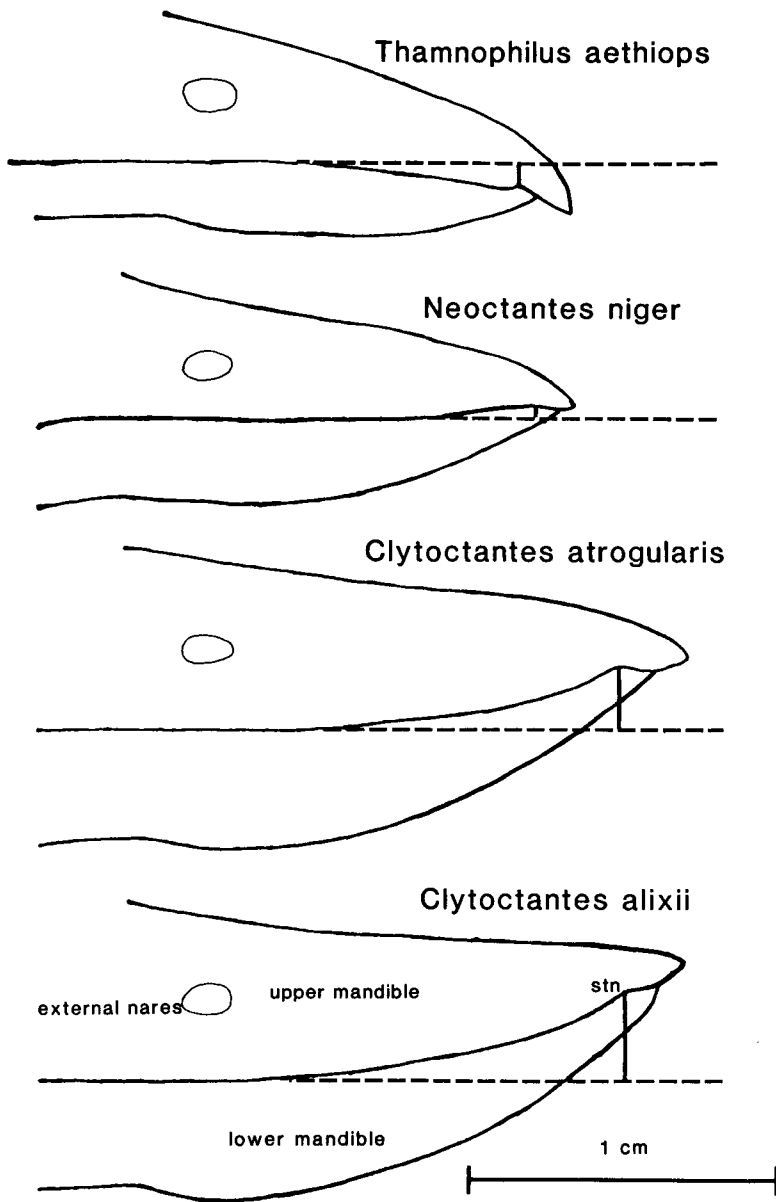


FIG. 2. Bill shape in Bushbirds. Dashed lines are an extrapolation of the line formed by the basal third of the commissure. Vertical lines illustrate the displacement of the subterminal tomial notch (stn) from the horizontal. The typical pattern in the majority of birds is a negative displacement as in *Thamnophilus aethiops*.

Somewhat similar bills have been derived independently within two other suboscine families: the Dendrocolaptidae (*Glyphorhynchus*) and Furnariidae (*Megaxenops*, *Pygarrhicus*, *Simoxenops*, and *Xenops*). Although the presence of this character in other families suggests that this bill form could also be multiply derived *within* the Formicariidae, the strong similarity between the shape and size of the bills of *C. alixii* and *C. atrogularis* suggests that they are similar by common descent.

Plumage coloration is additional evidence that the new taxon belongs in the genus *Clytoctantes*. The adult female collected in Rondônia (sex and skull ossification were confirmed by all three authors) is primarily chestnut like females of *C. alixii*, and unlike the predominantly black female of *N. niger*.

Although *N. niger*, *C. alixii* and the new taxon probably form a monophyletic group, we prefer to retain the two described genera until the phylogeny of this group can be examined in detail. Bill morphology and plumage characters point to the inclusion of the new taxon in *Clytoctantes*, and it is probably quite closely related to *C. alixii*. With so little known about either *C. alixii* or *atrogularis*, it is difficult to assess just how close this relationship is.

Specific status.—The measurements summarized in Table 1 demonstrate that the holotype of *C. atrogularis* is generally larger than the female *C. alixii* we examined, with tail length significantly greater. *C. atrogularis* has a uniformly black bill but dried specimens of *C. alixii* have pale markings on the bill.

The most obvious differences between these forms, however, lie in plumage patterns and coloration. Five plumage characters differ between the females of *C. atrogularis* and *C. alixii*. The most noticeable difference is the black bib of *C. atrogularis*. There is no suggestion of such a bib in the ten female *C. alixii* examined, all of which have underparts that are uniform chestnut. Male *C. alixii* have a jet black throat and breast (contrasting with the dark neutral gray abdomen and back), but this bib is more extensive than that found in the female of the new taxon. The wing coverts of the holotype of *C. atrogularis* are plain, but in both sexes of *C. alixii* there are wing spots (pale buff in females, black or black with white centers in males). Tail coverts in female *C. alixii* are brown, as is the lower back, while in the female *C. atrogularis* these feathers are dark neutral gray. Rectrices are dark gray in the holotype of *C. atrogularis* and brownish gray in *C. alixii*. The body plumage of the sole specimen of *C. atrogularis* is dark chestnut with the upperparts slightly darker. In *C. alixii* the underparts are slightly brighter chestnut, and this color extends onto the lores and forehead contrasting with the darker and browner crown and back. This contrast is evident in male *C. alixii* as well, where the

forehead and lores are black, like the bib, contrasting with the dark gray crown and back.

These quantitative and qualitative differences, and the 2000 km between known populations of *alixii* and *atrogularis* (Fig. 1), lead us to conclude that: (1) *atrogularis* is not an aberrant *alixii* and (2) that these forms are, and have been, genetically isolated. The observed differences are consistent with levels of differentiation between recognized species in the Formicariidae and lead us to recognize this new taxon as a species. At this time we lack the necessary information to determine whether *C. atrogularis* represents a biological species (sensu Mayr 1969), and additional specimens of *C. atrogularis* are necessary to determine its status as a phylogenetic species (sensu Nelson and Platnick 1981). However, we feel that differences between *alixii* and *atrogularis* are sufficiently great that any additional information and samples will support our recognition of this new taxon as a species, regardless of definition employed.

Description of the male.—The male of *Clytoctantes atrogularis* is known from only two sight records by Stotz (but see Ecology and Behavior below). This bird, or birds, had an all black bill of the shape described for the holotype and its plumage looked to be entirely black in the field. In the absence of male specimens, detailed comparison of male *C. atrogularis* to male *C. alixii* is impossible but the black plumage appeared unlike the dark neutral gray with a black bib of *C. alixii*. The absence of wing spots in the single female specimen suggests that male *C. atrogularis* will also lack the wing spots of male *C. alixii*.

Ecology and behavior.—The holotype was collected from a mist-net set in terra firme forest, dominated by dense vine tangles. The two observations of male-plumaged individuals at the type locality were in the same type of habitat. *C. alixii* also frequents dense tangles in Colombia (Carriker 1955). In the initial 15 min observation on 13 October 1986, the male was approximately 1 m up in a large tree fall and worked up to 2–5 m in a vine tangle. The bird gave a very loud, trilled whistle, “tree-tree-tree,” several times at irregular intervals. It was pounding and digging at the vines with its bill. Willis (1988) observed a female *alixii* in eastern Colombia pecking dead stems and ripping gashes in them in much the same fashion. The second brief observation was of a lone individual seen 4 m up in a dense vine tangle.

At Alta Floresta, Rio Teles Pires, Pará in December 1989, Parker and the Islers independently observed a male-plumaged bushbird in dense tangles along a small ravine in terra firme forest. These observers were aware of the finding of a new species of *Clytoctantes* in Rondônia, approximately 500 km to the west, and concluded that they were probably observing this new form. However, the songs from birds at Alta Floresta

were substantially different from those described above from Rondônia. Therefore, whether these Alta Floresta birds represent *C. atrogularis* must be considered speculative until specimens are obtained.

Conservation.—The discovery of this new species is of particular importance in this time of heightened awareness of the uncertain future of tropical forest communities. Although in the past twenty years, more than 25 valid new species of birds have been described from South America, nearly all have been from the Andes and none from Brazilian Amazonia (Mayr and Vuilleumier 1983, Vuilleumier and Mayr 1987). The skewed distribution of new forms reflects not only the distribution of bird species yet to be described, but also the distribution of complete avifaunal surveys. Our discovery of *C. atrogularis* clearly demonstrates that the species composition of lowland Amazonia, like that of the Andes, remains incompletely known. The fact that this distinctive species was observed on only one of two intensive surveys of the type locality and that few such surveys have been conducted in Brazilian Amazonia suggests that additional species remain to be discovered.

At present, *C. atrogularis* is known from only a single locality in Rondônia. Five experienced observers spent 1400 field hours at the type locality and accumulated 1450 net-days. The single netted individual and two sight records suggest that either: (1) this species is extremely uncommon and secretive, or (2) we encountered only dispersing individuals and that it normally occurs in a different habitat. An additional 250 field hours and 375 net-days at a similar locality 70 km distant (but separated by no apparent barrier) resulted in no further observations. If it is indeed endemic to Rondônia, and exists in the low density our experience suggests, then its survival may be seriously threatened by habitat destruction. Rondônia has the fastest rate of deforestation in Brazil (Fearnside 1986). Over 5% of the forest in Rondônia had been destroyed by 1983 (almost all since 1970) and the rate of destruction has increased with the paving of the highway joining Porto Velho to southeastern Brazil in 1984 (Fearnside 1987). Of more immediate consequence, a hydroelectric dam is currently under construction at the type locality of *C. atrogularis*. Unfortunately, our lack of knowledge concerning the habits, habitat requirements, range, and population size of this species limits our ability to make informed recommendations concerning its preservation.

In recognition of Rondônia's high degree of endemism in a number of taxonomic groups (Vanzolini and Williams 1970, Brown 1982, Prance 1982, Cracraft 1985), the scientific community is beginning to focus more attention on this little studied area. With additional work, we may learn enough about *C. atrogularis* to determine whether it is threatened by development of Rondônia, and if so, to formulate plans for its protection.

It seems likely that it occurs in the Reserva Biológica do Jarú which has similar habitat to the type locality, but to date there have been no avifaunal surveys there. We strongly encourage the development of additional parks and reserves in this part of Rondônia to protect not only this most recently described Brazilian endemic, but also the many plant and animal endemics (many as yet undescribed) that exist in this extremely diverse area.

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LITERATURE CITED

- BROWN, K. S., JR. 1982. Paleoecology and regional patterns of evolution in Neotropical forest butterflies. Pp. 255–308 in *Biological diversification in the tropics* (G. T. Prance, ed.). Columbia Univ. Press, New York, New York.
- CARRIKER, M. A., JR. 1955. Notes on the occurrence and distribution of certain species of Colombian birds. *Noved. Colomb.* 2:48–64.
- CORY, C. B. AND C. E. HELLMAYR. 1924. Catalogue of birds of the Americas and the adjacent islands in Field Museum of Natural History. Part III, Field Museum of Natural History, Pub. 223.
- CRACRAFT, J. 1985. Historical biogeography and patterns of differentiation within the South American avifauna: areas of endemism. Pp. 49–84 in *Neotropical ornithology* (P. A. Buckley, M. S. Foster, E. S. Morton, R. S. Ridgely, and F. G. Buckley, eds.). Ornithol. Monogr. No. 36. American Ornithologists' Union, Washington, D.C.
- ELLIOT, D. G. 1870. Descriptions of some new genera and species of birds belonging to the families Formicariidae, Pachycephalidae, and Sylviidae. *Proc. Zool. Soc., London*, 1870:242–244.
- FEARNSIDE, P. M. 1986. Spatial concentration of deforestation in the Brazilian Amazon. *Ambio* 15(2):74–81.
- . 1987. Deforestation and international economic development projects in Brazilian Amazonia. *Conservation Biology* 1:214–221.

- HILTY, S. AND W. L. BROWN. 1986. A guide to the birds of Colombia. Princeton Univ. Press, Princeton, New Jersey.
- MAYR, E. 1969. Principles of systematic zoology. McGraw-Hill, New York.
- AND F. VUILLEUMIER. 1983. New species of birds described from 1966 to 1975. *J. Orn.* 124:217–232.
- MEYER DE SCHAUENSEE, R. AND W. H. PHELPS, JR. 1978. A guide to the birds of Venezuela. Princeton Univ. Press, Princeton, New Jersey.
- NELSON, G. J. AND N. I. PLATNICK. 1981. Systematics and biogeography: cladistics and vicariance. Columbia Univ. Press, New York, New York.
- PAYNTER, R. A., JR. AND M. A. TRAYLOR, JR. 1981. Ornithological gazetteer of Colombia. Museum of Comparative Zoology, Cambridge, Massachusetts.
- PRANCE, G. T. 1982. Forest refuges: evidence from woody angiosperms. Pp. 137–157 in *Biological diversification in the tropics* (G. T. Prance, ed.). Columbia Univ. Press, New York, New York.
- SMITHE, F. B. 1975. Naturalist's color guide. *Am. Mus. Nat. Hist.*, New York, New York.
- . 1981. Naturalist's color guide Part III. *Am. Mus. Nat. Hist.*, New York, New York.
- STEPHENS, L. AND M. A. TRAYLOR, JR. 1983. Ornithological gazetteer of Peru. Museum of Comparative Zoology, Cambridge, Massachusetts.
- VANZOLINI, P. E. AND E. E. WILLIAMS. 1970. South American anoles: the geographic differentiation of the *Anolis chrysolepis* species group (Sauria, Iguanidae). *Arq. Zool., São Paulo* 19:1–298.
- VUILLEUMIER, F. AND E. MAYR. 1987. New species of birds described from 1976 to 1980. *J. Orn.* 128:137–150.
- WILLIS, E. O. 1988. Behavioral notes, breeding records, and range extensions for Colombian birds. *Rev. Acad. Col. Ciencias* 16(63):137–150.

COLOR PLATE

The frontispiece painting by John W. Fitzpatrick has been made possible by an endowment established by George Miksch Sutton.