
Range extension for Slender Antbird *Rhopornis ardesiaca* with comments on external morphology of adults

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Este trabalho apresenta uma nova localidade de ocorrência do gravatazeiro *Rhopornis ardesiaca*, uma das espécies de Thamnophilidae mais raras e ameaçadas da região Neotropical, até então conhecida somente das *matas de cipó* da região de Boa Nova, no estado da Bahia. A distribuição da espécie estende-se agora até Minas Gerais, numa altitude bem inferior àquela onde se encontram as populações baianas até agora conhecidas. Também são feitas algumas correções sobre a morfologia externa dos adultos, até então mal documentada na literatura. Adicionalmente relata-se a ocorrência de outras espécies ameaçadas de extinção registradas na área: *Crypturellus noctivagus zabele*, *C.variegatus*, *Primolius maracana*, *Pyrrhura crucatata*, *Aratinga auricapilla*, *Amazona rhodocorytha*, *Campephilus robustus* and *Neopelma aurifrons*.

Introduction

Slender Antbird *Rhopornis ardesiaca* is one of the rarest and most endangered birds in the Neotropics, being restricted to dry forest, known as *mata de cipó*, between the rios Paraguaçu and Pardo, southern Bahia, Brazil, mainly at 700–1,000 m^{3,13,16,19,20}. Its distribution is thus restricted to the central part of Endemic Bird Area (EBA) 72¹⁵, and it is classified as globally Endangered^{4,14}. It was described from a male collected by Wied in 'southeastern Brazil': the type-locality was first suggested, by Naumburg⁷, as being Boa Nova, near Ituaçu county, north of the rio de Contas, Bahia, but this was later corrected by Willis & Oniki²⁰ as being a different Boa Nova (14°20'S 40°11'W), also south of rio de Contas, Bahia. It was not until 103 years later that Naumburg⁷ described the female, based on one taken by Kaempfer at Boa Nova (14°32'S 40°22'W) in 1928, as well as a male from Ituaçu (13°49'S 41°27'W) (but see Collar *et al.*³). Thereafter Willis & Oniki²⁰ presented sonograms and descriptions of the species' primary vocalisations, and commented on its habitat and behaviour, based on observations at Boa Nova, in December 1974. Sick, together with Teixeira and Gonzaga, collected a male at Boa Nova in October 1977, and another in December 1978¹⁶. In October 1983, Teixeira and Puga collected two pairs, also at Boa Nova, bringing the number of specimens to nine¹⁶. Teixeira¹⁶ offered remarks on the species' behaviour and habitat, with a description of a nest assumed to be of the species.

Here, we report the discovery of a new population of *R. ardesiaca*, in Minas Gerais, and correct previous descriptions of the external morphology of both sexes.

Methods

Fabiano Rodrigues de Melo, a biologist at the Instituto Estadual de Florestas de Minas Gerais (IEF), informed us of an antbird observed in dense understorey with many bromeliads, within a forest fragment on the left bank of the middle rio Jequitinhonha. This forest of 1,100 ha (Fig. 2), encompasses parts of Santana, Ondina and Jaboti farms (16°05'S 40°02'W; hereafter Fazenda Santana), in Salto da Divisa, north-east Minas Gerais, at c.100 m. Topography is flat and vegetation classified as *Floresta Estacional Decidual das Terras Baixas* (lowland deciduous forest). This forest type occurs disjunctly in Brazil, mostly in the rio Pardo basin of southern Bahia¹⁷. At Fazenda Santana vegetation consists of three strata. The first is 30 m high and comprises trees with narrow canopies; the second is denser, height 10 m; and the third also dense, reaching 3 m. Studies by Andrade¹ indicate the presence of the following arboreal species in the first: *Goniorrhachis* sp., *Paratecoma peroba*, *Cavallinesia* sp., *Tabebuia* sp., *Caesalpinia ferrea* sp., *Machaerium* sp. and *Cnidoscopus* sp. In the middle layer, the cacti *Cereus jamacaru* and *Pilosocereus* sp. are relatively common. The presence of Spanish moss *Tillandsia usneoides* is notable at both mid- and higher levels. In the undergrowth, bromeliads up to 2 m tall (*Ananas* sp.) are abundant, intermixed with thorny shrubs, lianas and slender bamboos¹ (Fig. 3).

During 2.5 days, in June 1999, we visited Fazenda Santana to confirm the mystery bird's identification and to undertake a general avian inventory. Observations were made from early morning to dusk. A pair of *R. ardesiaca* was trapped and after being photographed was released. In addition, tape-recordings were made using a Sony TCM 5000 EV and Sennheiser ME 66 microphone. Subsequently, however, we noticed that the photograph of the female differed from the description by Naumburg⁷ and illustration in Ridgely & Tudor¹¹. Our observations also suggested that live birds slightly differed in some aspects of external morphology to the description by Teixeira¹⁶. Thus, our identification became less certain, leading us to make another trip to the area, in April 2000, to collect a pair (IBAMA collecting permit no. 11392/99), which is deposited in the ornithological collection of the Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil (DZUFMG 2893 and 2894).

In May 2000, we intended to compare our specimens with those housed at Museu Nacional do Rio de Janeiro (MNRJ), collected by Sick and described by Teixeira¹⁶. However, our request to examine any of the specimens collected by Teixeira and Puga was denied (apparently because they were being studied by the trustee), and we were able to examine only one of the two males taken by Sick (MN32054, on 25 December 1978). Additionally, lack of grants prevented us from checking the female taken by Kaempfer, though we examined a photo taken by Roson Silva e Silva. Vocalizations recorded on our first trip were compared with those recorded by L. P. Gonzaga and B. M. Whitney at Boa Nova, stored in the sound archive 'Elias Pacheco Coelho' (ASEC), Universidade Federal do Rio de Janeiro. Our

recordings are also deposited there (cassettes RR 82 and RR 83).

Sonograms of individuals from Salto da Divisa (recorded by RR) and Boa Nova (recorded by Kevin Zimmer, January 1997, tape ISL-KJZ.50:20 and 50:22, and by Bret Whitney, March 2000, tape ISL-BMW.183:31) were prepared by Mort and Phyllis Isler. All vocalizations are stored in the Isler's collection.

Results

Vocalisations recorded at Fazenda Santana matched those from Boa Nova (see sonograms), confirming the presence of *R. ardesiaca* in north-east Minas Gerais, and extending its distribution 175 km south of Boa Nova (Fig. 4). In addition, the lower altitudinal limit of the species is considerably reduced, from 700 m to 100 m.

Song of females from Salto da Divisa and Boa Nora are between 2.0 and 4.5 kHz. Female and male calls, and the rattle, range from near 1.0 to 9.0–9.5 kHz.

Comparison of the male taken at Fazenda Santana (DZUFMG 2893) with that from Boa Nova showed that both had the same colour pattern, though the latter is paler, perhaps due to the specimen's age. Our male was an adult, with completely ossified skull and testes measuring 2 x 1 mm. Other measurements were: total length 195 mm, wing 69.9 mm, tail 76 mm, tarsus 31.1 mm, nostril 11.6 mm and culmen 21.8 mm. The tarsus, which was grey-blue, became black on preparation, and the iris was red. It was in complete moult (throat, crown, back, primaries, secondaries and rectrices). Comparing it with others observed in the field and a male photographed at Boa Nova¹⁰, all following playback, we verified that the 'conspicuous naked and light purple area on lores and below the eyes' of specimens from Boa Nova is restricted to a tiny ring around the eye (but see Teixeira¹⁶). Likewise, the female specimen, and those observed in the field, had this coloured area restricted to the eye-ring.

Our female (DZUFMG 2894) had 50% skull ossification and ovaries poorly developed (2 x 1 mm), and a grey-blue tarsus that became black after preparation. Total length: 186 mm, wing 65.4 mm, tail 76.4 mm, tarsus 30.7 mm, nostril 10.4 mm and culmen 19.3 mm. It was moulting the throat, neck and head feathers, secondaries and rectrices. It too differed from the description by Naumburg⁷ and from Ridgely & Tudor's¹¹ illustration. An analysis of the live female (Fig. 5) revealed that the tawny-brown coloration is restricted to the top of the head and does not reach the neck, constituting only a cap. As mentioned above, it was impossible to compare the female from Salto da Divisa with those from Bahia. However, examination of our specimen after preparation revealed that the appearance of the tawny-brown coloration of the top of the head appeared to extend to the base of the neck, and not forming just a cap as in live individuals. Evidently, this depends upon the method of specimen preparation, but comparison of live birds with the skin suggests that the same could have occurred when Naumburg, who never saw a live *R. ardesiaca*, described the female six years after it had been collected⁸. The photo we have examined of this female strongly supports our suspicions.

Individuals from Salto da Divisa also initially presented behaviour and micro-habitat use similar to those described for individuals from Bahia^{16,20}. Though we did not find clusters of *Aechmea* bromeliads in Fazenda Santana's forest, large patches of terrestrial bromeliads, apparently *Ananas*, made the understorey impenetrable (Fig. 2). *R. ardesiaca* is found wherever these bromeliads grow and, occasionally, in tangled vines and slender bamboos near bromeliads. At Fazenda Santana the species was relatively common and immediately located by its song. It was also detected in another forest fragment of 460 ha, situated 900 m from the largest forest fragment, where bromeliads were also present (Fabiano R. de Melo pers. comm.).

On two occasions, a pair of *R. ardesiaca* was seen foraging within a mixed-species flock in the forest understorey. The first was composed of Eastern Slaty-antshrike *Thamnophilus punctatus*, Scaled Antbird *Drymophila squammata* and Euler's Flycatcher *Lathrotriccus euleri*, while the second comprised a pair of *R. ardesiaca* together with several White-shouldered Fire-eye *Pyriglena leucoptera*, a pair of *Thamnophilus punctatus* and one Long-billed Gnatwren *Ramphocaenus melanurus*.

Other species of global concern in the area were Red-browed Amazon *Amazona rhodocorytha* (Endangered; tape-recorded), Blue-winged Macaw *Primolius maracana* (Vulnerable), Golden-capped *Aratinga auricapilla* (Vulnerable; tape-recorded) and Blue-chested Parakeets *Pyrrhura cruentata* (Vulnerable; tape-recorded)¹⁴, and Wied's Tyrant-manakin *Neopelma aurifrons* (specimen, DZUFMG 2854, unsexed). We also recorded Yellow-legged Tinamou *Crypturellus noctivagus zabele* and Robust Woodpecker *Campephilus robustus*, which are on the Brazilian Red Data list², as well as Variegated Tinamou *Crypturellus variegatus* (tape-recorded) and Long-billed Gnatwren *Ramphocaenus melanurus* (tape-recorded), which are considered at risk and presumably threatened within Minas Gerais⁶. Other records were determined solely by sight or aural records.

We did not find Narrow-billed Antwren *Formicivora iheringi*, another endemic of *mata de cipó*⁴, which was collected by G. T. Mattos in the 1970s in Almenara and Divisópolis counties, Minas Gerais, north-west of Salto da Divisa¹³ (specimens at MNRJ and within his private collection). Generally, the avifauna of Fazenda Santana differs little from that of Boa Nova¹⁶, apparently lacking a few species typical of drier areas, such as Silvery-cheeked Antshrike *Sakesphorus cristatus*, Narrow-billed Antwren *Formicivora iheringi* and Stripe-backed Antbird *Myrmorchilus strigilatus*.

Discussion

The new population's discovery significantly extends the geographic distribution of *R. ardesiaca*. However, its range remains tiny, and is restricted to EBA 72¹⁵.

Sonograms presented here are similar to those by Willis & Oniki²⁰, though theirs are c.0.5 kHz higher than those

given here. This is probably due to different calibrations being used by Willis & Oniki and the Islers, as calls and songs from Boa Nova and Salto da Divisa depicted here do not differ in frequency. Additionally, the lower number of notes (seven) in the Salto da Divisa female loudsong (Fig. 1A) compared to that from Boa Nova (eight, Fig. 1B) is probably within the normal range of variation, as the female song given by Willis & Oniki²⁰ has just five notes. Variation in song length is relatively common among antbirds, as we have frequently observed in e.g. *Pyriglena leucoptera*, *Thamnophilus* spp. and *Dysithamnus mentalis* and *D. stictothorax* in south-east Brazil.

The solution to our doubts concerning male and female external morphology was only possible due to the collection of specimens, as well as field observations and recordings, together with access to an MNRJ specimen and other vocalisation recordings. This demonstrates that specimen collection *is* necessary, as even relatively well-known species can possess relevant morphological characteristics that have been poorly documented in the literature. Thus, the remarkable differences between live individuals and literature descriptions, even of a peculiar species like *R. ardesiaca*, demonstrates that sole reliance on field guides could lead to misidentifications. Some ornithologists, ecologists, birdwatchers and government officials should recognise that the identification and distribution of Neotropical birds is inadequately known. Much basic work using specimens is still necessary⁹. Additionally, specimens within museums (such as MNRJ) should be made available for all researchers, to hasten development of ornithology in the Neotropics.

The presence of *R. ardesiaca*, together with other species threatened at a global, national and regional levels, makes the forest fragments at Fazenda Santana of outstanding importance within the Atlantic Forest region, constituting a new Key Area¹⁸. Its importance increases when we consider that *Floresta Estacional Decidual de Terras Baixas*, at least in Bahia, is wholly unprotected¹². As the forest fragments at Fazenda Santana are isolated within a sea of cattle pastures the long-term survival of their dependent fauna and flora is uncertain. Thus, in addition to their protection, an intensive process of environmental education within the local community is needed. Despite many appeals concerning the creation of a reserve to protect *R. ardesiaca* and other species typical of *mata de cipó* by the national and international scientific communities^{4,5,16,19,20}, no efforts have been made to protect the species by either state or federal governments. Fortunately, our discovery occurred at a time when IEF was seeking to protect new areas in the state, and should reinforce the institute's work in north-east Minas Gerais, where it hopes to create a number of reserves. At least the largest forest block of Fazenda Santana is likely to be declared an Área de Relevante Interesse Ecológico (Relevant Ecological Interest Area) by the state government, following successful negotiation with the farm owners. But, given its importance, a stronger and more effective protection categorisation (e.g. Biological Reserve) is warranted.

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