

*Riverine floodplain thickets in a restricted area of lowland south-east Peru form the habitat of this ground-dwelling formicariid, which is consequently at some risk from actual and impending development utilizing the soils on which such habitat stands.*

**DISTRIBUTION** The Rufous-fronted Antthrush is known from a very small geographic area in the Amazonian lowlands of south-east Peru near the base of the Andes. The four specimens and a small number of recent sight records are all from floodplain forests along rivers that drain into the río Madre de Dios in the department of the same name. All localities are at elevations of c.300-400 m.

Three of the four specimens were collected at the mouth of the río Colorado (given as 12°30'S 70°25'W by Blake 1957). The type-description is of a female taken in October 1954; an individual obtained at the same place and on the same date is in MHNJP (Parker 1983), while a male (in AMNH) was collected there in October 1958, and another male (in FMNH) was obtained at the mouth of the río Inambari in September 1958. Following these discoveries, the species went unrecorded until September 1982, when one was found along the río Manu near the Cocha Cashu Biological Station (Parker 1983). This record was followed by a small number of sightings annually from 1983 to 1988 along the lower río Manu, especially at Boca Manu (S. L. Hilty, C. A. Munn, S. Robinson verbally 1980s). Most of these observations involved solitary individuals, but "at least three pairs held territories in the vicinity of Cocha Juárez, Manu National Park" in July–August 1990 (P. K. Donahue *in litt.* 1990), where the species was seen again in July 1991 (B. M. Whitney *in litt.* 1991). Another pair was briefly observed (and tape-recorded) in mid-1988 along the lower río Tambopata opposite the mouth of the río La Torre not far upriver from Puerto Maldonado (P. K. Donahue *in litt.* 1988). Recent sight records (mid-1991) are from the Colpa de Guacamayos area along the río Tambopata near the mouth of the río Tavara, where the species is reportedly more numerous than at other known localities (D. Michael *in litt.* 1992), and from Cocha Salvador in Manu National Park (B. M. Whitney *in litt.* 1991).

**POPULATION** Although population data are unavailable, Rufous-fronted Antthrushes are rare or absent from most of the well-studied localities within the small known range. Most records are of individuals or pairs that were present for only short periods of time. This may reflect the ever-changing structure of their floodplain forest habitat, or may be the result of competitive exclusion by the commoner and apparently dominant Black-faced Antthrush *Formicarius analis* (P. K. Donahue *in litt.* 1988), although Parker (1983) reported a case of no apparent interspecific territoriality. Rufous-fronted Antthrushes may be locally numerous in forests of the right age and structure, as at Cocha Juárez in Manu National Park, where three pairs were found in 1990, or near the Colpa de Guacamayos, where fairly common in 1991 (see Distribution).

**ECOLOGY** This terrestrial species inhabits shaded thickets of broadleaved plants such as *Heliconia metallica* in young floodplain forests generally within 100 m of rivers or oxbow lakes; these forests are usually dominated by a (relatively) few species of large tree with a canopy height averaging about 25-30 m (Parker 1983, TAP). Common large trees in this habitat in the Madre de Dios drainage include *Ficus insipida*, *Acacia lorentensis*, *Cedrela odorata*, *Erythrina* spp., *Sapium* spp. and *Terminalia oblonga* (R. Foster verbally 1991); the middle storey in these forests is fairly open, but there are often tall thickets of spiny bamboo *Guadua* sp. (TAP). Rufous-fronted Antthrushes were regularly found in bamboo thickets in at least two localities (Boca Manu and the Colpa de Guacamayos; S. L. Hilty and D. Michael verbally 1980s), while at Cocha Cashu (Manu National Park) the species was found in tall forest dominated by *Ficus insipida* with a dense ground cover of *Heliconia* (Parker 1983), and at both Cocha Suárez and Cocha Salvador it was in river-edge *Heliconia* thickets (B. M. Whitney *in litt.* 1991). Along the lower río Tambopata it was found in "second-growth" forest near the riverbank (P. K. Donahue *in litt.* 1988). The morphologically similar Black-faced Antthrush occurs in the floodplain habitat of Rufous-fronted throughout the small range of the latter, and there is evidence (based on song playback experiments) that *analis* may exclude *rufifrons* from some areas apparently suitable to both: *analis* at least occasionally responds strongly and aggressively to songs of *rufifrons* (P. K. Donahue *in litt.* 1988, J. W. Terborgh verbally 1980s). Another plausible explanation for the scarcity of *rufifrons* is that the constantly changing structure and floristic composition (and food resources) of its riverine forest habitat require a more nomadic life-style than is typical of most formicariid species, but why this species is so restricted geographically remains a mystery. The testes of the bird collected in September 1958 were enlarged.

**THREATS** On paper, this and other floodplain forest bird species (see below) of southern Peru would appear to be relatively safe owing to significant populations of them surely occurring along the rivers within Manu National Park. However, even if this park continues to receive some degree of protection (which is not guaranteed), the extensive riverine forests to the south and east will increasingly become the focus of development schemes and colonization projects: completion and maintenance of the highway through Puerto Maldonado will certainly stimulate development in the department of Madre de Dios, and forests along the rivers will be seriously affected by most types of economic activity (TAP). The species-rich forests along the ríos Madre de Dios, Inambari, and Tambopata have already been selectively logged and – in many areas – degraded by the activities of subsistence farmers, hunters, and gold miners (TAP). Their long-term survival will depend on the degree to which the people of Madre de Dios choose or are allowed to choose sustainable forest activities (selective timber extraction, brazil nut harvesting) over short-term ones (cattle-ranching). Similarly, poorly planned colonization projects will lead (through agriculture and cattle-ranching) to the depletion and erosion of rich alluvial soils within a generation, when with adequate ecological evaluation these could be farmed productively over long periods of time in carefully chosen areas.

**MEASURES TAKEN** The magnificent Manu National Park (15,330 km<sup>2</sup>, parts of which are also constituted as a Biosphere Reserve and World Heritage Site: IUCN 1992) encompasses large areas of lowland and montane rainforest and no doubt protects significant populations of this and other bird species endemic to south-western Amazonia (but see below).

**MEASURES PROPOSED** Manu National Park needs the full commitment of the world's conservation community: continued financial support (both national and international) for park facilities and park guards is essential if this exceptional area is to survive far into the future, and a campaign to educate the nearby communities concerning the importance of the park (e.g., as a reservoir of economically valuable plants and animals) is badly needed (TAP).

The recently established Tambopata-Candamo Reserve Zone (14,790 km<sup>2</sup>: IUCN 1992) covers a large area of land south of the río Madre de Dios between the ríos Heath and Tambopata; although its boundaries and status are still being debated, the reserve includes some of the richest known sites on earth for birds, butterflies and plants – and presumably for all terrestrial life-forms (TAP). Of particular importance is protection for the tall floodplain forests that are being rapidly cleared along the lower Tambopata: these forests – like those in Manu National Park – contain the most diverse bird communities yet reported, with as many as 350 resident bird species in areas of c.1 km<sup>2</sup>, and single site lists of over 550 species, e.g. at the Tambopata Reserve (TAP). Recent fieldwork in the adjacent Alto Madidi region of northern Bolivia, where the Rufous-fronted Antthrush must be expected and searched for, revealed similar levels of species diversity for birds and plants, and the area has been proposed as a national park (Parker and Bailey 1991). The observation that floodplain forests are more constrained and not as floristically diverse at the base of the Andes (R. Foster verbally 1991) indicates the importance of preserving large examples of floodplain forest habitat farther out on the Amazon plains, as along the middle and lower río Tambopata. This in turn underscores the importance of clarifying and seeking increased protection for the that portion of Tambopata-Candamo which lies between the ríos Tavara and La Torre (TAP). The preservation of the tremendous genetic diversity of upper (south-west) Amazonia would also be served by the establishment of additional forest reserves of one kind or another in the headwaters of the río Purus near the Peru–Brazil border, and by increased protection for the Manuripi-Heath Reserve in northern Bolivia.

The Rufous-fronted Antthrush should be looked for along the rivers of south-west Brazil and northern Bolivia.

**REMARKS** Most of the endemic bird species restricted to south-west Amazonia below 600 m occur primarily in tall floodplain forests along the major rivers (TAP). This makes them all vulnerable to deforestation as well as to more subtle forms of habitat alteration, whereas most upland (terra firme) species tend to be widespread, occurring throughout much of the Amazon basin. In addition to the Rufous-fronted Antthrush, other riverine forest endemics with very similar geographic ranges include the threatened Selva Cacique *Cacicus koepckeae* and the near-threatened Amazonian Parrotlet *Nannopsittaca dachilleae* (see O'Neill *et al.* 1991), Scarlet-hooded Barbet *Eubucco tucinkae* (see Parker *et al.* 1991), Black-faced Cotinga *Conioptilon mcilhennyi* (see Snow 1982) and White-cheeked Tody-flycatcher

*Poecilatriccus albifacies* (see Parker 1982b). A number of subspecies are also (curiously) restricted to floodplain forest habitats (e.g., the Emerald Toucanet *Aulacorhynchus prasinus dimidiatus*) (TAP).