ISSN (impresso) 0103-5657
ISSN (on-line) 2178-7875

Revista Brasileira de Ornitologia

Volume 19
Número 2
Junho 2011

www.ararajuba.org.br/sbo/ararajuba/revbrasorn

Publicada pela
Sociedade Brasileira de Ornitologia
São Paulo - SP

Revista Brasileira de Ornitologia

SOCIEDADE BRASILEIRA DE ORNITOLOGIA
(Fundada em 1987)
www.ararajuba.org.br

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Projeto Gráfico e Editoração Eletrônica: Airton de Almeida Cruz (e-mail: airtoncruz@hotmail.com).

Capa: Capa: gavião-real, *Harpia harpyja;* furriel-de-encontro, *Parkerthraustes humeralis;* ararajuba, *Guaruba guarouba;* ariramba-preta, *Brachygalba lugubris;* cambaxirra-cinzenta, *Odontorchilus cinereus;* peixe-frito-pavonino, *Dromococcyx pavoninus;* maria-cabeçuda, *Ramphotrigon megacephalum;* maria-bonita, *Taeniotriccus andrei;* bacurau-ocelado, *Nyctiphrynus ocellatus;* rabo-branco-de-bigodes, *Phaethornis superciliosus;* rendadinho, *Willisornis poecilinotus;* anhuma *Anhima cornuta.* Fotos: Alexander C. Lees.
Cover: Cover: Harpy Eagle, *Harpia harpyja;* Yellow-shouldered Grosbeak, *Parkerthraustes humeralis;* Golden Parakeet, *Guaruba guarouba;* Brown Jacamar, *Brachygalba lugubris;* Tooth-billed Wren, *Odontorchilus cinereus;* Pavonine Cuckoo, *Dromococcyx pavoninus;* Large-headed Flatbill, *Ramphotrigon megacephalum;* Black-chested Tyrant, *Taeniotriccus andrei;* Ocellated Poorwill, *Nyctiphrynus ocellatus;* Long-tailed Hermit, *Phaethornis superciliosus;* Scale-backed Antbird, *Willisornis poecilinotus;* Horned Screamer, *Anhima cornuta. Photos: Alexander C. Lees.*

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www.ararajuba.org.br/sbo/ararajuba/revbrasorn

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Revista Brasileira de Ornitologia

Artigos publicados na *Revista Brasileira de Ornitologia* são indexados por:

Biological Abstract, Scopus (Biobase, Geobase e EMBiology) e Zoological Record.

Bibliotecas de referência para o depósito da versão impressa: Biblioteca do Museu de Zoologia da USP, SP; Biblioteca do Museu Nacional, RJ; Biblioteca do Museu Paraense Emílio Goeldi, PA; National Museum of Natural History Library, Smithsonian Institution, USA; Louisiana State University, Museum of Natural Science, USA; Natural History Museum at Tring, Bird Group, UK.

Reference libraries for the deposit of the printed version: Biblioteca do Museu de Zoologia da USP, SP; Biblioteca do Museu Nacional, RJ; Biblioteca do Museu Paraense Emílio Goeldi, PA; National Museum of Natural History Library, Smithsonian Institution, USA; Louisiana State University, Museum of Natural Science, USA; Natural History Museum at Tring, Bird Group, UK.

FICHA CATALOGRÁFICA

Revista Brasileira de Ornitologia / Sociedade Brasileira de Ornitologia. Vol. 19, n.2 (2011) -
São Paulo, A Sociedade, 2005 -
v. : il. ; 30 cm.

Continuação de:. Araraju ba: Vol.1 (1990) - 13(1) (2005).

ISSN: 0103-5657 (impresso)
ISSN: 2178-7875 (on-line)

1. Ornitologia. I. Sociedade Brasileira de Ornitologia.

Revista Brasileira de Ornitologia

Volume 19 – Número 2 – Junho 2011

SUMÁRIO

Foreword

The Amazon is considered the area with the highest diversity of birds on earth. At least 1,200 bird species can be found in this region, and this number corresponds to about 65% of the bird species already found in Brazil. As the first scientific expeditions to this region took place, it soon became clear that birds, as well as other organisms, are not homogeneously distributed in the Amazon. Instead they are distributed and "segregated" into a several different environments ranging from open areas such as savannas and *campinas* through flooded areas such as *várzeas* and *igapós,* to *terra firme* forests and its variations.

Although widely recognized as one of the most diverse and complex ecological environments on the planet, much of the Amazon is still poorly known. The lack of basic information regarding the organisms within this biogeographical area is one of the main obstacles to the improvement of our understanding of patterns and processes that shape the biodiversity of this region. Information such as species' range is mostly scarce and unavailable. This especial issue **"Bird surveys in the Amazon",** published by *Revista Brasileira de Ornitologia,* aims to reduce the lack of basic information.

A total of 11 articles is found in this issue. They provide information on the avifauna of 43 localities surveyed in six states in northern Brazil. The state of Pará is represented by 13 localities on five articles, while there are seven localities from the state of Rondônia cited on two articles; one article surveyed 14 localities in the state of Tocantins and one presents three localities from the state of Acre. The states of Amazonia and Amapá were represented on one article each, mentioning four and two localities, respectively. The editors were able to get a number of authors actively working in the Brazilian Amazon in the last few years, gathering much information about the Amazonian avifauna, here presented in a single volume. Therefore, this especial issue of the *Revista Brasileira de Ornitologia* **"Bird surveys in the Amazon"** represents a considerable advance on the understanding of bird distribution in this important Brazilian biome.

Marcos Pérsio Dantas Santos
Universidade Federal do Pará

Alexandre Aleixo
Museu Paraense Emílio Goeldi

Invited Editors

Revista Brasileira de Ornitologia, 19(2), 93-107
Junho de 2011

ARTIGO

Avifauna of two localities in the south of Amapá, Brazil, with comments on the distribution and taxonomy of some species

Fabio Schunck[1,5], Andre C. De Luca[2], Vítor de Q. Piacentini[1,3], Marco Antônio Rego[1,3], Bruno Rennó[4] and Aline H. Corrêa[1]

1. Seção de Aves, Museu de Zoologia da Universidade de São Paulo. Avenida Nazaré, 481, CEP 04263-000, São Paulo, SP, Brasil.
2. Rua São Paulo, Quadra 28, Lote 6, casa 3, CEP 74685-550, Goiânia, GO, Brasil.
3. Pós-Graduação (Zoologia), Instituto de Biociências, Universidade de São Paulo.
4. Rua Vereador Richard Rocha Andrade, 266, CEP 27516-170, Resende, RJ, Brasil.
5. Author for correspondence: E-mail: fabio_schunck@yahoo.com.br

Recebido em 14/03/2011. Aceito em 29/05/2011.

RESUMO: Avifauna de duas localidades do sul do Amapá, Brasil, com comentários sobre distribuição e taxonomia de algumas espécies. O estado do Amapá possui poucos inventariamentos ornitológicos publicados, estando a maior parte deles restritos à sua porção leste. Neste trabalho apresentamos o levantamento da avifauna de duas localidades no sul do Amapá, uma delas estritamente florestal (Reserva Extrativista do Rio Cajari) e outra numa área de mosaico de savanas e florestas (Vila Nova). Os trabalhos compreenderam duas amostragens na estação chuvosa (dez/2008 e fev/2010) e uma na estação seca (jul/2010), resultando no registro de 386 espécies. Incluem-se aí os primeiros registros documentados para o Amapá de *Nyctibius leucopterus, Hydropsalis maculicaudus* e *H. torquata,* este último também o primeiro registro brasileiro ao norte do rio Amazonas. Nossos dados reforçam ainda a necessidade de estudos revisivos acerca da taxonomia das populações amapaenses de *Pyrrhura picta, Threnetes niger* e *Sclerurus caudacutus.*

PALAVRAS-CHAVE: Cerrado; Savanas; Reserva Extrativista do Rio Cajari; Vila Nova.

ABSTRACT: Avifauna of two localities in the south of Amapá, Brazil, with comments on the distribution and taxonomy of some species. There are few ornithological inventories published for the state of Amapá and the majority of them are restricted to the state's eastern portion. In this work we present the avifaunal survey of two localities in the south of Amapá; one of these is strictly forestal (Rio Cajari Extractive Reserve), and the other is in an area encompassing a mosaic of savannas and forests (Vila Nova). The survey comprises two samplings conducted during the rainy season (December 2008 and February 2010) and one in the dry season (July 2010), resulting in 386 species recorded. Included are the first documented records of *Nyctibius leucopterus, Hydropsalis maculicaudus* and *H. torquata* in Amapá, the last of which is also the first Brazilian record north of the Amazonas River. Our data also reinforces the necessity of revisionary studies relating to the taxonomy of populations from Amapá for *Pyrrhura picta, Threnetes niger* and *Sclerurus caudacutus.*

KEY-WORDS: Cerrado; Savannas; Rio Cajari Extractive Reserve; Vila Nova.

The coastline of Amapá state in the North of Brazil is known since the first years after the arrival of Europeans in America (Novaes 1974). With elevations up to *c.* 500 meters, Amapá shelters a great diversity of environments. In the coastal region there is the presence of mangroves and large lakes, besides other vegetation associated with aquatic environments. Also in the east of the state is found one of the largest areas of savanna in Brazilian Amazon. However, most of its territory is covered by *terra-firme* and *várzea* forests (IBGE 2004, 2006). This great diversity of environments reflects in the richness of animals and plants found in Amapá.

Ornithological knowledge of this state is distributed in a very unequal way. In the Catalogue of Amazonian Birds, by Emilie Snethlage (1914), the great deficiency of data for western Amapá can be easily observed, and little has changed along the last century. Most of the studies in Amapá were done in the coastal lowlands owing to easy access by waterways (Novaes 1974). Currently, the main reference on the birds of Amapá are the works of Novaes (1974, 1978), that compile all of the knowledge for the state, besides presenting a historical docket covering almost all of the works realized up to that date.

According to Novaes (1974), the first birds collected that can be securely associated with Amapá territory date back to 1872, when Ferreira Penna gathered some examples of birds in the region of the lower Jarí River. E. Snethlage was also in the region of the lower Jarí

River collecting birds, principally in the locality of Santo Antônio da Cachoeira (Snethlage 1914). Then in 1936 Medardo Lasso gathered a considerable number of birds from the Vila Nova River (Novaes 1974). In the middle of the same century (between 1951 and 1970), Miguel M. Moreira conducted the largest and most systematic exploration of Amapá to date. He gathered material primarily from the coastal plains, but also from more western localities, like from the Branco River creek and the Iratapuru River.

After the 1970s there were few publications on the avifauna of Amapá, and most of these were related to specific regions and environments. Teixeira and Best (1981) published some considerations on species until then not registered in Amapá, and Silva *et al.* (1997) realized a study on the composition and distribution of birds of a savanna area near Macapá. Posteriorly, Pacheco (2000) presented some overlooked historical records for the state, whereas Vidal *et al.* (2001) made a study on the birds of the Uaçá River region, northernmost Amapá, taking an ethnological approach. Among the most recent works are a field guide to birds of the Cabo Orange National Park and avifaunal studies of the Piratuba Lake Biological Reserve, as well as of the Area of Environmental Protection of the Curiaú River (Souza *et al.* 2008, Aguiar and Naiff 2010, Aguiar *et al.* 2010).

In this work, the results of a survey conducted in two areas of southern Amapá are presented. They both monopolize two of the main vegetal formations of the state: Dense Ombrophilous Terra-firme Forest and the Savannas of Amapá.

MATERIAL AND METHODS

Study Area

The sample areas are located to the south of the state of Amapá (Figure 1), being characterized by the different vegetal typologies detailed below:

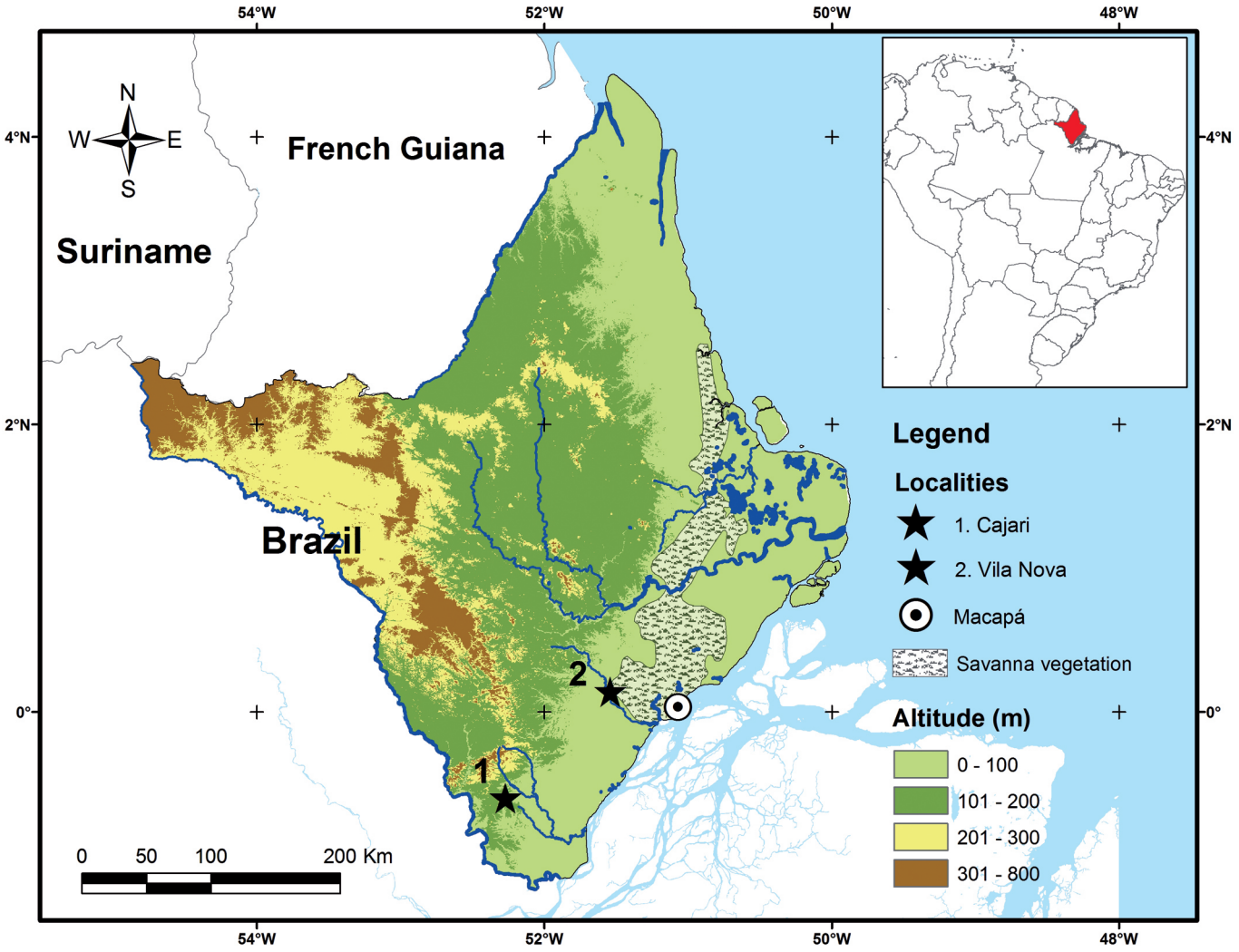

FIGURE 1: Location of the two sampling points in southern Amapá, inside the Rio Cajari Extractive Reserve and east of the Vila Nova community, which are composed of forestal areas and a mosaic of savanna and forest, respectively.

1. Rio Cajari Extractive Reserve – RESEX Cajari (00°34'58.1"S, 52°16'13.2") – The points of study in this region are located in the municipality of Laranjal do Jari, near the "Community of Marinho". The landscape in the location is dominated by Dense Ombrophilous Forest (terra-firme) and characterized by its high canopy, with the emergent trees reaching around 50 meters in height. Brazil nut trees (*Bertholletia excelsa*) are fairly common in this physiognomy, many of them large in stature. The sampling area holds some small pastures and subsistence farming immediately adjacent. Fieldwork was accomplished between December 12-18, 2008 (Stage 1), February 9-14, 2010 (Stage 2), and from July 8-13, 2010 (Stage 3).

2. Vila Nova (00°09'10.7"N, 51°32'54.0"W) – The sampling was realized *c.* 3 km east of the Vila Nova community, which is situated on the banks of the river with the same name (divisor of the Mazagão [west] and Santana Municipalities), and immediately adjacent to Highway BR-156. The region is found at the transition point between the two main physiognomies of the state: forests and savannas. As such, the landscape in the region is composed of a mosaic of different phytophysiognomies, but has a predominance of Grassy-Woody Savanna (Figure 2). Throughout the study area there is also Dense Ombrophilous Forest (terra-firme), Gallery Forests, *vereda* (palm swamps) and isolated, patchy woodlots. The stretches of terra-firme forest have high canopy with emergent trees reaching around 40 meters in height. The patchy woodlots, in turn, have a lower structure, averaging 10-15 meters in height. In some stretches, the grasslands are used as pastures to raise buffalos or converted into small subsistence farms. Fieldwork was realized between January 18-23, 2009 (Stage 1), February 2-7, 2010 (Stage 2), and July 14-19, 2010 (Stage 3).

FIGURE 2: General aspect of savannas (cerrado and natural grasslands) interwoven by *buriti* palms and ciliary vegetation east of Vila Nova, Santana, Amapá (photo: F. Schunck).

Sampling of Avifauna

Fieldwork adopted the "RAPELD" type of sampling delineation, using the Program of Research in Biodiversity (PPBio), created by the Ministry of Science and Technology. Nonetheless, only qualitative data are hereby presented. In summary, each defined region possesses a linear transect of 5 km in length on which were installed five perpendicular groupings (300 m in length), with 1 km distance between them. In these areas, three different sampling methods were used: mist-nets, count points and transection. In each of the five groupings, a line containing twelve nets was installed, mounted in sequence (nets of 12 × 3 m, 30 mm mesh with four pouches each). The nets were opened in the morning (between 6:00 h and 11:00 h) and in the afternoon (between 16:00 h and 18:00 h) during three consecutive days for each of the five established lines; an effort totaling 136,080 h.m² per study area (see Straube and Bianconi 2002, Roos 2010). Data collection at count points was accomplished at each of the groupings along three days. Three count points were established in each grouping, separated by 150 meters. At each point, birds were detected for ten minutes at a maximum radius of 50 meters. This methodology equaled a total of 135 points or 22.5 h per study area. Finally, sampling by transection was realized over three consecutive days, always in the morning (between 06:00 and 09:00 hs), walking along a 5 km transect and making notes on species and number of individuals registered. Transection totaled 27 h of sampling per study area.

Professional recorders were used to aid in fieldwork: Sony TCM 5000-EV, Sony PCM-D50 and Marantz PMD660; *Sennheiser* ME 66 and Yoga HT81 shotgun microphones; as well as 10 × 50 and 8 × 40 binoculars. All recorded vocalizations and photographs were deposited in data banks of the respective authors.

When relevant, some recordings were deposited in the Xeno-Canto archive (www.xeno-canto.org), referred to in the text by the acronym XC followed by catalogue number. The voucher material collected was deposited in the collection at the zoology museum of the University of São Paulo, referred to in the text by the acronym MZUSP.

In stages 1 and 2, the samplings for the two areas are considered here to have been done in the "rainy" season, and sampling during stage 3 corresponds to the "dry" season. It should be emphasized that during sampling 3 the region was constantly hit by rain. Yet, the efforts during both seasons are considered unequal, and seasonal differences as presented here must be viewed cautiously.

Nomenclature and systematic order follows CBRO (2011).

RESULTS AND DISCUSSION

Considering the two areas together, we recorded 386 species of birds belonging to 58 families, of which 277 species had some type of documentation (Appendix). The most representative families were Thamnophilidae (35 species), Tyrannidae (29, excluding 15 Rhynchocyclidae and 4 *incertae sedis*), Psittacidae (23) and Trochilidae (22). Of the total species, 339 were registered in the rainy season and 259 in the dry season. Only 24 of the species are considered exclusive to northern Amazônia and Tepuis (*sensu* Stotz *et al.* 1996), and one of them – *Cypsnagra hirundinacea* – is endemic to Cerrado (Silva 1997).

In RESEX Cajari 263 species of birds were registered, of which 243 were registered in forestal environments (211 exclusively in this phytophysiognomy). In Vila Nova nearly the same number were registered: 264 species of birds, of which 178 were forestal (141 exclusive); and 92 were registered in cerrados and grasslands (respectively, 11 and 9 exclusive). The presence of these savanna-like environments made possible the register of diverse species typical of open areas, such as *Colinus cristatus, Burhinus bistriatus, Chordeiles pusillus, Elaenia cristata, E. chiriquensis, Xolmis cinereus, Cypsnagra hirundinacea, Ammodramus humeralis, Emberizoides herbicola, Sturnella militaris* and *S. magna.* In the portions of Dense Ombrophilous Forest (terra-firme), *Myrmeciza ferruginea, Xiphorhynchus pardalotus, Philydor erythrocercum, Onychorhynchus coronatus, Perissocephalus tricolor* and *Machaeropterus pyrocephalus* are remarkable.

Noteworthy records

Pyrrhura picta

Novaes (1974) mentions that the nominal form as well as *P. picta amazonum* occur in Amapá; the last represented by a specimen of the Vila Nova River. Given that this species was not collected, it was not possible to confirm the sub-specific identity of our registers in RESEX Cajari. Nonetheless, the color of its auricular region (off white, with a clearly yellowish / brownish shade) agrees with the form of *P. picta amazonum.* Unfortunately, it was not possible to verify if the wing undercoverts were green (another diagnostic feature of this sub-species). Therefore, we prefer to leave open the complete taxomonic determination of our registers.

Nyctibius leucopterus

The distribution of this species has been recently extended by new records in Amazonia as well as in the Atlantic Forest (see Costa *et al.* 2010 and references therein). For Amapá, its presence was first revealed by Coltro Jr. (2008). However, no documented register was made available to date. An individual of this species was found for three consecutive days in RESEX Cajari between February 10 and 12, 2010, at which point its call was recorded (XC 77726). Its presence in the area was always detected after sounding *playback* simulations of its voice, which prompted the bird to approach the researcher, flying above the canopies of surrounding trees. The bird appeared more active in the 5 or 10 minutes preceding daybreak (*c.* 30 min before sunrise), stopping to sing and respond to the *playback* when the sky was already partially lighted and its silhouette in flight became easily visible.

Hydropsalis maculicauda

This species was recorded on July 16, 2010 in the midst of an abandoned pasture (herbaceous vegetation with *c.* 2 m height), just before dawn (XC 79111). Aside from being previously cited to exist in the state (Souza *et al.* 2008, Aguiar *et al.* 2010), this appears to be the first documented register of the species in Amapá.

Hydropsalis torquata

Previously, this species was known from only one locality to the north of the Amazonas River: the savannas of Sipaliwini, in Suriname (O'Shea 2005, Cleere 2010, Mittermeier *et al.* 2010). One female was collected in the savanna region of Vila Nova on January 24, 2009 (MZUSP 82341). This comes to be the first register for Amapá and the first locality of occurrence in Brazil north of the Amazonas for this species. The presence of *Hydropsalis torquata* in the cerrados of Amapá also reinforces the greater similarity of Sipaliwini with Brazilian cerrados compared to the open areas of Guiana (Mittermeier *et al.* 2010).

Threnetes niger loehkeni

In total, four specimens were collected at the two areas by us, which extends the geographic distribution of this taxon known previously only from the type locality (Serra do Navio, in central Amapá). Novaes (1974) initially interpreted the citation of the collection of *T. leucurus medianus* from the Cajari River (Ruschi 1957) as corresponding to *T. "leucurus" loehkeni.* Afterward, and in the face of the publication of two synomyms of *T. loehkeni* by Ruschi (1975, 1976), Novaes reconsidered that *T. leucurus medianus* could in fact occur in the lowlands of Amapá, remaining *T. "leucurus" loehkeni* restricted to mountainous areas (Novaes 1978). Quite surprisingly, Ruschi never again cited *T. leucurus medianus* as occurring in Amapá (*e.g.,* Ruschi 1982), and there is no skin of Ruschi at the Museu Mello Leitão that attests to the occurrence of this taxon at the Cajari River (Vielliard 1994, *contra* Ruschi 1957). The taxonomic status of this

distinct form is quite controversial (see Mallet-Rodrigues 2006), but given the differences in coloration of the tail, upperparts and underparts, in relation to *T. leucurus,* it appears to us more parsimonious to tentatively subordinate *loehkeni* to *Threnetes niger,* as suggested by Vielliard (1994). More material from northern Amapá is strongly needed to clarify the relationship between *loehkeni* and *T. niger,* in order to eventually justify treatment of the former as a full species. Keeping in mind the above, the occurrence of *T. leucurus* in Amapá must be disregarded.

Phaethornis rupurumii amazonicus* and *Picumnus cirratus macconnelli

Both taxons are typical habitants of the *várzeas* of Amazonas and some of its main affluents. As such, we highlight the collection of these two species in woodlots and narrow riverine forest within the mosaic of savannistic formations of Vila Nova, distant from the widest rivers (respectively MZUSP 82355 and 82379).

Sclerurus caudacutus

Novaes (1974) attributed the specimens of *S. caudacutus* from Amapá to the form *S. c. insignis* Zimmer, 1934, reinforcing that the identification was based purely on geography, since he lacked nominal specimens for comparison. One specimen collected by us has dark uppertail coverts, virtually concolor with the dorsal side, without the reddish tone that Zimmer (1934) mentioned as a diagnosis of *S. c. insignis.* Thus, it seems licit to consider our register as *Sclerurus c. caudacutus,* even tentatively (since there is also a lack of material from French Guiana for comparison). Subsequently, we also suggest that the occurrence of *S. c. insignis* in Amapá should be disregarded until unequivocal records are eventually presented.

FIGURE 3: Male of *Dacnis flaviventer* registered at the edge of the Vila Nova River in Mazagão, Amapá, on July 18, 2010 (photo: V. Q. Piacentini).

Lophotriccus galeatus* and *L. vitiosus guianensis

These two species occur in sympatry at RESEX Cajari, and possibly in a good part of Amapá. It calls attention to the ecological segregation between these two species; *L. vitiosus guianensis* occupying higher strata from the understory to the canopy (above 6-8 m in height) in areas of terra-firme forest, and *L. galeatus* occupying lower forestal strata, commonly between 2-4 m, aside from forestal borders and other perturbed areas (*e.g.,* clearings). *L. vitiosus* is among the most commonly registered species in the forests of RESEX Cajari.

Dacnis flaviventer

Until recently this species was not included in the published records of Amapá, even though it was collected in this state more than 40 years ago; those specimens being recently described as a new subspecies, *D. f. orientalis* (Grantsau 2010). A couple was seen repeatedly in the environs of housing close to the banks of the Vila Nova River during the third stage of sampling in that region, and was even photographed (Figure 3). The photos available do not allow for the evaluation of characters which differentiate the two subspecies, necessitating further collecting in order to evaluate the constancy of the diagnosis presented by Grantsau (2010). This species was already known for the northern bank of the Amazonas River in the state of Pará, where it occurs along *várzeas*, making its presence in Amapá fairly expected.

Sporophila angolensis

A male specimen collected calls attention for having a pair of white external rectrices. Examples of leucism are sufficiently common among diverse passeriforms. For this species it is cited to exist in other regions of Brazil, and in captivity as well (Piacentini 2001).

Final Considerations

As expected, given the size and degree of conservation of RESEX Cajari, the avifaunistic community at the location is quite complete. It boasts the presence of diverse, strictly forestal bird species or those which

depend on large extensions of preserved forests; examples of which are large raptors like *Harpia harpyja, Morphnus guianensis, Spizaetus tyrannus* and *S. ornatus*. Various species of cynegetic birds were also registered, and despite signs of hunting, the impact is apparently still not intense. Among cynegetic birds we emphasize the following: *Tinamus major, T. guttatus, Penelope marail* and *Psophia crepitans*.

The importance of Amapá savannas was recently highlighted by De Luca *et al.* (2009), who identified an *Important Bird Area* (IBA; an important area for the conservation of birds) whose limits shelter a large extension with the predominance of savannas. The area of fieldwork in Vila Nova corresponds exactly to the southwestern portion of this IBA and still protects various representatives of cerrado and natural grasslands. Although various representative birds of these environments have been found, intensification in the exploration of the grasslands (pastures and even agricultural cultivation) can compromise the conservation of these species, especially those that depend on tall grassy areas.

The total number of birds observed in southern Amapá (*i.e.,* considering the two sampling areas) is quite representative and slightly supersedes the numbers available for the few localities in Amapá that have been subjected to surveys. (Coltro Jr. 2008, Souza *et al.* 2008, Aguiar and Naiff 2010, Aguiar *et al.* 2010). It must be mentioned that for the localities used as comparison, as well as for the areas sampled here, complementary inventories are still necessary. This is especially true for RESEX Cajari, which had only one of its main phytophysiognomies (Dense Ombrophilous Terra-Firme Forest) sampled. Various other environments of this Conservation Unit could not be inventoried, such as *várzeas* and savannas. Yet we believe that its bird richness must be similar to the total observed by us in southern Amapá.

ACKNOWLEDGEMENTS

The present study resulted in part from the fieldwork realized through the environmental licensing process of Linhas de Transmissão (LTs) 230 kV Jurupari – Laranjal – Macapá and 500 kV Jurupari – Oriximiná, of which we thank Ecology and Environment of Brazil; especially Arlei Mazurec, Vitor Rademaker, André Zucco and Aline Gaglia, for the opportunity and support in accomplishing this work. We also thank: Bret Whitney and Thiago V. V. Costa for help in identifying some recordings; Dr. Luís Fábio Silveira at the Museu de Zoologia of USP for support in relation to the material deposited at that institution; Giulyana A. Benedicto, Reginaldo Gomes and Paulo César Balduíno (taxidermist) for participating during some stages of fieldwork; and Sr. Manoel and D. Nilza for all the support in Vila Nova. J. F. Pacheco made important comments to the paper. VQP thanks the Fundação de Apoio a Pesquisa do Estado de São Paulo (FAPESP) for a doctoral fellowship (process n. 06/60300-4); MAR thanks Coordenação de Aperfeiçoamento de Pessoal de Ensino Superior (CAPES) for a M.Sc. fellowship.

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Note added in proof. Aleixo *et al.* (2011) have published (June 2011) new data on the distribution of birds north of Amazon river in Pará state, including data on *Hydropsalis torquata* and *Threnetes niger loehkeni* that complement and partially anticipate ours.

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APPENDIX: Bird species registered in southern Amapá at the Rio Cajari Extractive Reserve and in the region of Vila Nova.
Legend: * – Species Near Threatened according to BirdLife International (2010); ANT – Species endemic to northern Amazônia and Tepuis (according to Stotz *et al.* 1996); CER – species endemic to cerrado (Silva 1997).
Evidence: s (sound recording), p (photograph), c (specimen collected), n (captured in mist-net), v (visual register), a (aural register).
Environment: f (Dense Ombrophilous Forest), ce (cerrado), gr (grasslands), aa (open, Anthropized areas), wl (wetlands), rf (riverine forest).

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Tinamidae (5)				
Tinamus major	s	f	rainy	rainy
Crypturellus cinereus	s	f	rainy	rainy
Crypturellus soui	s	f	rainy	dry, rainy
Crypturellus undulatus	s	ce, rf	rainy	rainy
Crypturellus variegatus	s	f	dry, rainy	dry
Anhimidae (1)				
Anhima cornuta	s,v	wt		dry, rainy
Anatidae (3)				
Cairina moschata	v	wt		dry, rainy
Sarkidiornis sylvicola	v	wt		rainy
Amazonetta brasiliensis	v	wt		rainy
Cracidae (2)				
Ortalis motmot	s,c	f	dry, rainy	dry, rainy
Penelope marail ANT	s,v	f	dry, rainy	
Odontophoridae (2)				
Colinus cristatus	s,v	gr		dry, rainy
Odontophorus gujanensis	s	f	rainy	dry, rainy
Ardeidae (4)				
Tigrisoma lineatum	v	wt		rainy
Butorides striata	v	wt		rainy
Ardea alba	v	wt		dry, rainy
Egretta thula	v	wt		dry, rainy
Threskiornithidae (1)				
Mesembrinibis cayennensis	v,a	wt		rainy
Cathartidae (5)				
Cathartes aura	p	f,ce,gr,aa	dry, rainy	dry, rainy
Cathartes burrovianus	v	ce,gr,aa		dry, rainy
Cathartes melambrotus	p	f	dry, rainy	dry, rainy
Coragyps atratus	p	f,ce,gr,aa	rainy	dry, rainy
Sarcoramphus papa	v	f,ce		rainy
Accipitridae (19)				
Elanoides forficatus	v	f	dry, rainy	
Gampsonyx swainsonii	v	ce,aa	dry	
Harpagus bidentatus	s,v	f	rainy	
Accipiter bicolor	v	f	dry	
Ictinia plumbea	v	ce,aa	dry, rainy	
Busarellus nigricollis	v	wt,rf		rainy
Helicolestes hamatus	v	wt,rf		rainy
Geranospiza caerulescens	v	wt,rf	rainy	dry
Buteogallus schistaceus	v	wt,aa		rainy
Heterospizias meridionalis	s,p	ce,aa		dry, rainy
Rupornis magnirostris	p,c	f,ce,aa	dry	dry, rainy
Geranoaetus albicaudatus	p	ce,aa		rainy
Pseudastur albicollis	v	f		dry
Leucopternis melanops	s,p,c	f	rainy	rainy
Buteo nitidus	p,a	f,aa	dry	
Morphnus guianensis *	s	f	rainy	
Harpia harpyja *	p	f	rainy	
Spizaetus tyrannus	s,v	f	dry, rainy	rainy
Spizaetus ornatus	a	f	dry, rainy	

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Falconidae (11)				
Daptrius ater	v,a	f	rainy	
Ibycter americanus	s,v	f	dry, rainy	dry
Caracara cheriway	p	ce,gr,aa	rainy	dry, rainy
Milvago chimachima	v,a	ce,gr,aa		dry, rainy
Herpetotheres cachinnans	s,v	f,ce	rainy	dry, rainy
Micrastur ruficollis	s,p,c	f	rainy	rainy
Micrastur gilvicollis	s	f	dry, rainy	
Micrastur mirandollei	s	f	rainy	
Micrastur semitorquatus	s,v	f		dry
Falco rufigularis	v,a	ce,gr,aa	dry, rainy	
Falco femoralis	p	ce,gr,aa		rainy
Psophiidae (1)				
Psophia crepitans	s,v	f	rainy	
Rallidae (3)				
Aramides cajanea	p,a,c	wt,rf		rainy
Laterallus viridis	a	wt		rainy
Porzana albicollis	a	wt		rainy
Charadriidae (1)				
Vanellus chilensis	v,a	ce,gr,aa,wt		dry, rainy
Burhinidae (1)				
Burhinus bistriatus	s,v	gr		rainy
Scolopacidae (1)				
Tringa solitaria	p	wt		rainy
Jacanidae (1)				
Jacana jacana	p	wt		dry, rainy
Columbidae (10)				
Columbina passerina	p,c	ce,gr,aa		rainy
Columbina minuta	v	ce,gr,aa		rainy
Columbina talpacoti	v	ce,gr,aa		dry
Patagioenas speciosa	v	f	dry, rainy	dry, rainy
Patagioenas cayennensis	s,p,c	f,ce	rainy	dry, rainy
Patagioenas plumbea	s,v	f	dry, rainy	rainy
Patagioenas subvinacea	s	f	rainy	
Leptotila verreauxi	v	f,ce		rainy
Leptotila rufaxilla	s,p,c	f	rainy	dry, rainy
Geotrygon montana	s,p,c	f	dry, rainy	rainy
Psittacidae (23)				
Ara ararauna	v,a	f,ce	rainy	dry, rainy
Ara macao	v,a	f	rainy	rainy
Ara chloropterus	v,a	f	dry, rainy	rainy
Ara severus	v,a	f	dry, rainy	dry, rainy
Orthopsittaca manilata	s,p	f,ce		dry, rainy
Diopsittaca nobilis	v,a	f,ce		dry, rainy
Aratinga leucophthalma	s,v	ce	rainy	rainy
Aratinga aurea	v,a	ce		dry, rainy
Pyrrhura picta	s,v	f	dry, rainy	rainy
Brotogeris versicolurus	v,a	f		dry
Brotogeris chrysoptera	v,a	f	dry, rainy	dry, rainy
Brotogeris sanctithomae	s,p	f	rainy	dry, rainy
Touit purpuratus	v,a	f	rainy	
Pionites melanocephalus ANT	s,p	f	dry, rainy	dry
Pyrilia caica ANT	s,v	f	rainy	
Graydidascalus brachyurus	s,p	rf		rainy
Pionus menstruus	s,c	f	dry, rainy	dry, rainy
Pionus fuscus	s,v	f	rainy	dry, rainy
Amazona festiva	v,a	rf		rainy

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Amazona farinosa	s,v	f	dry, rainy	dry
Amazona amazonica	s,c	f	dry, rainy	dry, rainy
Amazona ochrocephala	v,a	f		rainy
Deroptyus accipitrinus	s,v	f	dry, rainy	
Cuculidae (4)				
Piaya cayana	s,p,c	f,ce	dry, rainy	dry
Crotophaga major	v,a	wt,rf		rainy
Crotophaga ani	c	gr,aa	dry, rainy	dry
Tapera naevia	a	f,ce		rainy
Strigidae (6)				
Megascops watsonii	s,p	f	dry, rainy	rainy
Lophostrix cristata	s	f	dry, rainy	
Pulsatrix perspicillata	a	f	dry, rainy	dry
Bubo virginianus	a	f	dry	
Strix huhula	a	f	rainy	
Glaucidium hardyi	s,c	f	dry, rainy	rainy
Nyctibiidae (2)				
Nyctibius griseus	s,c	f,ce	dry, rainy	rainy
Nyctibius leucopterus	s,v	f	dry	
Caprimulgidae (8)				
Lurocalis semitorquatus	s,v	f,aa	rainy	
Hydropsalis nigrescens	c	aa		dry
Hydropsalis albicollis	s,v	ce,gr,aa	dry	dry
Hydropsalis parvula	v,a	ce,aa		rainy
Hydropsalis maculicauda	s	aa		dry
Hydropsalis climacocerca	v	ce,aa		rainy
Hydropsalis torquata	c	ce,aa		rainy
Chordeiles pusillus	s,p,c	ce,gr,aa		dry, rainy
Apodidae (4)				
Chaetura spinicaudus	v	f	dry, rainy	dry
Chaetura chapmani	v	f	rainy	rainy
Chaetura brachyura	s,v	f		dry, rainy
Tachornis squamata	v	wt	dry	dry, rainy
Trochilidae (22)				
Glaucis hirsutus	p,c	f		rainy
Threnetes niger	p,c	f	rainy	rainy
Phaethornis rupurumii	p,c	f		rainy
Phaethornis ruber	s,p,c	f	dry, rainy	dry, rainy
Phaethornis bourcieri	c	f	rainy	
Phaethornis superciliosus	s,p,c	f	dry, rainy	dry, rainy
Phaethornis malaris	c	f	rainy	
Campylopterus largipennis	p,c	f	dry, rainy	
Anthracothorax viridigula	v	f	rainy	
Topaza pella	p	f	rainy	
Chrysolampis mosquitus	c	aa	dry	
Lophornis ornatus	p	f	dry	
Chlorostilbon notatus	p,c	f		dry, rainy
Thalurania furcata	c	f	dry, rainy	
Hylocharis cyanus	p	f	dry	
Polytmus theresiae	c	f		dry
Amazilia versicolor	c	f		rainy
Amazilia fimbriata	p,c	f		dry, rainy
Heliothryx auritus	v	f	rainy	
Heliactin bilophus	v	ce		dry
Heliomaster longirostris	v	ce	rainy	
Calliphlox amethystina	p,c	ce		rainy

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Trogonidae (4)				
Trogon melanurus	s,c	f	dry, rainy	dry
Trogon viridis	s,p,c	f	dry, rainy	dry, rainy
Trogon violaceus	s,c	f	dry, rainy	rainy
Trogon rufus	s,p,c	f	dry, rainy	
Alcedinidae (4)				
Megaceryle torquata	s,v	wt,rf	rainy	dry, rainy
Chloroceryle amazona	p	wt,rf		rainy
Chloroceryle aenea	p,c	f,wt,rf		dry, rainy
Chloroceryle americana	v	wt,rf		dry
Momotidae (1)				
Momotus momota	s,p,c	f,rf	dry, rainy	dry, rainy
Galbulidae (5)				
Galbula albirostris ANT	a	f	dry	
Galbula galbula	s,p,c	f		dry, rainy
Galbula leucogastra	s,v	f	dry	
Galbula dea	s,v	f	dry, rainy	
Jacamerops aureus	s,v	f	dry	
Bucconidae (7)				
Notharchus macrorhynchos ANT	s,v	f	dry	
Notharchus tectus	v	f	rainy	
Bucco tamatia	s	f	dry	rainy
Bucco capensis	p,c	f	dry	
Malacoptila fusca	p,c	f	rainy	
Monasa atra ANT	s,p,c	f	dry, rainy	dry, rainy
Chelidoptera tenebrosa	s,v	aa	dry, rainy	dry, rainy
Capitonidae (1)				
Capito niger ANT	s,p,c	f	dry	rainy
Ramphastidae (5)				
Ramphastos tucanus	s,p	f	dry, rainy	dry, rainy
Ramphastos vitellinus	s,c	f	dry, rainy	dry, rainy
Selenidera piperivora ANT	c	f		dry
Pteroglossus viridis ANT	c	f	rainy	
Pteroglossus aracari	c	f	dry, rainy	dry
Picidae (14)				
Picumnus exilis	a	f	rainy	
Picumnus cirratus	p,c	f,ce		rainy
Melanerpes cruentatus	v,a	f	dry, rainy	
Veniliornis cassini ANT	s,v	f	dry	rainy
Veniliornis affinis	v,a	f	dry	rainy
Piculus flavigula	s,v	f	dry, rainy	
Colaptes punctigula	v	gr,aa		dry, rainy
Celeus undatus	s,v	f	dry, rainy	dry, rainy
Celeus elegans	v,a	f		rainy
Celeus flavus	c	f		rainy
Celeus torquatus	s,c	f	dry, rainy	dry, rainy
Dryocopus lineatus	v,a	f,ce	dry, rainy	dry, rainy
Campephilus rubricollis	s,c	f	dry, rainy	rainy
Campephilus melanoleucos	s,c	f	dry, rainy	dry, rainy
Thamnophilidae (35)				
Terenura spodioptila	s,v	f	rainy	
Myrmornis torquata	p,c	f	rainy	
Microrhopias quixensis	s,v	f	rainy	
Myrmeciza longipes	s,c	f	dry, rainy	dry
Myrmeciza ferruginea	s,p,c	f	dry, rainy	dry, rainy
Myrmeciza atrothorax	s,p,c	f		rainy
Epinecrophylla gutturalis ANT	s,p,c	f	dry, rainy	

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Myrmotherula brachyura	s,p,c	f	dry, rainy	dry, rainy
Myrmotherula guttata ANT	p,c	f	dry, rainy	
Myrmotherula axillaris	s,p,c	f	dry, rainy	dry, rainy
Myrmotherula menetriesii	v	f	rainy	
Formicivora grisea	p,c	ce		rainy
Formicivora rufa	s,p,c	ce		dry, rainy
Thamnomanes ardesiacus	s,p,c	f	dry, rainy	dry
Thamnomanes caesius	s,p,c	f	dry, rainy	rainy
Herpsilochmus sticturus ANT	s,v	f	rainy	
Herpsilochmus stictocephalus ANT	s,v	f	dry, rainy	
Sakesphorus luctuosus	s,p	rf		rainy
Thamnophilus doliatus	p,a	f		dry, rainy
Thamnophilus murinus	s,c	f	dry, rainy	rainy
Thamnophilus punctatus	s,p,c	f	dry, rainy	dry, rainy
Thamnophilus amazonicus	s,v	f	rainy	rainy
Cymbilaimus lineatus	s,v	f	dry, rainy	
Frederickena viridis ANT	s,c	f	rainy	
Schistocichla leucostigma	s,p,c	f	dry, rainy	
Hylophylax naevius	c	f	dry	
Percnostola rufifrons ANT	s,p,c	f	dry, rainy	dry, rainy
Myrmoborus lugubris	s,v	f		rainy
Cercomacra cinerascens	s,p	f	dry, rainy	dry
Cercomacra tyrannina	s,p,c	f	dry, rainy	dry, rainy
Cercomacra nigrescens	v,a	f		rainy
Hypocnemis cantator	s,p,c	f	dry, rainy	rainy
Pithys albifrons	s,p,c	f	dry, rainy	rainy
Willisornis poecilinotus	s,p,c	f	dry, rainy	
Gymnopithys rufigula ANT	s,p,c	f	dry, rainy	
Grallariidae (3)				
Grallaria varia	a	f	dry, rainy	
Hylopezus macularius	a	f	rainy	
Myrmothera campanisona	s,v	f	dry, rainy	
Formicariidae (2)				
Formicarius colma	s,p,c	f	dry, rainy	dry, rainy
Formicarius analis	s,v	f	rainy	
Scleruridae (2)				
Sclerurus mexicanus	p,c	f	rainy	
Sclerurus caudacutus	p,c	f	dry	
Dendrocolaptidae (13)				
Dendrocincla fuliginosa	s,p,c	f	dry, rainy	dry, rainy
Deconychura longicauda	n	f	rainy	
Sittasomus griseicapillus	a	f,ce	dry	
Certhiasomus stictolaemus	c	f	rainy	
Glyphorynchus spirurus	s,p,c	f	dry, rainy	dry, rainy
Xiphorhynchus pardalotus	s,p,c	f	dry, rainy	rainy
Xiphorhynchus obsoletus	a	f		rainy
Xiphorhynchus guttatus	s,p,c	f	dry, rainy	dry, rainy
Dendroplex picus	s,p,c	f,ce,rf	rainy	dry, rainy
Lepidocolaptes albolineatus	s,v	f		rainy
Dendrocolaptes certhia	s,p,c	f	dry, rainy	dry, rainy
Dendrocolaptes picumnus	p,c	f		rainy
Hylexetastes perrotii ANT	s,p,c	f	dry, rainy	
Furnariidae (9)				
Xenops minutus	s,p,c	f	dry, rainy	rainy
Microxenops milleri	v	f	rainy	
Berlepschia rikeri	v,a	wt		dry
Furnarius figulus	v	aa		dry

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Automolus infuscatus	c	f	rainy	
Philydor ruficaudatum	v,a	f	rainy	
Philydor erythrocercum	s,p,c	f	dry, rainy	rainy
Philydor pyrrhodes	n	f	rainy	
Synallaxis gujanensis	v,a	f		dry
Pipridae (8)				
Tyranneutes virescens ANT	s,p,c	f	dry, rainy	rainy
Pipra aureola	s,p,c	f		dry, rainy
Pipra erythrocephala	s,c	f	dry, rainy	dry, rainy
Lepidothrix serena ANT	c	f	dry	
Manacus manacus	s,p,c	f	dry, rainy	dry, rainy
Machaeropterus pyrocephalus	p,c	f		dry, rainy
Dixiphia pipra	p,c	f	dry, rainy	rainy
Chiroxiphia pareola	s,p,c	f	rainy	dry, rainy
Tityridae (9)				
Onychorhynchus coronatus	p,c	f	dry, rainy	rainy
Terenotriccus erythrurus	s,c	f	dry, rainy	
Schiffornis olivacea	s,p,c	f	dry	dry, rainy
Laniocera hypopyrra	s,p,c	f	dry, rainy	
Tityra cayana	v	f	rainy	dry
Tityra semifasciata	v	f		rainy
Pachyramphus marginatus	s,v	f	dry, rainy	
Pachyramphus surinamus ANT	s	f	dry	
Pachyramphus minor	s,p,c	f	dry	dry
Cotingidae (7)				
Lipaugus vociferans	s,v	f	dry, rainy	dry, rainy
Gymnoderus foetidus	v	f	rainy	
Xipholena punicea	s,c	f	dry, rainy	dry
Cotinga cayana	p	f	rainy	
Querula purpurata	s,c	f	dry, rainy	rainy
Perissocephalus tricolor ANT	s,c	f	dry, rainy	dry
Phoenicircus carnifex	s	f	dry, rainy	
Incertae sedis (4)				
Platyrinchus saturatus	p,c	f	dry	
Platyrinchus coronatus	s,c	f	dry, rainy	
Platyrinchus platyrhynchos	s,p,c	f	dry, rainy	
Piprites chloris	s,v	f	dry, rainy	
Rhynchocyclidae (15)				
Mionectes oleagineus	p,c	f	dry, rainy	rainy
Mionectes macconnelli	p,c	f	dry, rainy	dry
Leptopogon amaurocephalus	v,a	f	rainy	
Corythopis torquatus	p,c	f	dry, rainy	rainy
Rhynchocyclus olivaceus	p,c	f	rainy	
Tolmomyias assimilis	s	f	dry	
Tolmomyias poliocephalus	s,p,c	f	dry, rainy	rainy
Tolmomyias flaviventris	s,p,c	ce	rainy	dry, rainy
Todirostrum maculatum	s,p	f		dry, rainy
Todirostrum pictum	s	f	dry	
Poecilotriccus fumifrons	s,v	f,ce	dry, rainy	
Myiornis ecaudatus	v	f	dry	
Hemitriccus zosterops	s	f	dry	
Lophotriccus vitiosus	s,p,c	f	dry, rainy	
Lophotriccus galeatus	s,p,c	f	dry, rainy	dry, rainy
Tyrannidae (29)				
Camptostoma obsoletum	v,a	f,ce	dry, rainy	dry, rainy
Ornithion inerme	s	f	dry	
Zimmerius gracilipes	s	f	rainy	

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Elaenia flavogaster	s,p,c	f,ce		dry, rainy
Elaenia cristata	v,a	ce		rainy
Elaenia chiriquensis	s,v	ce		dry
Myiopagis gaimardii	s,v	f,ce	dry, rainy	dry, rainy
Tyrannulus elatus	s,v	f		dry, rainy
Attila cinnamomeus	s,v	f		dry, rainy
Attila spadiceus	s,p,c	f	dry, rainy	dry, rainy
Legatus leucophaius	v,a	f	rainy	
Ramphotrigon ruficauda	s,n	f	dry	dry, rainy
Myiarchus tuberculifer	s,v	f	rainy	dry, rainy
Myiarchus swainsoni	s,c	f,ce		rainy
Myiarchus ferox	s,c	f,ce	dry, rainy	dry, rainy
Myiarchus tyrannulus	s,p,c	f,ce		dry, rainy
Sirystes sibilator	v,a	f	rainy	
Rhytipterna simplex	s,c	f	dry, rainy	dry, rainy
Pitangus sulphuratus	s,v	f,ce,aa	rainy	dry, rainy
Myiodynastes maculatus	v,a	f,ce	rainy	
Tyrannopsis sulphurea	v,a	f		rainy
Megarynchus pitangua	s,v	f,ce,aa	dry, rainy	dry, rainy
Myiozetetes cayanensis	v,a	f,ce,aa	dry, rainy	dry, rainy
Myiozetetes similis	c	f,aa	rainy	
Tyrannus albogularis	s,p,c	ce,gr		dry, rainy
Tyrannus melancholicus	s,p,c	f,ce,gr,aa	rainy	dry, rainy
Tyrannus savana	v	ce,gr,aa		dry, rainy
Lathrotriccus euleri	v,a	ce,aa		rainy
Xolmis cinereus	p,c	gr,aa		dry, rainy
Vireonidae (6)				
Cyclarhis gujanensis	v,a	f,ce,aa	dry	dry, rainy
Vireolanius leucotis	s,v	f	dry, rainy	
Vireo olivaceus	s,v	f	dry, rainy	dry, rainy
Hylophilus thoracicus	v,a	f	dry	
Hylophilus muscicapinus	s,v	f	dry, rainy	
Hylophilus ochraceiceps	s,p,c	f	dry, rainy	
Corvidae (1)				
Cyanocorax cayanus ANT	s,v	f	rainy	
Hirundinidae (4)				
Atticora fasciata	p	wt		dry
Progne tapera	v	aa		dry
Progne chalybea	s,p	aa	dry, rainy	dry, rainy
Tachycineta albiventer	v	wt		dry
Troglodytidae (5)				
Troglodytes musculus	s,v	f,ce,aa	rainy	dry, rainy
Pheugopedius coraya	s,p,c	f	dry, rainy	dry, rainy
Cantorchilus leucotis	v,a	f		rainy
Henicorhina leucosticta	p,c	f		rainy
Cyphorhinus arada	s,p,c	f	dry, rainy	
Donacobiidae (1)				
Donacobius atricapilla	p	wt		rainy
Polioptilidae (2)				
Microbates collaris ANT	v,a	f	rainy	
Polioptila plumbea	s,p	f,ce	dry, rainy	
Turdidae (3)				
Turdus nudigenis	s	f		rainy
Turdus leucomelas	s,p,c	f,ce,aa	rainy	dry, rainy
Turdus albicollis	p,c	f	dry, rainy	dry, rainy
Mimidae (1)				
Mimus saturninus	v	gr,aa		rainy

Taxon	Evidence	Environment	Locality and season of register	
			Cajari	Vila Nova
Coerebidae (1)				
Coereba flaveola	s,p,c	f,ce,aa	dry, rainy	dry, rainy
Thraupidae (19)				
Saltator grossus	s,v	f	rainy	
Saltator maximus	s,p,n	f	dry, rainy	dry, rainy
Nemosia pileata	s,v	aa		rainy
Cypsnagra hirundinacea CER	v,a	ce		rainy
Tachyphonus rufus	v,a	f	dry, rainy	
Ramphocelus carbo	s,p,c	ce,rf	dry, rainy	dry, rainy
Lanio cristatus	c	f	dry	
Lanio fulvus	s,v	f	dry, rainy	
Lanio surinamus	c	f	rainy	
Tangara mexicana	s,p,c	f		dry, rainy
Tangara episcopus	p,c	f,ce,aa	rainy	dry, rainy
Tangara palmarum	p,c	f,ce,aa	rainy	dry, rainy
Tangara cayana	s,p,c	f,ce,aa		dry, rainy
Schistochlamys melanopis	v,a	ce		dry, rainy
Dacnis lineata	v	rf		rainy
Dacnis flaviventer	p	f		dry
Dacnis cayana	p,c	f,ce,aa	rainy	dry, rainy
Cyanerpes cyaneus	v	f	rainy	rainy
Hemithraupis flavicollis	v	f		rainy
Emberezidae (10)				
Zonotrichia capensis	c	gr,aa		dry, rainy
Ammodramus humeralis	s,p,c	gr		dry, rainy
Sicalis luteola	v	gr		dry
Emberizoides herbicola	s,p,c	gr		dry, rainy
Volatinia jacarina	v,a	gr,aa	rainy	rainy
Sporophila plumbea	s,p,c	gr		dry, rainy
Sporophila americana	p,a	gr		rainy
Sporophila nigricollis	c	gr	rainy	
Sporophila angolensis	s,p,c	gr,rf		dry, rainy
Arremon taciturnus	s,p,c	f	dry, rainy	rainy
Cardinalidae (3)				
Habia rubica	v,a	f	rainy	
Granatellus pelzelni	s,v	f	dry, rainy	
Cyanoloxia cyanoides	s,p,c	f	rainy	rainy
Parulidae (1)				
Phaeothlypis mesoleuca	s,v	f	rainy	
Icteridae (8)				
Psarocolius viridis	s,v	f	dry, rainy	rainy
Cacicus haemorrhous	s,v	f	dry, rainy	
Cacicus cela	s,p	f		dry, rainy
Icterus cayanensis	s,v	f	dry, rainy	rainy
Chrysomus ruficapillus	v	wt		rainy
Molothrus oryzivorus	v	gr	rainy	
Sturnella militaris	s,p,c	gr		dry, rainy
Sturnella magna	s,p,c	gr		dry, rainy
Fringillidae (4)				
Euphonia chlorotica	s,v	f,ce		rainy
Euphonia violacea	v,a	f		dry
Euphonia chrysopasta	s,v	f	rainy	
Euphonia cayennensis	s,v	f	dry, rainy	rainy

Revista Brasileira de Ornitologia, 19(2), 108-133
Junho de 2011

ARTIGO

Birds of the Jaú National Park and adjacent areas, Brazilian Amazon: new species records with reanalysis of a previous checklist

Sérgio Henrique Borges[1,2] and Ricardo Afonso Machado de Almeida[1,3]

[1.] Fundação Vitória Amazônica, Rua Estrela d'Alva, 146, Morada do Sol, Aleixo, CEP 69.060-093, Manaus, AM, Brasil.
[2.] E-mail: sergio@fva.org.br
[3.] E-mail: almeida@fva.org.br

Recebido em 17/02/2011. Aceito em 21/04/2011.

RESUMO: Aves do Parque Nacional do Jaú e áreas adjacentes, Amazônia brasileira: novos registros de espécies com reanálise de uma listagem prévia. Aqui é apresentada uma listagem de espécies de aves do Parque Nacional do Jaú (PNJ) e de três áreas protegidas adjacentes compilada ao longo de 15 anos de trabalhos de campo. Foram registradas 501 espécies de aves distribuídas em 68 famílias. Ao menos 50 espécies foram acrescentadas à listagem previamente publicada. São reportadas informações detalhadas de espécies de interesse biogeográfico ou raras na natureza incluindo o segundo registro de campo de *Seiurus noveboracensis* para o Brasil. Futuras pesquisas ornitológicas para a região do PNJ devem ser direcionadas para estudos das populações de aves altamente especializadas em habitats de distribuição restrita na região (p.ex. ilhas fluviais e campinas de areia branca) e a melhor definição do *status* taxonômicos de aves aparentemente restritas ao baixo rio Negro.

PALAVRAS-CHAVE: Rio Negro; Áreas protegidas; Biodiversidade amazônica.

ABSTRACT: Birds of the Jaú National Park and adjacent areas, Brazilian Amazon: new species records with reanalysis of a previous checklist. We presented here an updated checklist of birds species found in Jaú National Park and three adjacent protected areas compiled during 15 years of fieldwork. We recorded 501 bird species from 68 bird families. At least 50 species were added to the previously published checklist. Detailed information on rare or relevant species from a biogeographical perspective is provided. This includes the second field record of *Seiurus noveboracensis* from Brazil. Future ornithological investigation needs to focus on populational studies of birds specialized in habitats with restricted distribution in JNP (*e.g.,* fluvial islands and white sand campinas). Revision of the taxonomic status of bird taxa, whose geographical distributions apparently are restricted to the lower course of the Rio Negro, is also needed.

KEY-WORDS: Rio Negro, Protected areas, Amazonian biodiversity.

Although it is recognized that the Amazon lowland houses the richest avifauna of the world (Haffer 1990), there are few places or sites where the avifauna has been monitored for medium to long time periods, such as BDFFP sites north of Manaus and Manu National Park in Peru (Cohn-Haft *et al.* 1997, Paterson *et al.* 2006). One of these regions is the Jaú National Park (JNP) whose avifauna has been studied for more than 15 years (Carvalhaes 1996, Borges *et al.* 2001, Borges 2004a). Several sites in JNP were visited by individual or groups of ornithologists from 1992 to 1999 aimed at providing biological information for the park's management plan. These field expeditions targeted birds in poorly known vegetation types and in regions with difficult access. After seven years of fieldwork, a synthesis of regional avifauna was published (Borges *et al.* 2001). This work was of major relevance since the western region of the lower Rio Negro was poorly known from an ornithological perspective (Oren and Albuquerque 1991).

New regions of JNP were investigated after the publication of Borges *et al.* (2001) in the context of a research program called Windows for Biodiversity, designed to identify priority regions for a more efficient sampling of the park's biodiversity (Borges *et al.* 2004b). During the planning stage of the program, 12 sectors (windows) were identified within JNP in order to implement additional biological inventories. The ornithological team participating in field expeditions of the Windows of Biodiversity program had the opportunity to study previously unknown regions in JNP, resulting in a significant increase of the bird checklist (Borges 2004b).

After the conclusion of the Windows for Biodiversity program, the ornithological investigation of the JNP region continued in the context of biodiversity monitoring (*e.g.,*

monitoring populations of large frugivorous birds by Ricardo Almeida), technical studies for creation and management of protected areas (FVA 2005, SDS/FVA 2008), and fieldwork to support graduate studies (*e.g.,* Borges 2004a).

Long term monitoring makes the JNP's avifauna one of the best known of the Amazon region. Bird studies of JNP have been published in various articles on ecology, biogeography, conservation and educational products (*e.g.,* Borges 2004c, Borges 2007a, Borges 2007b, Borges 2007c, Borges and Carvalhaes 2000, Borges *et al.* 2004a, FVA 2003). In addition, biological materials (*e.g.,* voucher specimens, tape records) of individual species collected in JNP contributed to the resolution of important taxonomic questions (*e.g.,* Bierregaard *et al.* 1999; Isler *et al.* 2009). Here we present an updated version of JNP's bird checklist, integrating and synthesizing 15 years of field work in the region.

STUDY AREAS AND METHODS

The Jaú National Park is one of Brazil's largest protected areas encompassing 2,272,000 hectares located 200 km northwest of Manaus (Figure 1). Its boundaries are defined by three black water rivers: Unini (northern limit), Jaú (central area) and Carabinani (southern limit). The bird checklist reported in this study results from field work also extending to three additional protected areas adjacent to JNP (Figure 1): Rio Negro State Park – Northern Sector (146,028 ha), Rio Unini Extractive Reserve (833,352 ha), and Amanã Sustainable Development Reserve (2,313,000 ha). The sampling efforts in these protected areas, however, were much less intensive than in JNP and the species lists can be considered only a preliminary assessment of bird species diversity of these areas.

The bird inventories concentrated on ten specific regions covering the lower, middle and upper courses of the Puduari, Carabinani, Jaú, Unini and Papagaio rivers (Figure 1). In each of these sectors we sampled birds in all major habitats using complementary methods in order to obtain the most complete species lists possible (Table 1). Field effort was variable, however, and some regions could be considered well sampled while others remain poorly known, especially at the headwaters of the rivers (Table 1, Figure 1).

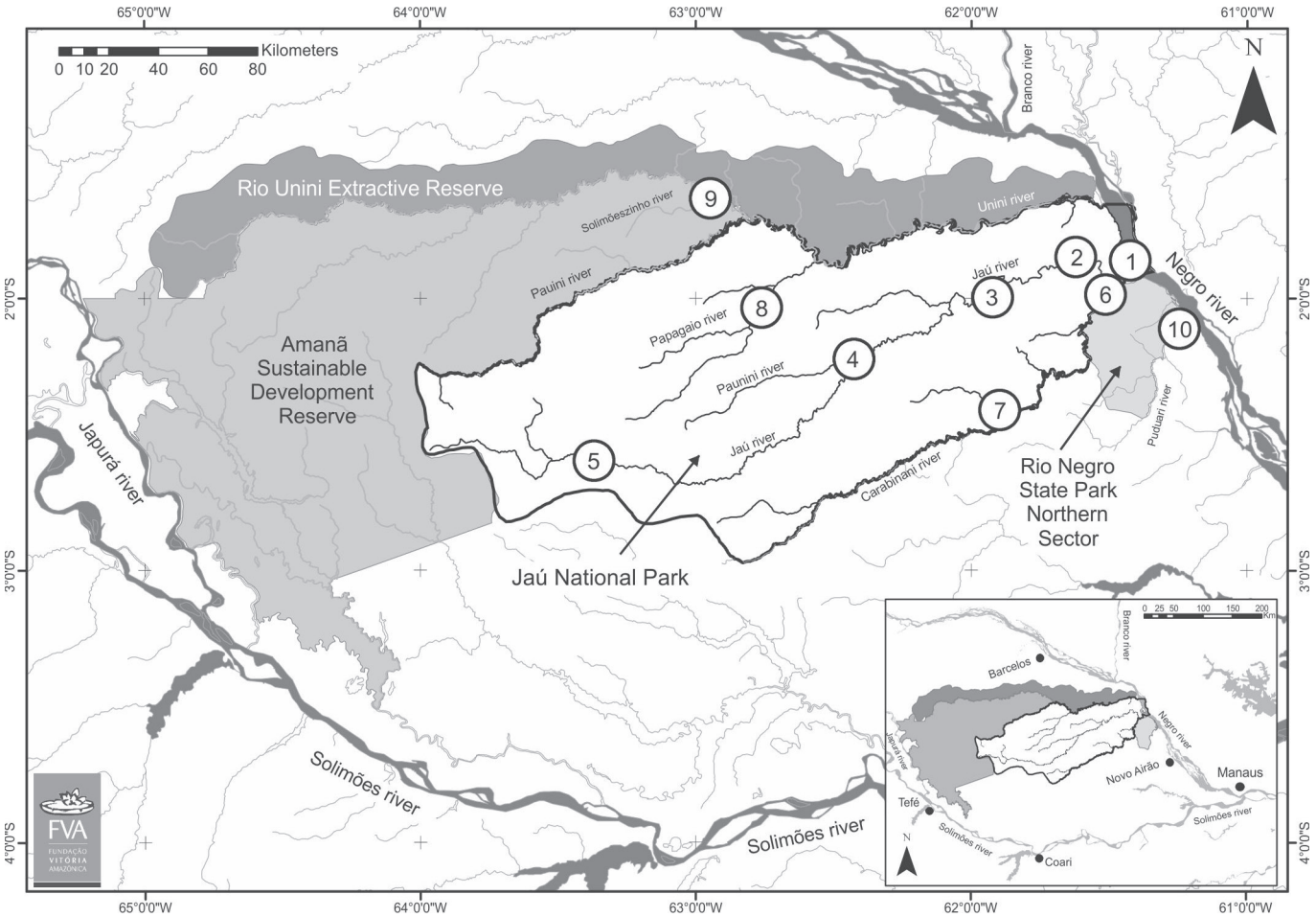

FIGURE 1: Lower course of the Rio Negro showing the limits of Jaú National Park and adjacent protected areas. The numbers identify the specific regions where bird inventories were carried out, corresponding to the numbers shows in Table 1.

TABLE 1: Regions and habitats where birds were sampled in Jaú National Park and adjacent protected areas. Numbers in front of the regions' names are the same as in Figure 1.

Regions	Geographical coordinates of reference	Sampling effort (days)	Habitats sampled
Mouth of Jaú (1)	61°25'11"W/1°51'41"S	124	*Terra firme* forest, *igapó* forest, river beaches, river islands
Seringalzinho (2)	61°37'19"W/1°50'49"S	275	*Terra firme* forest, *igapó* forest, lakes, rocky banks, white sand campina, woody campinarana, secondary growth
Miratucu (3)	61°55'13"W/1°59'46"S	74	*Terra firme* forest, *igapó* forest, lakes
Tambor (4)	62°25'15"W/2°13'55"S	50	*Terra firme* forest, *igapó* forest, lakes
Monteiro (5)	63°22'09"W/2°35'52"S	14	*Terra firme* forest, *igapó* forest, lakes
Cachoeira (6)	61°30'40"W/1°59'11"S	18	*Terra firme* forest, *igapó* forest, lakes, rocky banks, woody campinarana, secondary growth
Tabatinga (7)	61°53'47"W/2°24'53"S	7	*Terra firme* forest, *igapó* forest, lakes
Papagaio (8)	62°45'28"W/2°02'05"S	20	*Terra firme* forest, *igapó* forest, lakes
Solimõeszinho (9)	62°56'44"W/1°38'06"S	25	*Terra firme* forest, *igapó* forest, lakes, secondary growth
Puduari (10)	61°14'47"W/2°06'42"S	9	*Terra firme* forest, *igapó* forest, lakes, secondary growth, woody campinarana

The complex landscape of JNP comprises a great diversity of vegetation types including *terra firme* forest, black water flooded forest (*igapó* forest), and white sand campinas. Some of these vegetation types such as fluvial islands and white sand campinas have a very restricted distribution in JNP. Detailed information on climate, vegetation and geology of JNP is available in Ferreira (1997), FVA (1998), Ferreira and Prance (1998), Ferreira and Prance (1999), Forsberg *et al.* (2000), Borges *et al.* (2001), Borges *et al.* (2004a) and Vicentini (2004).

We applied standard bird sampling methods, including captures with mist net (12 × 2 meters, 36 mm mesh), field observations, taped records of bird voices, and specimens collection. Mist nets were utilized in all major habitats of JNP resulting in more than 8,000 individuals captures. Generally the mist nets were arranged in continuous lines operated for two sequential days from 6:00 to 12:00. The birds captured were measured and photographed for documentation. We used analogical and digital tape recorders (Marantz PMD 222, Sony TCM 5000 and Marantz PMD 660) with directional microphones (Senheiser ME 66). The presence of several bird species in JNP was documented by voucher specimens incorporated in the bird collections of the Instituto Nacional de Pesquisas da Amazônia (INPA) and Museu Paraense Emílio Goeldi (MPEG). The presence of about 24% of bird species was not documented by physical evidence. The frequencies of documented species recordings were: collected specimens (30% of species, 154/501 species), photographs (33%, 165/501), and tape recording (66%, 330/501).

The species checklist presented here contains the following items: families, species, abundance, habitats, documentation method, sampling regions, and protected areas where the species was recorded. The taxonomic sequence and Portuguese names follow recommendations of CBRO (2009). Abundance was categorized as common, frequent, infrequent and rare. We followed the contention of Cohn-Haft *et al.* (1997) in treated these categories, as the author's subjective impression of actual population size based on extensive captures with mist-nets and frequency of detection of each species in its preferred habitat. This way the abundance categories reported are viewed as hypotheses of species abundance that need to be evaluated by formal quantitative methods. In the checklist, the major habitat where each species was recorded is presented using the following categories: aerial, *terra firme* forest, *igapó* flooded forest, aquatic environments (rivers, lakes and streams), white sand campinas, woody campinaranas, and secondary growth. In some cases, microenvironments such as sand banks, rock banks and fluvial island were also mentioned in the checklist.

RESULTS AND DISCUSSION

Species diversity

We recorded 501 bird species distributed among 64 families in JNP and neighbouring regions (Appendix). In the final version of the checklist there are six species with hypothetical status, as there are similar species that could lead to misidentification. Better documentation is needed to confirm their presence at JNP. The families with highest diversity were Tyrannidae (60 species) and Thamnophilidae (50) among Passeriformes, and Psittacidae (21) and Trochilidae (22) among the non-Passeriformes. *Myrmotherula* was the most specious genus with 10 species. Other particularly species-rich genera include: *Crypturellus, Amazona, Nyctibius, Trogon, Pachyramphus, Euphonia, Hylophilus* and *Sporophila.*

At least 50 additional bird species were recorded compared with the previously published checklist (Borges *et al.* 2001). Some of these records result from more accurate identifications of previously recorded taxa (*e.g., Crypturellus duidae, Picumnus lafresnayi*), but most species are

genuinely new records for the region. Increase in the number of species recorded for JNP is a consequence of extending inventories to the middle to upper courses of the Jaú, Unini and Carabinani rivers (Figure 1). Moreover, sampling of birds at the Rio Negro fluvial islands resulted in records of island specialists (*e.g., Myrmotherula klagesi, Cranioleuca gutturata*). Finally, we recorded species whose distributions are restricted to the eastern margin of Rio Negro, but also found on islands near that margin within the borders of the JNP (Figure 1) (*e.g., Monasa atra, Hypocnemis cantator, Percnostola rufifrons*).

Studies in bird diversity distribution suggest that sites in eastern Amazonia are relatively poor in species compared to central and western portions of the Amazon basin (Haffer 1990, Rahbek and Graves 2001). This pattern results from comparisons that do not take into account distribution of species among the major habitats (Cohn-Haft *et al.* 1997). Part of the differences in bird species diversity can be explained by regional availability of different habitats (Cohn-Haft *et al.* 1997). In the North of Manaus 257 species were recorded in *terra firme* forest (Cohn-Haft *et al.* 1997), while in the present study we found 250 species for the same habitat in JNP (Table 2). This comparison shows a slight difference in species diversity between two sites located in biogeographically distinct sectors of the Amazon (Borges 2007b).

The beta-diversity component is relevant in explaining high species diversity in JNP. The richest habitats of JNP are the *igapó* flooded forest and *terra firme* forest (Table 2). Vegetation types relatively poor in species also lend an important contribution to avifauna differentiation in JNP (Borges 2004c). For example, the lowest bird species diversity in JNP is found in white sand campinas with only 29 species, but most of them (n = 15) are exclusively recorded in this habitat. Additionally, a large proportion of bird species in JNP is composed of habitat specialists (Figure 2) reinforcing the importance of beta-diversity in the regional distribution of birds (Borges 2004a).

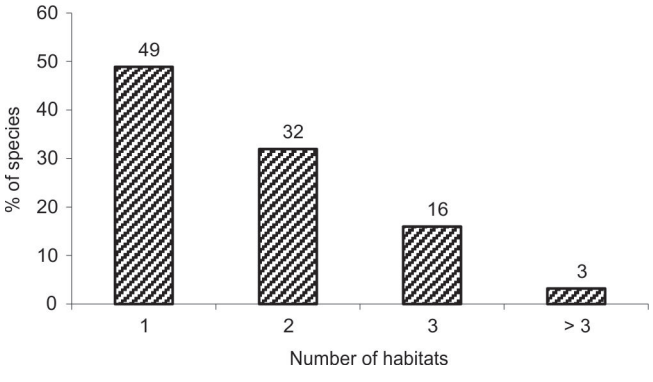

FIGURE 2: Proportions of bird species that used different numbers of distinct habitats in JNP. Most species use one or two habitats.

TABLE 2: Bird species diversity in major habitats of Jaú National Park and adjacent regions.

Major habitats	Number of species	% of unique species[1]	% of unique species[2]
Terra firme forests	250	15%	30%
Igapó flooded forests	270	12%	21%
Woody campinaranas	131	0.20%	0.76%
Secondary growth	129	4%	14%
White sand campinas	29	3%	52%
River and lakes	49	7%	71%

1) calculated from the total number of species recorded at JNP and neighboring areas (n = 501).
2) calculated from the total number of species per habitat.

Species accounts

In this section we present detailed information on species whose biology or biogeographic distribution is otherwise poorly known. The specific regions and geographical coordinates mentioned below are found in Figure 1 and Table 1.

Crypturellus duidae

This small tinamou was tentatively identified as *Crypturellus erythropus* in the first version of the JNP bird checklist (Borges *et al.* 2001). Detailed field observations and comparisons of tape recordings made in JNP with recordings from other regions (Boesman 1999) resulted in a positive identification of individuals found in JNP as *C. duidae*. This tinamou is relatively common in white sand campinas and wood campinarana in the Seringalzinho region (Figure 1). The distribution of *C. duidae* was previously considered to be restricted to the northwestern Amazon region in Venezuela, Colombia, and Brazil in the Uapés river region (Restall *et al.* 2006, Novaes 1978). Recent records of *C. duidae* were obtained for northern Peru in vegetation types similar to the ones found at JNP (Alonso and Whitney 2003).

Amazona kawalli

This parrot was recently described and field records confirming its taxonomic status were obtained only in 1995 (Grantsau and Camargo 1989; Martuscelli and Yamashita 1997). Since then, several field records of the species have been reported, principally in sites south of the Amazon River (Cohn-Haft *et al.* 2007, Whittaker, 2009, Purus River, SHB *pers. obs.*). The first documented (taped records) records of *A. kawalli* for JNP were obtained in *terra firme* forest and *igapó* flooded forest in a region called Monteiro, near the Jaú River headwaters in June 2001 (Figure 1). These are likely the first records of this parrot north of the Amazon River. Apparently

the geographical distribution of *A. kawalli* is wider than previously thought and is potentially associated with different micro-habitats in flooded forest, or with biological interactions with other parrots of the *Amazona* genus (Conh-Haft *et al.* 2007).

Dromococcyx pavoninus

This cuckoo is rare throughout its geographical distribution (Payne 1997) and had never been observed in JNP even after years of field inventories. On April 2005, an individual of *D. pavovinus* was taped and video recorded in a *terra firme* forest in the proximity of Puduari River inside the limits of Rio Negro State Park – Northern Sector (Figure 1).

Asio stygius

In JNP this owl has been recorded in open habitats of white sand campinas and *igapó* flooded forest at Tambor, Seringalzinho and fluvial islands in the Rio Negro (Figure 1). Apparently this owl prefers open habitats like sand fields and *igapó* flooded forest, including fluvial islands (Naka *et al.* 2007). *Asio stygius* is widely distributed in the Amazon basin but is locally rare (Restall *et al.* 2006).

Nonnula amaurocephala

The geographical distribution of this rare puffbird is restricted to the Negro/Japurá interfluvium (Rasmussen and Collar 2002, Borges 2004a). *Nonnula amaurocephala* was rediscovered in JNP after more than 50 years without field records (Whittaker *et al.* 1995). In addition to field records previously reported (Whittaker *et al.* 1995, Borges *et al.* 2001), one individual of *N. amaurocephala* was collected (MPEG 55855) in an open *igapó* forest in Seringalzinho. Another was observed in a secondary growth forest near the Jaú River in the same region. In addition to specimens mentioned in Whittaker *et al.* (1995), the MZUSP housed two skins collected in Manacapuru (MZUSP 16561) and Codajás (MZUSP 16387).

Picumnus lafresnayi

The species of *Picumnus* observed in JNP was tentatively identified as *P. pumilus,* a species known from the northwestern Amazon region (Borges *et al.* 2001, Winkler and Christie 2002). However, the plumage patterns of specimens (MPEG 54064 collected in the Seringalzinho region) were closer to *P. lafresnayi* than *P. pumilus.* In 1936 Olivério Pinto described *P. pusilus* (type locality Codajás), which in the current nomenclature is treated as a subspecies of *P. lafresnayi* (Winkler and Christie, 2002). The geographical distribution of *P. lafresnayi pusilus* apparently is restricted to central Amazonia, from the Solimões to the right margin of Rio Negro (Winkler and Christie, 2002). Museu de Zoologia da Universidade de São Paulo (MZUSP) houses six specimens of *P. l. pusilus* collected at Manacapuru. Plumage patterns and geographical distribution suggest that the population recorded in JNP belongs to *P. lafresnayi pusilus.*

Frederickena unduligera

This large antbird is rare throughout its geographical distribution, which includes regions south of the Amazon River and west of the Madeira River with some subspecies distributed from the upper Amazon to the northwestern sector of the basin (Zimmer and Isler 2003, Isler *et al.* 2009). We recorded *F. unduligera* in JNP during two opportunities – a female collected on the Papagaio River in June (MPEG 55867), and an adult male tape recorded on the Carabinani River in October 2004 (Figure 1). The latter vocal recording was used in a taxonomic study of *F. unduligera* (Isler *et al.* 2009). On both occasions the birds were found near large gaps inside primary *terra firme* forest.

Myrmotherula ignota

In a taxonomic revision of *Myrmotherula brachyuran,* Isler and Isler (2003) suggest that *M. ignota* could be recognized as a full species with distinctive populations in the northern Andes (*M. i. ignota*) and in the lowlands of western Amazonia (*M. i. obscura*) (Isler and Isler 2003, Ridgely and Tudor 2009). We taped *M. ignota* in a *terra firme* forest site near the mouth of the Carabinani River in October 2004. Whitney also tape recorded the species in the same general region (B. Whitney, *pers. com.*). These records suggest that the Rio Negro is the western limit of this species distribution (Ridgely and Tudor 2009).

Dichrozona cincta

This antbird was recorded near the Jaú River headwater at a site called Monteiro (Table 1), where an adult male was killed by bees in a mist net in June 2006. The remains of the individual were prepared as a skin (MPEG 55868). *D. cincta* occurs south of the Amazon River and along most of its upper portion (Zimmer and Isler 2003, Ridgely and Tudor 2009). This record fills a gap in the species distribution between the Japurá and Negro rivers.

Microrhopias quixensis

This species is widely distributed in Central America, South of the Amazon River and in parts of the Guiana region (Zimmer and Isler, 2003). Several individuals of this species were observed and tape recorded on a fluvial island (Jussara Island) near the left margin of the Rio Negro (Figure 1). On this island *M. quixensis* is relatively

common and mostly associated with understory mixed flocks, which include species such as *Myrmotherula klagesi, Myrmotherula assimilis* and *Eucometis penicillata.* This species was found on the Jauaperi River, not far from Jussara Island (Trolle and Walther 2004). These are the first records of *M. quixensis* north of the Amazon in the central portion of the basin (Zimmer and Isler 2003, Ridgely and Tudor 2009).

Myrmeciza disjuncta

This species was reported for the first time in Brazil based on individuals tape recorded and collected (MPEG 54886, 54887) in a small patch of white sand campina located in the Seringalzinho region (Borges and Almeida 2001). Since then, the species has been recorded from the middle course of the Branco River in a similar habitat (Naka *et al.* 2006). In addition to records previously reported (Borges *et al.* 2001, Borges and Almeida 2001), *M. disjuncta* was also recorded in a large patch of flooded *igapó* forest with open structure similar to interfluvial sand soil forest (woody campinarana). In this habitat, which appears new for the species, nine individuals were captured in mist nets and released in November 2001 (Borges 2004a). Open *igapó* flooded forest is easily detected in satellite images and this habitat could be important to the dispersal of birds apparently isolated in patches of interfluvial white sand campinas, such as *Myrmeciza disjuncta* (Borges 2004a).

Ancistrops strigilatus

This foliage-gleaner bird was collected (MPEG 55859) in a *terra firme* forest on the Papagaio River (Figure 1). The known distribution of this species in Brazilian Amazonia appears restricted to south of the Amazon River and west of the Tapajós River (Ridgely and Tudor 2009). This is the first record of *A. strigilatus* north of the middle course of the Amazon River.

Perissocephalus tricolor

This bird had been recorded only once before in JNP by its distinctive vocalization (Borges *et al.* 2001). We recorded *P. tricolor* by vocalization at two additional sites, located at the transition zone between flooded and *terra firme* forest in the Seringalzinho region. This bird is very rare at JNP. Our records confirm that the lower course of the Rio Negro is not a barrier to its distribution (compare maps in Snow 2004 and Ridgely and Tudor, 2009).

Iodopleura isabellae

This small cotinga was observed along the edge of secondary growth forest at the mouth of the Jaú River in May 2004. This species is widely distributed in southern and western Amazonia, being replaced by *I. fusca* in the Guiana region east of Rio Negro (Ridgely and Tudor 2009).

Turdus hauxwelli

Two specimens of this thrush were collected in the Monteiro region in June 2002 in a *terra firme* forest near a buriti palm (*Mauritia flexuosa*) swamp. The congeneric species *T. fumigatus* has been reported from JNP by taped records and specimens (Borges *et al.* 2001). The taxonomic history of *T. fumigatus* and *T. hauxwelli* is complex (Ridgely and Tudor 1989, Remsen *et al.* 2010). Recent molecular data lend support in treating *T. hauxwelli* as an independent species from *T. fumigatus* (Voelker *et al.* 2007). Apparently *T. fumigatus* and *T. hauxwelli* replace each other along the Jaú River, as also observed in the species pair *Myrmotherula multostriata/Myrmotherula cherriei* (Borges *et al.* 2001). The two species of thrushes have widely disjunctive distributions, and north of the Amazon River its substitution zone occurs at the Japurá/Negro interfluvium (Ridgely and Tudor 2009).

Seiurus noveboracensis

We captured and photographed an individual of this migrant warbler in an open *igapó* forest in the Seringalzinho region in September 2001. Apparently *S. noveboraceneis* is a regular visitor to Colombia, Venezuela, Guyana and north of Peru (Ridgely and Tudor 2009). This represents the second record of *S. noveboracensis* for Brazil which was previously collected in Rio Paru de Leste near the frontier between Pará state and Suriname (Novaes 1980).

The updated species checklist given here provides a solid database on the bird diversity of JNP. Further ornithological studies at JNP should prioritize bird population monitoring at a local scale. Birds with restricted geographical distribution and/or small population size with high levels of habitat specialization are good candidates for populational studies (Borges, 2007a). In this regard, the avifauna of river islands and white sand campinas deserves special attention in future monitoring programs.

Biogeographical analysis of the JNP avifauna allowed the identification of small groups of species whose distributions are apparently restricted to the lower course of the Rio Negro (Borges 2004a, Borges 2007b). However, a more complete and detailed taxonomic revision of these avian taxa is necessary. Taxonomic studies centered on these species should result in a better appreciation of the biological uniqueness of the lower Rio Negro region, as well as how relevant from a viewpoint of conservation is the regional system of protected areas.

ACKNOWLEDGMENTS

Financial and logistical support throughout the years, which has made possible the compilation of these bird inventories in JNP, have been provided by CNPq, Capes, WWF-Brasil, European Commission, Fundação Vitória Amazônica, and the Betty and Gordon Moore Foundation. We are grateful to several JNP residents, especially S. Leôncio, Lindomar, Cleu, S. Nato, Márico, Ademir, Antenor and Elino who helped us during fieldwork. We also are grateful to Marcelo Moreira, who prepared the map illustration in this article. The Brazilian Environmental Agencies (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – IBAMA, Instituto Chico Mendes de Conservação da Biodiversidade – ICMBIO and Centro Estadual de Unidades de Conservação – CEUC) provided the permits to work in protected areas. Colleagues André Carvalhaes, Fernando Pacheco, Andrew Whittaker, Mario Cohn-Haft, Magali Henriques and Bret Whitney have made important contributions, making JNP's avifauna one of the best known in the Amazon. Camila Ribas, Adrian Barnett and Marinus Hoogmoed corrected the English and made several editorial suggestions that improved the first versions of the manuscript.

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APPENDIX: Bird species checklist of the Jaú National Park and three additional protected areas. Species marked with * are not listed in Borges *et al.* (2001). Species between parentheses are hypothetical records that need better documentation.
Abundance: c = common, f = frequent, i = infrequent, r = rare, am = austral migrant, nm = neartic migrant.
Habitats: a = aerial, ca = white sand campina, cm = woody campinarana, dv = anthropogenic disturbed vegetation, ig = *igapó* flooded forest, fi = fluvial island, tf = *terra firme* forest, r = aquatic habitats including rivers, lakes and streams, rb = rock banks, sb = sand banks, bur = palm swamps (buritizais).
Documentation: col = voucher specimens in ornithological collections, tr = tape recorded, ph = photographed, nd = recorded by observation (obs) or by voice (v) without physical documentation, vd = video recorded.
Regions: the numbers indicate the specific regions showed in Figure 1 and Table 1.
Protected areas: Jnp = Jaú National Park, Reuni = Rio Unini Extractive Reserve, Rdsa = Amanã Sustainable Development Reserve, Pern = Rio Negro State Park = Northern Sector.

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Tinamidae								
Tinamus major (Gmelin, 1789)	i	tf	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X		X
Tinamus guttatus Pelzeln, 1863*	r	tf	tr	2	X			
Crypturellus cinereus (Gmelin, 1789)	r	ig, cm	tr	2, 9	X	X	X	
Crypturellus soui (Hermann, 1783)	f	tf, dv, ig	tr	1, 2, 3, 4, 6, 9	X	X	X	X
Crypturellus undulatus (Temminck, 1815)	c	ig	tr	1, 2, 3, 4, 5, 9	X	X	X	
Crypturellus duidae Zimmer, 1938*	r	cm, ca	tr	2	X			
Crypturellus variegatus (Gmelin, 1789)	c	tf	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Anatidae								
Dendrocygna autumnalis (Linnaeus, 1758)	r	r	nd (obs)	2	X			
Cairina moschata (Linnaeus, 1758)	c	r	nd (obs)	1, 2, 3, 4, 6, 9, 10	X	X	X	X
Cracidae								
Penelope jacquacu Spix, 1825	c	tf, ig	ph	1, 2, 3, 4, 5, 6, 8, 9	X	X	X	X
Aburria cumanensis (Jacquin, 1784)[1]	r	tf, ig	nd (obs, v)	3, 9	X	X		
Nothocrax urumutum (Spix, 1825)	i	tf	ph, tr	2, 3, 4, 10	X			X
Pauxi tomentosa (Spix, 1825)[2]	i	ig (fi)	tr	1	X			
Pauxi tuberosa (Spix, 1825)[3]	i	tf	ph, tr	2, 10	X			X
Odontophoridae								
Odontophorus gujanensis (Gmelin, 1789)	f	tf, dv	col, tr	1, 2, 3, 4, 5, 8, 9	X	X	X	
Phalacrocoracidae								
Phalacrocorax brasilianus (Gmelin, 1789)	c	r	ph	1, 2, 3, 4, 6	X			X
Anhingidae								
Anhinga anhinga (Linnaeus, 1766)	f	r	nd (obs)	1, 2, 3, 4, 6	X			X
Ardeidae								
Tigrisoma lineatum (Boddaert, 1783)	i	r	ph	3, 4, 6	X			X
Agamia agami (Gmelin, 1789)	r	r	nd (obs)	1	X			
Cochlearius cochlearius (Linnaeus, 1766)	r	r	nd (obs, v)	1	X			
Zebrilus undulatus (Gmelin, 1789)*	r	r	vr	1	X			
Nycticorax nycticorax (Linnaeus, 1758)	r	r	nd (obs)	1	X			

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Butorides striata (Linnaeus, 1758)	c	r	tr	1, 2, 3, 4, 9	X	X		
Bubulcus ibis (Linnaeus, 1758)	i	r	ph	1, 3, 4, 10	X			X
Ardea cocoi Linnaeus, 1766	c	r	ph	1, 2, 3, 4, 6, 9, 10	X	X		X
Ardea alba Linnaeus, 1758[4]	c	r	nd (obs)	2, 3, 4, 10	X			X
Pilherodius pileatus (Boddaert, 1783)	f	r	nd (obs)	3, 4, 6, 9	X	X	X	X
Egretta thula (Molina, 1782)	i	r	nd (obs)	1, 4	X			
Threskiornithidae								
Mesembrinibis cayennensis (Gmelin, 1789)	c	r	tr	1, 2, 3, 4, 6, 9, 10	X	X	X	X
Platalea ajaja Linnaeus, 1758	am (r)	r	ph	2	X			
Ciconiidae								
Jabiru mycteria (Lichtenstein, 1819)	am (r)	r	nd (obs)	2	X			
Mycteria americana Linnaeus, 1758	am (f)	r	nd (obs)	4	X			
Cathartidae								
Cathartes aura (Linnaeus, 1758)	f	a	nd (obs)	1, 2, 3, 4, 9	X		X	
Cathartes burrovianus Cassin, 1845	f	a	nd (obs)	1, 2, 3, 4, 6, 10	X			X
Cathartes melambrotus Wetmore, 1964	c	a	nd (obs)	1, 2, 3, 4, 9	X		X	
Coragyps atratus (Bechstein, 1793)	c	a	nd (obs)	1, 2, 3, 4, 6	X			
Sarcoramphus papa (Linnaeus, 1758)	f	a	nd (obs)	1, 3, 4, 9	X		X	
Pandionidae								
Pandion haliaetus (Linnaeus, 1758)	nm (f)	r, ig	nd (obs)	1, 2, 4, 6	X			X
Accipitridae								
Leptodon cayanensis (Latham, 1790)	r	ig	nd (obs)	1	X			
Elanoides forficatus (Linnaeus, 1758)	am? (f)	tf, ca	nd (obs)	1, 2, 3, 4, 9	X		X	
Harpagus bidentatus (Latham, 1790)*	r	tf	nd (obs)	2	X			
Ictinia plumbea (Gmelin, 1788)	c	tf, dv, ig	ph	1, 2, 3, 4, 5, 8, 9	X	X		
Accipiter bicolor (Vieillot, 1817)	r	ig, dv	nd (obs)	1	X			
Geranospiza caerulescens (Vieillot, 1817)	r	ig	nd (obs)	4	X			
(*Leucopternis schistaceus*) (Sundevall, 1851)*	r	ig (fi)	nd (obs)	1	X			
Leucopternis melanops (Latham, 1790)*	r	tf	tr	6	X			X
Buteogallus urubitinga (Gmelin, 1788)	f	tf, ig	ph, tr	2, 3, 4, 5, 6, 9	X	X	X	
Busarellus nigricollis (Latham, 1790)	r	ig	nd (obs)	2	X			
Rupornis magnirostris (Gmelin, 1788)	c	tf, dv, ig, cm	tr	1, 2, 3, 4, 6, 10	X			X
Buteo nitidus (Latham, 1790)[5]	i	ig, cm	nd (obs)	2, 3	X			
Harpia harpyja (Linnaeus, 1758)	r	tf, ig	nd (obs)	2, 5	X			

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Spizaetus tyrannus (Wied, 1820)	r	ig	tr	7, 10	X			X
Spizaetus ornatus (Daudin, 1800)	r	tf, ig	nd (obs, v)	2, 3, 5, 8, 9	X		X	
Falconidae								
Daptrius ater Vieillot, 1816	c	ig, cm	ph, tr	1, 2, 3, 4, 5, 6, 7, 9	X	X	X	X
Ibycter americanus (Boddaert, 1783)[6]	i	tf	nd (obs, v)	1, 4, 5, 6, 8	X			
Milvago chimachima (Vieillot, 1816)	c	ig, dv	tr	1, 2, 3, 6, 10	X			X
Herpetotheres cachinnans (Linnaeus, 1758)	r	tf	nd (obs, v)	1, 4, 9	X		X	
Micrastur ruficollis (Vieillot, 1817)	f	tf, dv	col, ph, tr	1, 2, 3, 4, 5	X			
Micrastur gilvicollis (Vieillot, 1817)	f	tf	col, tr	2, 4, 5, 6, 10	X			X
Micrastur mirandollei (Schlegel, 1862)	r	tf, ig	nd (v)	5, 8	X			
Micrastur semitorquatus (Vieillot, 1817)	i	tf, dv	tr	1, 2, 3, 9	X		X	
Falco columbarius Linnaeus, 1758	nm (r)	ig	nd (obs)	1	X			
Falco rufigularis Daudin, 1800	f	ig	tr	2, 3, 4, 5, 6, 9	X	X	X	X
Aramidae								
Aramus guarauna (Linnaeus, 1766)	i	r	nd (obs, v)	3, 4, 6	X			
Psophiidae								
Psophia crepitans ochroptera Pelzeln 1857	f	tf, cm	col, ph, tr	2, 5, 6, 8, 9, 10	X	X	X	X
Rallidae								
Aramides cajanea (Statius Muller, 1776)	f	ig, dv	tr	1, 2, 4, 6, 9	X	X		X
Laterallus viridis (Statius Muller, 1776)*	r	ca	tr	2	X			
Laterallus melanophaius (Vieillot, 1819)	r	ig	nd (v)	3, 4	X			
Heliornithidae								
Heliornis fulica (Boddaert, 1783)	f	r, ig	tr	1, 2, 3, 4, 6	X			X
Eurypygidae								
Eurypyga helias (Pallas, 1781)	i	r, ig	tr	4, 9	X	X	X	
Charadriidae								
Charadrius collaris Vieillot, 1818*	nm (i)	ig	tr	1	X			
Scolopacidae								
Gallinago paraguaiae (Vieillot, 1816)	r	r	nd (obs)	11(A)	X			
Actitis macularius (Linnaeus, 1766)	nm (f)	r (sb, rb)	nd (obs)	1	X			
Tringa solitaria Wilson, 1813	nm (f)	r (sb, rb)	nd (obs)	2	X			
Tringa melanoleuca (Gmelin, 1789)	nm (i)	r (sb, rb)	nd (obs)	2	X			
Tringa flavipes (Gmelin, 1789)	nm (i)	r (sb, rb)	nd (obs)	2	X			
Calidris alba (Pallas, 1764)	nm (i)	r (sb, rb)	nd (obs)	1	X			
Calidris fuscicollis (Vieillot, 1819)	nm (i)	r (sb, rb)	ph	2	X			

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Calidris melanotos (Vieillot, 1819)	nm (i)	r (sb, rb)	nd (obs)	2	X			
Jacanidae								
Jacana jacana (Linnaeus, 1766)	r	r	nd (obs)	11(B)	X			
Sternidae								
Sternula superciliaris (Vieillot, 1819)[7]	f	r (sb, rb)	tr	1	X			
Phaetusa simplex (Gmelin, 1789)	f	r (sb, rb)	tr	1, 2, 3, 4, 6	X			X
Rynchopidae								
Rynchops niger Linnaeus, 1758	i	r (sb, rb)	tr	1	X			
Columbidae								
Columbina passerina (Linnaeus, 1758)	c	dv	tr	1, 2, 3, 9	X		X	
Columbina talpacoti (Temminck, 1811)	r	dv	nd (obs)	2	X			
Patagioenas speciosa (Gmelin, 1789)[8]	f	dv, cm, ig	tr	1, 2, 3, 4, 6, 9	X	X		X
Patagioenas cayennensis (Bonnaterre, 1792)[9]	c	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 8, 9, 10	X	X	X	X
Patagioenas plumbea (Vieillot, 1818)[10]	c	tf, cm, dv	tr	1, 2, 3, 4, 6, 7, 8, 9, 10	X	X		X
Patagioenas subvinacea (Lawrence, 1868)[11]	c	tf, dv, ig	tr	1, 2, 3, 4, 5, 6, 7, 8, 9	X	X	X	X
Leptotila verreauxi Bonaparte, 1855	f	tf, dv	tr	1, 2, 4, 6, 9, 10	X	X	X	X
Leptotila rufaxilla (Richard and Bernard, 1792)	i	tf, ig, dv	tr	1, 4, 8, 9	X		X	
Geotrygon montana (Linnaeus, 1758)	c	tf, cm	ph, tr	1, 2, 3, 4, 5, 6, 8, 9, 10	X	X		X
Psittacidae								
Ara ararauna (Linnaeus, 1758)	c	tf, cm, ig	ph, tr	1, 2, 3, 4, 5, 6, 8, 10	X	X	X	X
Ara macao (Linnaeus, 1758)	f	tf, cm, ig	tr	1, 2, 3, 4, 5, 6, 9	X		X	X
Ara chloropterus Gray, 1859	i	tf, cm, ig	nd (obs)	2, 4, 6	X			X
Orthopsittaca manilata (Boddaert, 1783)	c	tf, cm	tr	2, 3, 4, 5, 6, 7, 8, 9	X		X	X
Aratinga leucophthalma (Statius Muller, 1776)	i	ig, dv	tr	1, 3, 4, 7, 6, 9	X		X	X
Aratinga pertinax (Linnaeus, 1758)	c	ig, cm	ph, tr, vr	1, 2, 3, 4, 5, 6, 9	X	X	X	X
Pyrrhura melanura (Spix, 1824)	f	ig, tf, cm	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Brotogeris chrysoptera (Linnaeus, 1766)	c	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Brotogeris sanctithomae (Statius Muller, 1776)	r	ig	nd (obs)	1, 3	X			
Touit huetii (Temminck, 1830)	r	tf	tr	1, 2	X			
Touit purpuratus (Gmelin, 1788)	i	tf	tr	2, 3, 4, 6, 10	X			X
Pionites melanocephalus (Linnaeus, 1758)	f	tf	tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Pyrilia barrabandi (Kuhl, 1820)[12]	f	tf, ig, cm	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Pionus menstruus (Linnaeus, 1766)	c	tf, ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Pionus fuscus (Statius Muller, 1776)	i	tf	tr	1, 2, 3, 4, 6, 8, 9, 10	X	X		X
Amazona autumnalis (Linnaeus, 1758)	i	tf	tr	1, 2, 4, 5, 6, 10	X			X
Amazona festiva (Linnaeus, 1758)	c	ig	ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Amazona kawalli Grantsau and Camargo, 1989*	r	ig	tr	5	X			
Amazona amazonica (Linnaeus, 1766)	c	ig, cm	ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Amazona farinose (Boddaert, 1783)	f	tf, ig, cm	ph, tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Deroptyus accipitrinus (Linnaeus, 1758)	r	tf	nd (obs, v)	4, 5, 7, 8	X			
Opisthocomidae								
Opisthocomus hoazin (Statius Muller, 1776)	r	ig	nd (obs)	4	X			
Cuculidae								
Coccycua minuta (Vieillot, 1817)[13]	r	ig, dv	nd (obs)	3	X			
Piaya cayana (Linnaeus, 1766)	c	ig, dv	tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Piaya melanogaster (Vieillot, 1817)	f	tf, cm	tr	1, 2, 3, 4, 5, 6, 7, 8, 10	X			X
Coccyzus melacoryphus Vieillot, 1817*	r	ig	nd (obs)	9	X	X		
Coccyzus americanus (Linnaeus, 1758)	nm (i)	ig	nd (obs)	9	X	X	X	
Coccyzus euleri Cabanis, 1873	am (r)	ig	nd (obs)	3, 9	X	X		
Crotophaga major Gmelin, 1788	f	ig	tr	1, 2, 3, 4, 5, 6, 8, 7, 9	X	X	X	X
Crotophaga ani Linnaeus, 1758	c	ig, dv	nd (obs, v)	1, 2, 3, 4, 5	X			
Tapera naevia (Linnaeus, 1766)	r	ca	tr	2	X			
Dromococcyx pavoninus Pelzeln, 1870*	r	tf	tr, vr	10				X
Tytonidae								
Tyto alba (Scopoli, 1769)	r	dv, ca, cm	nd (obs, v)	3	X			
Strigidae								
Megascops choliba (Vieillot, 1817)[14]	c	ig, cm	tr	1, 2, 3, 4, 6, 10	X			X
Megascops usta (Sclater, 1858)[15]	c	tf	tr	1, 2, 3, 4, 5, 6, 7, 8, 10	X			X
Lophostrix cristata (Daudin, 1800)*	r	tf	tr	5	X			
Pulsatrix perspicillata (Latham, 1790)	f	tf, ig, dv	tr	1, 2, 3, 4, 5, 7, 9	X	X	X	
Strix huhula Daudin, 1800[16]	i	tf, ig	tr	1, 2	X			
Glaucidium brasilianum (Gmelin, 1788)	f	ig, dv	ph, tr	1, 3, 4, 5, 8	X			
Asio stygius (Wagler, 1832)	r	ig, ca, cm	tr	1, 2, 6	X			X
Nyctibiidae								
Nyctibius grandis (Gmelin, 1789)	f	tf, ig, dv	tr	1, 3, 5	X			
Nyctibius aethereus (Wied, 1820)*	r	tf, cm	tr	5	X			

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Nyctibius griseus (Gmelin, 1789)	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 7, 9	X	X		
Nyctibius leucopterus (Wied, 1821)	r	tf, cm	col, tr	1, 2, 3, 6	X	X		
Nyctibius bracteatus Gould, 1846	i	tf, cm, dv	tr	2, 7, 10	X			X
Caprimulgidae								
Lurocalis semitorquatus (Gmelin, 1789)	r	tf	nd (obs, v)	1, 2, 3, 4	X			
Chordeiles pusillus Gould, 1861	f	ca	col, tr	2	X			
(*Chordeiles acutipennis*) (Hermann, 1783)	r	dv	nd (obs, v)	1	X			
Chordeiles minor (Forster, 1771)	nm (i)	a	nd (obs, v)	1, 2, 3, 4	X			
Nyctiprogne leucopyga (Spix, 1825)	c	ig	col, ph, tr	1, 2, 3, 4, 5, 8, 9	X	X	X	X
Nyctidromus albicollis (Gmelin, 1789)	c	tf, ig, dv	tr	1, 2, 3, 4, 6, 9	X	X	X	X
Caprimulgus rufus Boddaert, 1783	f	ca	tr	2	X			
Caprimulgus cayennensis Gmelin, 1789	r	ca	tr	2	X			
Caprimulgus nigrescens Cabanis, 1848	f	tf, ig, dv	col, ph	1, 2, 3, 6	X			X
Hydropsalis climacocerca (Tschudi, 1844)	f	ig	tr	1, 2, 4	X			
Apodidae								
Chaetura spinicaudus (Temminck, 1839)	f	a	nd (obs)	1, 2, 3, 4	X			
Chaetura cinereiventris Sclater, 1862	c	a	tr	1, 2, 3, 4, 6, 9	X	X	X	
Chaetura chapmani Hellmayr, 1907	r	a	nd (obs)	2	X			
Chaetura brachyura (Jardine, 1846)	c	a	tr	1, 2, 3, 4, 6	X			
Tachornis squamata (Cassin, 1853)	f	a	tr	1, 3, 4, 9	X		X	
Panyptila cayennensis (Gmelin, 1789)	r	a	nd (obs)	1, 2, 3, 4	X			
Trochilidae								
Glaucis hirsutus (Gmelin, 1788)	r	tf	nd (obs)	1, 4	X			
Threnetes leucurus (Linnaeus, 1766)*	r	tf, dv	ph	5, 9	X		X	
Phaethornis rupurumii Boucard, 1892*	c	ig (fi)	col, ph	1	X			
Phaethornis ruber (Linnaeus, 1758)	f	tf, cm, dv	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Phaethornis bourcieri (Lesson, 1832)	i	tf	col	1, 2, 3, 4, 8, 9, 10	X		X	X
Phaethornis malaris (Nordmann, 1835)[17]	f	tf, ig, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Campylopterus largipennis (Boddaert, 1783)	r	tf	nd (obs)	1, 2, 3	X			
Florisuga mellivora (Linnaeus, 1758)	c	tf, dv	col	1, 2, 3, 4, 6	X			X
Anthracothorax nigricollis (Vieillot, 1817)	i	tf, ig	tr	1, 2, 4	X			
Topaza pyra (Gould, 1846)	r	ca	ph, tr	2, 3, 6, 10	X			X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Chrysolampis mosquitus (Linnaeus, 1758)	r	ig	nd (obs)	1, 3	X			
Chlorostilbon notatus (Reich, 1793)*	r	cm, ig	ph	2	X			
Chlorostilbon mellisugus (Linnaeus, 1758)	r	ig, dv	col	1, 2	X			
Thalurania furcata (Gmelin, 1788)	c	tf, ig, cm, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 10	X			X
Hylocharis sapphirina (Gmelin, 1788)	i	tf, cm, dv	col, ph	1, 2, 3, 4, 9	X	X	X	
Hylocharis cyanus (Vieillot, 1818)	f	tf, ig, cm, dv	col, ph	1, 2, 3, 4, 6	X			X
Polytmus theresiae (Da Silva Maia, 1843)	c	ca	col, ph	2	X			
Amazilia versicolor (Vieillot, 1818)	r	tf, dv	tr	1, 2, 6	X			X
Amazilia fimbriata (Gmelin, 1788)	f	tf, dv	nd (obs)	1, 2, 3, 4, 6	X			X
Heliodoxa aurescens (Gould, 1846)[18]	r	tf	ph, tr	2, 4, 5, 7, 8, 9	X	X	X	
Heliothryx auritus (Boddaert, 1783)	i	tf, dv	col	1, 2, 3, 4, 7, 8, 9, 10	X	X	X	X
Heliomaster longirostris (Audebert and Vieillot, 1801)	r	tf, dv	nd (obs)	1, 2	X			
Trogonidae								
Trogon melanurus Swainson, 1838	i	tf, ig, cm, dv	col, tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Trogon viridis Linnaeus, 1766	c	tf, ig, cm, dv	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Trogon violaceus Gmelin, 1788	i	tf, cm	tr	1, 2, 3, 6, 9, 10	X	X	X	X
Trogon curucui Linnaeus, 1766	f	ig	tr	1, 2, 3, 4, 5, 6, 7, 9	X	X	X	X
Trogon rufus Gmelin, 1788	f	tf, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Pharomachrus pavoninus (Spix, 1824)	i	tf	col, tr	1, 2, 3, 4, 5, 9, 10	X	X		X
Alcedinidae								
Megaceryle torquata (Linnaeus, 1766)[19]	c	r	tr	1, 2, 3, 4, 6, 9, 10	X	X	X	X
Chloroceryle amazona (Latham, 1790)	c	r	nd (obs)	1, 2, 3, 4, 6, 9	X	X	X	X
Chloroceryle aenea (Pallas, 1764)	f	r	col, ph	1, 2, 3, 4, 6, 9	X	X		X
Chloroceryle americana (Gmelin, 1788)	f	r	tr	1, 2, 3, 4	X			
Chloroceryle inda (Linnaeus, 1766)	f	r	ph, tr	1, 2, 3, 4, 6, 9	X	X		X
Momotidae								
Momotus momota (Linnaeus, 1766)	f	tf, ig, cm	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Galbulidae								
Galbula albirostris Latham, 1790	f	tf, cm, dv	ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Galbula galbula (Linnaeus, 1766)*	i	ig (fi)	ph, tr	1, 9	X		X	
Galbula leucogastra Vieillot, 1817	i	ig, cm	col, tr	1, 2, 4, 6, 9	X	X	X	X
Galbula dea (Linnaeus, 1758)	f	tf, ig, cm	col, tr	1, 2, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Jacamerops aureus (Statius Muller, 1776)	i	tf	tr	2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Bucconidae								
Notharchus hyperrhynchus (Sclater, 1856)[20]	i	tf, ig	tr	1, 2, 3, 6	X			X
Notharchus macrorhynchos (Gmelin, 1788)*a	i	ig (fi)	tr	1	X			
Notharchus ordii (Cassin, 1851)	r	tf, cm	col	2	X			
Notharchus tectus (Boddaert, 1783)	i	tf	nd (obs)	3, 4	X			
Bucco macrodactylus (Spix, 1824)*	r	ig	ph	11(C)	X			
Bucco tamatia Gmelin, 1788	f	tf, ig, cm	tr	2, 8, 10	X			X
Bucco capensis Linnaeus, 1766	i	tf, cm	ph, tr	2, 4, 6, 10	X			X
Malacoptila fusca (Gmelin, 1788)	r	tf	col, ph, tr	2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Micromonacha lanceolata (Boddaert, 1783)	r	tf	nd (obs)	4	X			
Nonnula rubecula (Spix, 1824)	r	tf	col, ph	2, 4	X			
Nonnula amaurocephala Chapman, 1921	r	ig	col, ph	2, 4	X			
Monasa atra (Boddaert, 1783)*a	r	ig (fi)	nd (obs)	1	X			
Monasa nigrifrons (Spix, 1824)	c	ig	ph	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Monasa morphoeus (Hahn and Küster, 1823)	i	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Chelidoptera tenebrosa (Pallas, 1782)	c	ig	ph	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Capitonidae								
Capito auratus (Dumont, 1816)[21]	f	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Eubucco richardsoni (Gray, 1846)	r	tf	nd (v)	4	X			
Ramphastidae								
Ramphastos tucanus Linnaeus, 1758	c	tf, ig, cm	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Ramphastos vitellinus Lichtenstein, 1823	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Selenidera nattereri (Gould, 1836)	i	tf	col, ph, tr	2, 5, 8, 9	X	X		
Pteroglossus azara (Vieillot, 1819)	i	tf, ig	ph, tr	1, 2, 4, 5, 6, 8, 9	X		X	X
Pteroglossus aracari (Linnaeus, 1758)*a	r	ig (fi)	nd (obs)	1	X			
Pteroglossus castanotis Gould, 1834	r	tf	nd (obs)	4	X			
Pteroglossus pluricinctus Gould, 1835*	r	tf	nd (obs)	5	X			
Picidae								
Picumnus lafresnayi Malherbe, 1862*	r	ig	col, ph	2, 6, 9	X			X
Melanerpes cruentatus (Boddaert, 1783)	c	tf, ig, dv	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Veniliornis cassini (Malherbe, 1862)*a	r	ig (fi)	tr	4	X			
Veniliornis affinis (Swainson, 1821)	f	tf, cm	tr	1, 2, 3, 4, 6, 9, 10	X		X	X
Piculus flavigula (Boddaert, 1783)	f	tf, ig	col, tr	1, 2, 3, 4, 5, 7, 8, 9, 10	X		X	X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Piculus chrysochloros (Vieillot, 1818)	i	tf, ig	col, tr	1, 2, 3, 4, 6	X			X
Colaptes punctigula (Boddaert, 1783)	i	ig	tr	1, 2, 3, 4	X			
Celeus grammicus (Natterer and Malherbe, 1845)	c	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Celeus elegans (Statius Muller, 1776)	f	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 7, 10	X			X
Celeus flavus (Statius Muller, 1776)	f	ig, dv	tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Celeus torquatus (Boddaert, 1783)	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X		X
Dryocopus lineatus (Linnaeus, 1766)	f	tf, ig, dv	tr	1, 2, 3, 4, 5, 9	X	X	X	
Campephilus rubricollis (Boddaert, 1783)	f	tf,cm	tr	1, 2, 3, 4, 5, 8, 9, 10	X	X	X	X
Campephilus melanoleucos (Gmelin, 1788)	f	ig, dv	ph, tr	1, 2, 3, 4, 6, 9	X	X	X	X
Thamnophilidae								
Cymbilaimus lineatus (Leach, 1814)	f	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Frederickena unduligera (Pelzeln, 1868)*	r	tf	col, tr	6, 8	X			X
Taraba major (Vieillot, 1816)	r	ig, dv	tr	4, 5	X			
Sakesphorus canadensis (Linnaeus, 1766)	c	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 9	X	X	X	X
Thamnophilus schistaceus d'Orbigny, 1835	r	ig, tf	col, tr	4, 7	X			
Thamnophilus murinus Sclater and Salvin, 1868	c	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Thamnophilus nigrocinereus Sclater, 1855	r	ig (fi)	ph, tr	1	X			
Thamnophilus aethiops Sclater, 1858	f	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Thamnophilus amazonicus Sclater, 1858	f	ig, cm, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 10	X			X
Megastictus margaritatus (Sclater, 1855)	i	tf, cm	col, ph, tr	2, 4, 5, 6, 8, 10	X			X
Thamnomanes ardesiacus (Sclater and Salvin, 1867)	r	tf	tr	2, 4, 5	X			
Thamnomanes caesius (Temminck, 1820)	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Pygiptila stellaris (Spix, 1825)	r	tf, ig (fi)	tr	1, 9	X		X	
Epinecrophylla haematonota (Sclater, 1857)[22]	f	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Myrmotherula brachyura (Hermann, 1783)	c	tf, ig	col, tr	1, 2, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Myrmotherula ignota Griscom, 1929*	r	tf	tr	6	X			
Myrmotherula ambigua Zimmer, 1932	r	tf	col, ph, tr	5, 8, 9	X	X	X	
Myrmotherula multostriata Sclater, 1858[23]	r	ig	tr	4	X			
Myrmotherula cherriei Berlepsch and Hartert, 1902	f	ig, ca	col, ph, tr	1, 2, 3, 4, 6, 7, 9	X	X	X	X
Myrmotherula klagesi Todd, 1927*	r	ig (fi)	col, ph, tr	1	X			
Myrmotherula axillaris (Vieillot, 1817)	c	tf, ig, cm, ca, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X		X

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Myrmotherula longipennis Pelzeln, 1868	f	tf, cm	col, ph	1, 2, 3, 5, 6, 7, 8, 9, 10	X	X		X
Myrmotherula menetriesii (d'Orbigny, 1837)	f	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 10	X			X
Myrmotherula assimilis Pelzeln, 1868	f	ig (fi)	ph, tr	1	X			
Dichrozona cincta (Pelzeln, 1868)*	r	tf	col, ph	5	X			
Herpsilochmus dorsimaculatus Pelzeln, 1868	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Microrhopias quixensis (Cornalia, 1849)*a	i	ig (fi)	tr	1	X			
Formicivora grisea (Boddaert, 1783)	f	ca	col, ph, tr	2	X			
Terenura spodioptila Sclater and Salvin, 1881	i	tf, ig, cm	tr	1, 2, 3, 6, 7, 8, 9, 10	X		X	X
Cercomacra cinerascens (Sclater, 1857)	f	tf, ig	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Cercomacra tyrannina (Sclater, 1855)	f	ig, dv	col, tr	1, 2, 3, 4, 6, 8, 9, 10	X	X	X	X
Myrmoborus lugubris (Cabanis, 1847)*	i	ig (fi)	ph, tr	1	X			
Myrmoborus myotherinus (Spix, 1825)	c	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Hypocnemis cantator (Boddaert, 1783)* a	r	ig (fi)	col	1	X			
(*Hypocnemis flavescens*) Sclater, 1864[24]	r	ig, dv	nd (obs, v)	1, 2, 3, 4, 7, 8, 9	X	X	X	
Hypocnemis hypoxantha Sclater, 1869	f	tf	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Hypocnemoides melanopogon (Sclater, 1857)	c	ig	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Sclateria naevia (Gmelin, 1788)	i	ig	tr	1, 2, 4, 9	X	X	X	
Percnostola minor Pelzeln, 1868	i	tf	col, ph, tr	1, 2, 3, 4, 6, 10	X			X
Percnostola rufifrons (Gmelin, 1789)*a	r	ig (fi)	ph, tr	1	X			
Schistocichla leucostigma (Pelzeln, 1868)	i	ig, dv	col, ph	1, 2, 3, 4, 5, 7, 8, 9, 10	X	X	X	X
Myrmeciza atrothorax (Boddaert, 1783)	r	dv	tr	1, 3	X			
Myrmeciza disjuncta Friedmann, 1945	r	ca, ig	col, ph, tr	2	X			
Pithys albifrons (Linnaeus, 1766)	c	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Gymnopithys leucaspis (Sclater, 1855)	c	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Rhegmatorhina cristata (Pelzeln, 1868)	i	tf, cm	col, ph, tr	2, 4, 5	X			
Hylophylax naevius (Gmelin, 1789)	c	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Hylophylax punctulatus (Des Murs, 1856)	r	ig	tr	4	X			
Willisornis poecilinotus (Cabanis, 1847)[25]	c	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 10	X	X	X	X
Phlegopsis erythroptera (Gould, 1855)	f	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X		X
Conopophagidae								
Conopophaga aurita (Gmelin, 1789)	i	tf	ph, tr	3, 4, 5, 7, 8, 9	X	X	X	

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Grallariidae								
Grallaria varia (Boddaert, 1783)	r	tf	nd (obs, v)	2, 6, 9, 10	X	X		X
Hylopezus macularius (Temminck, 1823)	r	ig, tf	ph, tr	1, 2, 3, 4, 9	X	X	X	
Myrmothera campanisona (Hermann, 1783)	f	tf	ph, tr	2, 3, 4, 6, 8, 9	X	X		X
Formicariidae								
Formicarius colma Boddaert, 1783	f	tf	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Formicarius analis (d'Orbigny and Lafresnaye, 1837)	r	tf, ig, cm	nd (v)	2, 3	X			
Scleruridae								
Sclerurus rufigularis Pelzeln, 1868	f	tf	col, ph, tr	2, 3, 6	X			X
Sclerurus caudacutus (Vieillot, 1816)	r	tf	col	5	X			
Dendrocolaptidae								
Dendrocincla fuliginosa (Vieillot, 1818)	f	tf, ig, cm, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Dendrocincla merula (Lichtenstein, 1829)	f	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9	X	X		X
Deconychura longicauda (Pelzeln, 1868)	i	tf	col, tr	2, 5, 6, 7, 8, 10	X			X
Deconychura stictolaema (Pelzeln, 1868)	i	tf, ig	col, tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Sittasomus griseicapillus (Vieillot, 1818)	f	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Glyphorynchus spirurus (Vieillot, 1819)	c	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Nasica longirostris (Vieillot, 1818)	f	ig	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Dendrexetastes rufigula (Lesson, 1844)	r	ig	tr	1, 2, 5, 6, 7	X			X
Hylexetastes stresemanni Snethlage, 1925	r	tf, ig	col, tr	2, 6, 8, 10	X			X
Xiphocolaptes promeropirhynchus (Lesson, 1840)	i	tf, ig	ph, tr	2, 3, 4, 5, 6, 7, 8, 9	X	X		X
Dendrocolaptes certhia (Boddaert, 1783)	c	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Dendrocolaptes picumnus Lichtenstein, 1820	i	tf	col, tr	2, 6, 7, 8, 9, 10	X	X	X	X
Dendroplex picus (Gmelin, 1788)[26]	c	ig	col, ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X	X		X
Dendroplex kienerii (Des Murs, 1855)[27]	i	ig	col, tr	1, 2	X			
Xiphorhynchus ocellatus (Spix, 1824)	c	tf, ig, cm	col, ph, tr	2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Xiphorhynchus obsoletus (Lichtenstein, 1820)	c	ig	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Xiphorhynchus guttatus (Lichtenstein, 1820)	i	tf, cm, dv	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Lepidocolaptes albolineatus duidae Zimmer, 1934	i	tf	col, tr	2, 6	X			
Campylorhamphus procurvoides (Lafresnaye, 1850)* a	r	ig (fi)	nd (v)	1	X			
Furnariidae								
Synallaxis rutilans Temminck, 1823	f	tf	col, ph, tr	2, 4, 5, 6, 7, 10	X			X
Cranioleuca vulpina (Pelzeln, 1856)	r	ig	tr	1	X			

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Cranioleuca gutturata (d'Orbigny and Lafresnaye, 1838)*	r	ig (fi)	tr	1	X			
Berlepschia rikeri (Ridgway, 1886)	i	tf (bur), ig (bur)	tr	1, 5	X			
Ancistrops strigilatus (Spix, 1825)*	r	tf	col	7, 8	X			
Hyloctistes subulatus (Spix, 1824)	i	tf	col, tr	1, 4, 8	X			
Philydor pyrrhodes (Cabanis, 1848)	f	tf, ig, cm	ph	1, 2, 3, 4	X			
Automolus ochrolaemus (Tschudi, 1844)	r	tf, dv	ph	2	X			
Automolus infuscatus (Sclater, 1856)	f	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Automolus rubiginosus (Sclater, 1857)	r	tf	ph, tr	3, 9	X	X		
Xenops milleri (Chapman, 1914)	i	tf	col, tr	1, 2, 4, 7, 8	X			
Xenops minutus (Sparrman, 1788)	f	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 10	X			X
Tyrannidae								
Mionectes oleagineus (Salvin, 1886)	f	tf, ig, cm, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Mionectes macconnelli (Chubb, 1919)	i	tf	tr	2, 3	X			
Corythopis torquatus (Tschudi, 1844)	f	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
(*Lophotriccus vitiosus*) (Bangs and Penard, 1921)*	r	dv	nd (v)	1	X			
(*Lophotriccus galeatus*) (Boddaert, 1783)*	r	dv	nd (v)	10,1	X			X
Hemitriccus minor (Snethlage, 1907)	c	ig	col, tr	1, 2, 3, 5, 6, 7, 8, 9, 10	X	X	X	X
Hemitriccus zosterops (Pelzeln, 1868)	f	tf, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Hemitriccus minimus (Todd, 1925)	r	ig, cm	col, ph, tr	2, 6, 9	X	X		X
Myiornis ecaudatus (d'Orbigny and Lafresnaye, 1837)	i	tf	tr	2, 6, 9, 10	X	X		X
Todirostrum maculatum (Desmarest, 1806)	c	ig, dv	ph, tr	1, 2, 3, 4, 6	X			X
Todirostrum pictum Salvin, 1897* a	r	ig (fi)	nd (v)	1	X			
Todirostrum chrysocrotaphum Strickland, 1850	i	tf, ig, cm	col, tr	1, 2, 3, 4, 6, 9, 10	X	X	X	X
Tyrannulus elatus (Latham, 1790)	c	tf, ig, cm, dv	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Myiopagis gaimardii (d'Orbigny, 1839)	c	tf, ig, cm, dv	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Myiopagis caniceps (Swainson, 1835)	f	tf, ig, cm	col, tr	2, 3, 6, 9, 10	X	X	X	X
Myiopagis flavivertex (Sclater, 1887)*	i	ig	col, ph	2, 9	X		X	
(*Elaenia parvirostris*) Pelzeln, 1868	am (r)	ca	nd (obs)	1	X			
Elaenia cristata Pelzeln, 1868*	am (r)	ca	tr	2	X			
Elaenia ruficeps Pelzeln, 1868	c	ca	col, ph, tr	2	X			
Ornithion inerme Hartlaub, 1853	f	tf, ig, cm	tr	1, 2, 3, 4, 6, 9, 10	X	X		X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Camptostoma obsoletum (Temminck, 1824)	f	ig, dv	tr	1, 2, 3, 4, 6, 7, 9	X	X	X	X
Phaeomyias murina (Spix, 1825)	i	ig, dv	nd (obs, v)	1, 2, 6, 10	X			X
Zimmerius gracilipes acer (Salvin and Godman, 1883)* a	r	ig (fi)	tr	1	X			
Zimmerius gracilipes cf. *gracilipes* (Sclater and Salvin, 1868)[28]	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Inezia subflava (Sclater and Salvin, 1873)	f	ig, dv	tr	1, 2, 3, 4, 6, 8, 9	X	X	X	X
Cnipodectes subbrunneus (Sclater, 1860)	i	tf, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Tolmomyias sulphurescens (Spix, 1825)	r	ig	tr	1	X			
Tolmomyias assimilis (Pelzeln, 1868)	f	tf, cm	col, tr	2, 4, 5, 6, 8, 9, 10	X	X	X	X
Tolmomyias poliocephalus (Taczanowski, 1884)	c	ig, dv	col, tr	1, 2, 3, 4, 5, 6, 7, 9	X	X	X	X
Platyrinchus coronatus Sclater, 1858*	r	tf, ig	col, ph	1, 2, 5	X			
Platyrinchus platyrhynchos (Gmelin, 1788)	i	tf, cm	col, ph, tr	2, 4, 5, 6, 7, 9, 10	X	X	X	X
Onychorhynchus coronatus (Statius Muller, 1776)	i	tf, ig	col, ph, tr	2, 4, 8, 9	X	X		
Myiobius barbatus (Gmelin, 1789)	i	tf, dv	col, tr	1, 2, 3, 5, 6, 7, 10	X			X
Terenotriccus erythrurus (Cabanis, 1847)	r	tf, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X
Neopipo cinnamomea (Lawrence, 1869)	r	cm, ca	ph, tr	2	X			
Lathrotriccus euleri (Cabanis, 1868)	i	ig, dv	ph, tr	1, 2	X			
Cnemotriccus fuscatus duidae Zimmer, 1938	f	cm, ig	col, ph, tr	2, 6, 8	X			X
Knipolegus poecilocercus (Pelzeln, 1868)[29]	f	ig	ph, tr	1, 2, 6	X			X
Legatus leucophaius (Vieillot, 1818)	f	ig, dv	tr	1, 2, 3, 6	X			X
Myiozetetes cayanensis (Linnaeus, 1766)	c	ig, dv	ph, tr	1, 2, 3, 4, 6	X			X
Myiozetetes similis (Spix, 1825)	r	ig, dv	nd (obs, v)	1, 3	X			
Pitangus sulphuratus (Linnaeus, 1766)	c	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 9	X		X	X
Philohydor lictor (Lichtenstein, 1823)	c	ig, dv	tr	1, 2, 3, 4, 5, 6, 9	X	X		X
Conopias trivirgatus (Wied, 1831)	i	ig	tr	1, 2, 3, 4, 6, 9, 10	X	X		X
Conopias parvus (Pelzeln, 1868)	f	tf, ig	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Myiodynastes maculatus (Statius Muller, 1776)	am (i)	tf, ig, dv	nd (obs)	2, 4	X			
Megarynchus pitangua (Linnaeus, 1766)	i	ig, dv	nd (obs, v)	3	X			
Tyrannopsis sulphurea (Spix, 1825)	i	tf (bur), ig (bur)	tr	1, 2, 3	X			
Empidonomus varius (Vieillot, 1818)	i	ig, dv	tr	1, 2, 3, 5, 10	X			X
Tyrannus melancholicus Vieillot, 1819	c	ig, dv	tr	1, 2, 3, 4, 5, 6, 9	X	X	X	X
Tyrannus savana Vieillot, 1808	am (f)	ig, dv	nd (obs)	1, 2, 3, 4, 6	X			X

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Rhytipterna simplex (Lichtenstein, 1823)	f	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Rhytipterna immunda (Sclater and Salvin, 1873)	r	cm, ca	ph, tr	2	X			
Myiarchus tuberculifer (d'Orbigny and Lafresnaye, 1837)	f	ig, cm, dv	tr	1, 2, 6, 7, 9, 10	X	X		X
Myiarchus swainsoni Cabanis and Heine, 1859	am (i)	ig, dv	tr	1, 2, 3, 4	X			
Myiarchus ferox (Gmelin, 1789)	c	ig, cm, dv	tr	1, 2, 3, 4, 6, 9, 10	X	X	X	X
Ramphotrigon ruficauda (Spix, 1825)	f	tf, ig, cm	col, ph, tr	1, 2, 3, 5, 6, 7, 8, 9, 10	X	X	X	X
Attila cinnamomeus (Gmelin, 1789)	f	ig	tr	1, 2, 3, 4, 5, 6, 7, 9	X	X	X	X
Attila citriniventris Sclater, 1859	r	cm	tr	2, 10	X			X
Attila spadiceus (Gmelin, 1789)	r	tf	tr	3	X			
Cotingidae								
Phoenicircus nigricollis Swainson, 1832	i	tf	tr, vr	8, 9	X	X		
Cotinga cayana (Linnaeus, 1766)	i	tf, ig	nd (obs)	2, 3, 6, 9	X	X		
Lipaugus vociferans (Wied, 1820)	c	tf, ig, cm	tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Xipholena punicea (Pallas, 1764)	f	tf, ig, cm	tr	1, 2, 3, 4, 5, 6, 8, 9, 10	X	X	X	X
Gymnoderus foetidus (Linnaeus, 1758)	f	ig	nd (obs)	1, 2, 3, 4, 6, 9	X	X	X	X
Perissocephalus tricolor (Statius Muller, 1776)	r	ig	nd (v)	2	X			
Cephalopterus ornatus Geoffroy Saint-Hilaire, 1809*	i	ig (fi)	nd (obs, v)	1, 4	X			
Pipridae								
Neopelma chrysocephalum (Pelzeln, 1868)	f	cm, ig, tf	col, ph, tr	1, 2, 3, 4, 6, 10	X			X
Tyranneutes stolzmanni (Hellmayr, 1906)	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Piprites chloris (Temminck, 1822)	c	tf, ig, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Lepidothrix coronata (Spix, 1825)[30]	c	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Chiroxiphia pareola (Linnaeus, 1766)	i	tf	col, ph, tr	4, 5, 8, 9	X	X		
Xenopipo atronitens Cabanis, 1847	f	cm, ig	col, ph, tr	1, 2, 3, 6	X			X
Heterocercus flavivertex Pelzeln, 1868	f	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 7, 9	X		X	X
Dixiphia pipra (Linnaeus, 1758)[31]	f	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X		X
Pipra filicauda Spix, 1825	i	ig	col, ph, tr	1, 4	X			
Pipra erythrocephala (Linnaeus, 1758)	f	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Tityridae								
Schiffornis major Des Murs, 1856	i	ig (fi)	col, ph, tr	1, 2, 3, 4	X			
Schiffornis turdina (Wied, 1831)	f	tf, ig, cm	col, ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Laniocera hypopyrra (Vieillot, 1817)	i	tf, ig	tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Iodopleura isabellae Parzudaki, 1847*	r	dv	nd (obs)	1	X			
Tityra inquisitor (Lichtenstein, 1823)	r	ig	nd (obs)	9	X	X		
Tityra cayana Pelzeln, 1863	f	tf, ig, cm	tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
(*Tityra semifasciata*) (Spix, 1825)	r	tf	nd (obs)	3	X			
Pachyramphus rufus (Boddaert, 1783)	i	dv	tr	1	X			
Pachyramphus castaneus (Jardine and Selby, 1827)	r	tf, dv	nd (obs, v)	2	X			
Pachyramphus polychopterus (Vieillot, 1818)	r	tf, dv	nd (obs, v)	1, 4	X			
Pachyramphus marginatus (Lichtenstein, 1823)	f	tf, ig, cm	tr	1, 2, 3, 4, 6, 7, 8, 9, 10	X	X	X	X
Pachyramphus surinamus (Linnaeus, 1766)	r	tf	tr	1, 2, 3, 6	X			X
Vireonidae								
Cyclarhis gujanensis (Gmelin, 1789)	f	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Vireolanius leucotis (Swainson, 1838)	r	tf	nd (v)	2, 7	X			
Vireo olivaceus (Linnaeus, 1766)	am (f)	tf, ig, cm, dv	tr	2, 3	X			
Vireo altiloquus (Vieillot, 1808)	nm (r)	tf	nd (obs)	1	X			
Hylophilus thoracicus Temminck, 1822	i	tf, ig, cm	tr	1, 2, 5, 6, 7, 8, 9, 10	X	X	X	X
Hylophilus semicinereus Sclater and Salvin, 1867	f	ig, dv	ph, tr	1, 2, 3, 4, 6, 9	X	X	X	X
Hylophilus brunneiceps Sclater, 1866	i	cm, ig	col, tr	2, 6, 10	X			X
Hylophilus hypoxanthus Pelzeln, 1868	c	tf, cm	col, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Hylophilus ochraceiceps Sclater, 1860	f	tf	col, ph, tr	1, 2, 3, 5, 6, 10	X			X
Hirundinidae								
Pygochelidon melanoleuca (Wied, 1820)[32]	r	r (rb)	nd (obs)	6	X			X
Atticora fasciata (Gmelin, 1789)	f	r	col	1, 2, 4, 6, 9, 10	X	X	X	X
Stelgidopteryx ruficollis (Vieillot, 1817)	f	r	ph	1, 2, 3, 4	X			
Progne tapera (Vieillot, 1817)[33]	c	r	nd (obs)	1, 2, 3, 4	X			
Progne subis (Linnaeus, 1758)	nm (c)	r	ph, tr	1, 2, 3, 4, 6	X			X
Progne chalybea (Gmelin, 1789)	c	r	ph, tr	2, 3, 4, 6, 9	X		X	X
Tachycineta albiventer (Boddaert, 1783)	c	r	ph, tr	1, 2, 3, 4, 6, 9, 10	X	X	X	
Riparia riparia (Linnaeus, 1758)	nm (f)	r	nd (obs)	1, 6	X			X
Hirundo rustica Linnaeus, 1758	nm (f)	r	nd (obs)	1, 6	X			X
Troglodytidae								
Microcerculus bambla (Boddaert, 1783)	f	tf	ph, tr	1, 2, 3, 4, 5, 7, 8, 9, 10	X	X	X	X
Troglodytes musculus Naumann, 1823[34]	f	ig, dv, ca	col, tr	1, 2, 3, 4, 6, 9	X	X	X	X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Pheugopedius coraya (Gmelin, 1789)[35]	f	tf, dv	col, tr	1, 2, 3, 6, 8, 9, 10	X	X		X
Cantorchilus leucotis (Lafresnaye, 1845)[36]	c	ig	tr	2, 3, 4, 5, 7, 8, 9	X	X	X	
Cyphorhinus arada (Hermann, 1783)	r	tf, cm	col, tr	2, 4, 5, 6, 10	X			X
Polioptilidae								
Microbates collaris (Pelzeln, 1868)	f	tf, cm	col, tr	2, 4, 5, 6, 7, 9, 10	X	X		X
Ramphocaenus melanurus Vieillot, 1819	r	ig, tf	nd (obs, v)	2	X			
Polioptila plumbea (Gmelin, 1788)	c	ig, dv	col, tr	1, 2, 3, 4, 6, 9	X	X	X	X
Polioptila facilis Zimmer, 1942[37]	r	tf	col, tr	2, 3, 4	X			
Turdidae								
Catharus fuscescens (Stephens, 1817)	nm (i)	tf, cm	col, ph	2	X			
Turdus leucomelas Vieillot, 1818	i	dv	nd (obs, v)	1, 2	X			
Turdus hauxwelli Lawrence, 1869*	r	tf	col	5	X			
Turdus fumigatus Lichtenstein, 1823	i	ig, dv	col, ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X		X	X
Turdus albicollis Vieillot, 1818	f	tf	ph, tr	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	X	X	X	X
Coerebidae								
Coereba flaveola (Linnaeus, 1758)	f	ca, ig, dv, cm	tr	1, 2, 3, 4, 6, 9	X		X	X
Thraupidae								
Schistochlamys melanopis (Latham, 1790)	r	ca	ph, tr	2	X			
Cissopis leverianus (Gmelin, 1788)	r	dv	nd (obs)	3	X			
Habia rubica (Vieillot, 1817)	r	tf	col, ph, tr	2, 3, 4, 5	X			
Eucometis penicillata (Spix, 1825)*	i	ig (fi)	ph, tr	1	X			
Tachyphonus cristatus (Linnaeus, 1766)	i	tf, dv	col, ph	1, 2, 3, 4, 5, 6, 7, 8	X			X
Tachyphonus surinamus (Linnaeus, 1766)	i	tf, cm, dv	tr	2, 5, 7, 8, 9	X	X	X	
Tachyphonus luctuosus d'Orbigny and Lafresnaye, 1837	i	ig, dv	nd (obs)	1, 3	X			
Tachyphonus phoenicius Swainson, 1838	f	ca	col, ph, tr	2	X			
Lanio fulvus (Boddaert, 1783)	r	tf	tr	4, 5	X			
Ramphocelus nigrogularis (Spix, 1825)	i	ig	ph	4, 5, 6	X			X
Ramphocelus carbo (Pallas, 1764)	c	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 9, 10	X	X	X	X
Thraupis episcopus (Linnaeus, 1766)	c	ig, dv	tr	1, 2, 3, 4, 6, 9	X		X	X
Thraupis palmarum (Wied, 1823)	f	ig, dv	tr	1, 2, 3, 4, 5, 9	X		X	
Tangara mexicana (Linnaeus, 1766)	f	tf, ig	nd (obs)	1, 4, 5	X			
Tangara chilensis (Vigors, 1832)	f	tf, ig	col	1, 2, 4, 6, 7	X			X
Tangara punctata (Linnaeus, 1766)	f	tf, ig	tr	4, 7, 10	X			X

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Tangara cayana (Linnaeus, 1766)	r	ig	nd (obs)	11(B)	X			
Tangara velia (Linnaeus, 1758)	i	tf	nd (obs)	2, 7	X			
Tersina viridis (Illiger, 1811)	am? (r)	ig	nd (obs)	1	X			
Dacnis flaviventer d'Orbigny and Lafresnaye, 1837	i	ig, dv	nd (obs)	1, 2, 3, 4, 9	X	X		
Dacnis cayana (Linnaeus, 1766)	c	tf, ig, cm, dv	tr	1, 2, 3, 4, 6, 7, 8, 9	X	X		X
Cyanerpes nitidus (Hartlaub, 1847)	i	tf	nd (obs)	1, 2	X			
Cyanerpes caeruleus (Linnaeus, 1758)	i	tf, ig	col	1, 2, 5, 6, 9	X	X	X	X
Cyanerpes cyaneus (Linnaeus, 1766)	f	tf, ig	tr	1, 2, 4, 6, 9	X		X	
Chlorophanes spiza (Linnaeus, 1758)	f	tf, ig, cm, dv	nd (obs)	1, 2, 6, 7, 9	X	X		X
Hemithraupis guira (Linnaeus, 1766)*	r	ig	nd (obs)	1, 2	X			
Hemithraupis flavicollis (Vieillot, 1818)	f	tf	nd (obs)	1, 2, 4, 6, 8	X			X
Emberizidae								
Ammodramus aurifrons (Spix, 1825)	i	dv	nd (obs)	1	X			
Sicalis columbiana Cabanis, 1851	f	ig, dv	nd (obs)	1	X			
Emberizoides herbicola (Vieillot, 1817)	f	ca	col, ph, tr	2	X			
Volatinia jacarina (Linnaeus, 1766)	f	dv	nd (obs)	6	X			X
Sporophila americana (Gmelin, 1789)	r	dv	nd (obs)	2	X			
Sporophila lineola (Linnaeus, 1758)	r	dv	tr	1, 4, 6, 9,	X		X	X
Sporophila nigricollis (Vieillot, 1823)*	r	dv	vr	2	X			
Sporophila castaneiventris (Linnaeus, 1766)	i	dv, ig	nd (obs)	1	X			
Sporophila angolensis (Linnaeus, 1766)[38]	f	dv, ca	tr	1, 2, 3, 4, 6, 9	X	X	X	X
Dolospingus fringilloides (Pelzeln, 1870)	r	ca, ig	ph, tr	2	X			
Arremon taciturnus (Hermann, 1783)	r	dv	nd (obs, v)	2	X			
Paroaria gularis (Linnaeus, 1766)	f	ig, dv	ph, tr	2, 3, 4, 5	X			
Cardinalidae								
Caryothraustes canadensis (Linnaeus, 1766)	f	tf, ig, cm	col, tr	2, 6	X			X
Saltator grossus (Linnaeus, 1766)*	r	tf, ig	ph, tr	1	X			
Saltator maximus (Statius Muller, 1776)	f	dv	ph, tr	1, 2, 3, 6, 9	X		X	X
Cyanoloxia cyanoides (Lafresnaye, 1847)[39]	f	ig, tf, cm	col, ph, tr	1, 2, 4, 5, 8, 9, 10	X		X	X
Parulidae								
Dendroica fusca (Statius Muller, 1776)	nm (r)	tf	nd (obs)	4	X			
Setophaga ruticilla (Linnaeus, 1758)	nm (r)	dv	nd (obs)	11(B)	X			

SPECIES	ABUN-DANCE	HABITATS	DOCUMEN-TATION	REGIONS	JNP	REUNI	RDSA	PERN
Seiurus noveboracensis (Gmelin, 1789)*	nm (r)	ig	ph	2	X			
Icteridae								
Psarocolius viridis (Statius Muller, 1776)*	i	tf, ig, dv	tr	2, 3, 9	X	X	X	
Psarocolius decumanus (Pallas, 1769)	f	ig, dv	tr	1, 2, 3, 4, 5	X			
Psarocolius bifasciatus (Spix, 1824)	r	ig	tr	1, 2	X			
Cacicus haemorrhous (Linnaeus, 1766)	i	tf, ig	tr	2, 4, 5, 9	X		X	
Cacicus cela (Linnaeus, 1758)	c	ig, dv	ph, tr	1, 2, 3, 4, 5, 6, 9	X	X	X	X
Icterus chrysocephalus (Linnaeus, 1766)	f	tf, ig, ca, dv	ph, tr	1, 2, 3, 4, 5, 6, 7, 9	X		X	X
Lampropsar tanagrinus (Spix, 1824)	r	ig	tr	4, 5	X			
Molothrus oryzivorus (Gmelin, 1788)[40]	am? (i)	ig, dv	nd (obs)	1, 6	X			X
Sturnella militaris (Linnaeus, 1758)	i	ca	nd (obs)	2	X			
Fringillidae								
Euphonia plumbea Du Bus, 1855	r	cm, ig	tr	1, 2	X			
Euphonia chlorotica (Linnaeus, 1766)	f	ig, dv	tr	1, 2, 3, 4, 6, 9	X		X	X
Euphonia chrysopasta Sclater and Salvin, 1869	i	tf, ig, cm, dv	tr	1, 2, 4	X			
Euphonia minuta Cabanis, 1849	i	ig	tr	2, 4	X			
Euphonia rufiventris (Vieillot, 1819)	f	tf, ig, cm	tr	1, 2, 3, 4, 5, 6, 7, 9, 10	X	X	X	X

Nomenclatural notes. Most species names modifications noted below are based on recent taxonomic revisions (consulted Remsen *et al.* 2010 for specific literature).
[1]*Pipile cumanensis* in Borges *et al.* (2001), [2]*Mitu tomentosa* in Borges *et al.* (2001), [3]*Mitu tuberosa* in Borges *et al.* (2001), [4]*Casmerodius albus* in Borges *et al.* (2001), [5]*Asturina nitida* in Borges *et al.* (2001), [6]*Daptrius americanus* in Borges *et al.* (2001), [7]*Sterna superciliaris* in Borges *et al.* (2001), [8]*Columba speciosa* in Borges *et al.* (2001), [9]*Columba cayennensis* in Borges *et al.* (2001), [10]*Columba plumbea* in Borges *et al.* (2001), [11]*Columba subvinacea* in Borges *et al.* (2001), [12]*Pionopsitta barrabandi* in Borges *et al.* (2001), [13]*Piaya minuta* in Borges *et al.* (2001), [14]*Otus choliba* in Borges *et al.* (2001), [15]*Otus watsonii* in Borges *et al.* (2001), [16]*Ciccaba huhula* in Borges *et al.* (2001), [17]*Phaethornis superciliosus* in Borges *et al.* (2001), [18]*Polyplancta aurescens* in Borges *et al.* (2001), [19]*Ceryle torquata* in Borges *et al.* (2001), [20]*Notharchus macrorhynchos* in Borges *et al.* (2001), [21]*Capito niger* in Borges *et al.* (2001), [22]*Myrmotherula haematonota* in Borges *et al.* (2001), [23]*Myrmotherula surinamensis* in Borges *et al.* (2001), [24]This identification is only tentative since the species could be potentially confused with *Hypocnemis peruviana,* [25]*Hylophilax poecilinota* in Borges *et al.* (2001), [26]*Xiphorhynchus picus* in Borges *et al.* (2001), [27]*Xiphorhynchus necopinus* in Borges *et al.* (2001), [28]This identification is only tentative since the species needs a better taxonomic resolution (see Remsen *et al.* 2010), [29]Phaeotriccus poecilocercus in Borges *et al.* (2001),[30]*Pipra coronata* in Borges *et al.* (2001), [31]*Pipra pipra* in Borges *et al.* (2001), [32]*Atticora melanoleuca* in Borges *et al.* (2001), [33]*Phaeoprogne tapera* in Borges *et al.* (2001), [34]*Troglodytes aedon* in Borges *et al.* (2001), [35]*Thryothorus coraya* in Borges *et al.* (2001), [36]*Thryothorus leucotis* in Borges *et al.* (2001), [37]*Polioptila guianensis* in Borges *et al.* (2001), [38]*Oryzoborus angolensis* in Borges *et al.* (2001), [39]*Cyanocompsa cyanoides* in Borges *et al.* (2001), [40]*Scaphidura oryzivora* in Borges *et al.* (2001). [a]Species recorded only on Jussara Island within the limits of JNP but very near the left margin of Rio Negro. [b]Species recorded only on Onças Island within the limits of JNP but very near the left margin of Rio Negro.

Revista Brasileira de Ornitologia, 19(2), 134-153
Junho de 2011

ARTIGO

Avifauna of the Juruti Region, Pará, Brazil

Marcos Pérsio Dantas Santos[1], Alexandre Aleixo[2], Fernando Mendonça d'Horta[3] and Carlos Eduardo Bustamante Portes[4]

[1.] Universidade Federal do Pará. Instituto de Ciências Biológicas. Laboratório de Ecologia e Zoologia de Vertebrados. Rua Augusto Corrêa, 1, Guamá, CEP 66075-110, Belém, PA, Brasil. E-mail: marcospersio@uol.com.br
[2.] Museu Paraense Emílio Goeldi. Coordenação de Zoologia. Caixa Postal 399, CEP 66040-170, Belém, PA, Brasil. E-mail: aleixo@museu-goeldi.br
[3.] Universidade de São Paulo. Instituto de Biociências. Departamento de Biologia. Rua do Matão, 277, Cidade Universitária, CEP 05508-090, São Paulo, SP, Brasil. E-mail: fmhorta@usp.br
[4.] Museu Paraense Emílio Goeldi. Pós-Graduação em Zoologia. Caixa Postal 399, CEP 66040-170, Belém, PA, Brasil. E-mail: dudaportes@yahoo.com.br

Recebido em 02/03/2011. Aceito em 18/05/2011.

RESUMO: Avifauna da região do Juruti, Pará, Brasil. A região que compreende o interflúvio Madeira-Tapajós é certamente uma das regiões brasileiras de maior complexidade ambiental e um dos mais importantes centros de endemismos de aves da América do Sul, denominado centro de endemismo Madeira ou Rondônia. Entretanto, essa região vem sofrendo um crescente aumento nas pressões antrópicas, principalmente pelo desmatamento, o que implica uma forte preocupação sobre a conservação de toda a biota dessa região. Nesse sentido, estivemos no período de setembro de 2002 a março de 2011 realizando um inventário da avifauna na região do município de Juruti, na divisa entre os estados do Pará e Amazonas. Nesse levantamento, registramos um total de 490 espécies de aves, distribuídas em 68 famílias. Ressalta-se o registro de algumas espécies importantes do ponto de vista biogeográfico e de conservação (*Nothocrax urumutum, Leucopternis melanops, Anodorhynchus hyacinthinus, Aratinga aurea, Neomorphus geoffroyi, Nyctibius bracteatus, Capito brunneipectus, Picumnus varzeae, Skutchia borbae, Rhegmatorhina berlepschi, Pachyramphus surinamus, Contopus virens, Cyanicterus cyanicterus*), que são discutidos em detalhes.

PALAVRAS-CHAVE: Amazônia; Área de endemismo Rondônia; Conservação; Juruti; Pará.

ABSTRACT: Avifauna of the Juruti region, Pará, Brazil. The territory encompassed by the Madeira-Tapajós interfluvium is one of the most environmentally complex regions of Brazil, and an important center of endemism for South American birds. It is called the Madeira or Rondônia center of endemism. However, this region has experienced a continuing increase in anthropogenic pressures, mainly from deforestation, which implies a strong concern for the conservation of the biota of this region. In this context, the bird fauna of the Juruti region, on the border between the states of Pará and Amazonas, was surveyed between September 2002 and March 2011. A total of 490 species distributed in 68 families were recorded during the study. A number of those records are especially important from either a biogeographic or conservation viewpoint (*Nothocrax urumutum, Leucopternis melanops, Anodorhynchus hyacinthinus, Aratinga aurea, Neomorphus geoffroyi, Nyctibius bracteatus, Capito brunneipectus, Picumnus varzeae, Skutchia borbae, Rhegmatorhina berlepschi, Pachyramphus surinamus, Contopus virens, Cyanicterus cyanicterus*), and thus are discussed in detail.

KEYWORDS: Amazônia; Rondônia area of endemism; Conservation; Juruti; Pará.

Amazônia is considered to be one of the areas on the planet with the most number of bird species (Stotz *et al.* 1996, Vuilleumier 1988). It is estimated that in this region there are registered approximately 1,200 species, which represents around 65% of all birds encountered in Brazil (Haffer 1990, Stotz *et al.* 1996, CBRO 2011). Nevertheless, since the first scientific expeditions to this region, it became clear that species of birds and other groups of organisms are not distributed homogeneously in the Amazon region (Wallace 1852, Hellmayr 1910, Snethlage 1914). In fact, many species are restricted to determined regions which were denominated as areas or centers of endemism/distribution having strong congruence with the large interfluviums of the Amazônian basin (Müller 1973).

Despite being recognized as an area with great biodiversity and ecological complexity on the planet, a large part of Amazônia remains little studied (Oren 2001). The Tapajós-Madeira interfluvium, into which is inserted the municipality of Juruti, is a region that hosts an expressive quantity of bird endemism, among other taxa. Yet, it is still one of the least known regions in all of Amazônia (Cracraft 1985, Haffer 1974, Oren 2001, Aleixo 2009).

The first expedition to record birds of the Tapajós-Madeira interfluvium region was that of a Brazilian naturalist named Alexandre Rodrigues Ferreira, who visited the Madeira River and Guaporé River region between 1783 and 1793. During this expedition important material was compiled on the fauna and flora of the area, which were then sent to Portugal at the time of the French invasion

of Portugal in 1808 (Pelzeln 1868-1870, Cunha 1989). However, the first large ornithological excursion to the region was realized by J. Natterer around 1829-1830, who collected along the Guaporé and Madeira Rivers, principally the Borba region (Pelzeln 1868-1870). Nattterer's collection from the Madeira River was summarized by Hellmayr (1910). The collector W. Hoffmanns worked in the region of the Madeira River at 'Paraizo' (near Humaitá), Humaitá and Borba, during six months from July to September 1906. In October 1908 he returned to work at the lower Jí-Paraná River or Machado in the localities of 'Jamarysinho', Santa Isabel, Aliança, Maruins, Santa Maria do Marmelos, and finally the Manicoré region (Hellmayr 1907, 1910). During these two trips, Hoffmanns mounted a collection of about 500 specimens which were sent to the *Tring Museum* (Natural History Museum – London) (Hellmayr 1907, 1910). In 1915, the 'Collins-Day Expedition', led by Alfred Collins and Lee Garnett Day, with the participation of the ornithologist George K. Cherrie, began in Bolivia and descended the Madeira River (Porto Velho, March 1915) until reaching Amazonas. The collection of birds and mammals from this expedition were deposited at the American Museum of Natural History (AMNH, New York, USA) and the Field Museum of Natural History (FMNH, Chicago, USA) (Cherrie 1916, Osgood 1916). After fifty years without any ornithological research involving the Tapajós-Madeira interfluvium, the ornithologist Fernando C. Novaes visited the Aripuanã River region in 1975 (Novaes 1976) and registered 268 bird species. In 1986 and 1988, a team of researchers from FMNH and the Museu de Zoologia da Universidade de São Paulo (MZUSP, SP, Brazil) realized an extensive survey of birds in the region of Jí-Paraná, Cachoeira Nazaré in the Jí-Paraná River, Machado, mounting a collection of approximately 1,100 skins which were deposited at the Museu Paraense Emílio Goeldi (MPEG, PA, Brazil), FMNH and MZUSP (Stotz *et al.* 1997). Oren and Parker (1997), besides presenting a detailed history of ornithological exploration along the Tapajós River, also presented a list of 448 bird species to the Parque Nacional da Amazônia (Tapajós). Aleixo and Poletto (2007) created bird inventories from the Marmelos River region, southern portion of the Manicoré municipality, and published a list of 330 species of birds. Finally, Whittaker (2009) published a list of 481 bird species from the Roosevelt River region, state of Amazonas, the locality from which is recorded the greatest number of species inside the Madeira-Tapajós interfluvium.

Generally, the brief history hereby presented on the ornithological knowledge of the Madeira-Tapajós interfluvium highlights that the sources for this available information regarding the avifauna of this region are extremely concentrated along the Madeira River. Very little information was produced from the northern portion of the interfluvium adjacent to the southern margin of the Amazonas River.

Therefore, the objective of this present work is to present a bird list from the Juruti municipality, state of Pará, situated along the right bank of the Amazonas River, at the northern extreme of the Madeira-Tapajós interfluvium. Furthermore, some relevant aspects are discussed regarding composition, richness, and ecological and biogeographical relations of this region.

MATERIALS AND METHODS

Area of Study

The municipality of Juruti in the state of Pará is located in lower Amazonas (situated at the coordinates 02°09'S and 56°05'W) and holds about 35,000 inhabitants in an area totaling 8,304 km^2 (www.ibge.gov.br/cidadesat). According to the climatic classification of Köppen-Geiger, the climate of the Juruti region is of the Af – Equatorial type, hot and humid (SUDAM 1984) with maximum precipitation averaging 2,000 to 2,500 mm of rain annually. The rainiest trimester extends from February to April and the driest trimester extends from August to October. Average annual temperature is around 25°C, with a maximum around 28.5°C and minimum around 23.7°C. The average altitude in the region is around 75 meters above sea level (Engenharia CNEC S.A. 2005). Dominant vegetation of the Juruti region consists of that typical of ombrophilous lowland and submontane forests, characteristic hillsides and plateaus, and alluvial forests along rivers and creeks present in the area. Generally, the Juruti region still remains in an excellent state of forestal conservation, with large extensions of wood still well preserved. However, with the installation of a bauxite mining enterprise in the region, it is not known to what extent this well-conserved extension of forest will be directly modified by the mining activity, or by third parties lured by local economic development.

Collection of Data

Data gathering occurred in two distinct stages. Primarily, during the work of surveying/monitoring the fauna of the Juruti region, seven campaigns were conducted to collect avifauna data. The first was conducted by FMH during September 3-19, 2002, followed by campaigns of August 4-14, 2004 and March 4-12, 2006, both conducted by MPDS. These three first campaigns were realized with the intent of obtaining data to elaborate the Environmental Impact Study of Project Juruti. Afterwards, four more fauna campaigns were also conducted by MPDS with the intent of developing a monitoring program of fauna in the area of influence of the Project. These efforts were conducted from: August 15-26, 2006;

December 10-19, 2006; May 10-20, 2007; and November 23 through December 3, 2007. Posteriorly, during the second stage, seven more visits were realized: May 12-22, 2008 (AA); September 17-30, 2008 (CEBP); November 13-28, 2008 (CEBP); March 9-26, 2009 (CEBP); May 27 through June 1, 2009 (AA); September 15-25, 2010 (AA); and March 24-29, 2011 (AA). These trips all covered six distinct points. In total, ten areas were sampled in the municipality of Juriti region:

Capiranga Base (02°28'S; 56°12'W): Situated on the margins of Juruti Velho Lake, it possesses secondary formations and exploited forests. This area represented an interesting point as it was one of the few locations to potentially demonstrate the aquatic avifauna of the region as well as some typical species in open anthropogenic areas.

Capiranga Plateau (02°29'S; 56°08'W): This is the area that is most affected by implementation of the bauxite mine, as the largest part of the mine and all of its infrastructure will be installed at this point. It will greatly suppress the vegetation on the plateau. The area contains dense submontane forest with canopy about 30 to 40 meters high. At the time of sample collection, it presented an excellent state of conservation. It was one of the three points where the presence of *Anodorhynchus hyacinthinus,* a species of macaw on the list of animals threatened with extinction, could be recorded. It represents a population of this species which lies more to the north, inside the already recorded Amazonian Biome.

Mutum/Galiléia Creek (02°36'S; 56°11'W): Located around 50 km from the municipality of Juruti headquarters and possesses dominant forestal submontane vegetation with dense understory and canopy around 30 to 35 meters in height. This area boasts the best level of conservation among all sampled points.

Barroso Camp (02°29'S; 55°58'W): Located around 30 kilometers from the municipality of Juruti headquarters. Possesses dominant vegetation formed by lowland ombrophilous forest with relatively open understory, many palm trees, and canopy reaching 35 meters high.

Capiranga Plateau Gravel Pit (Piçarreira) (02°30'S; 56°13'W): Situated next to Capiranga Plateau, this

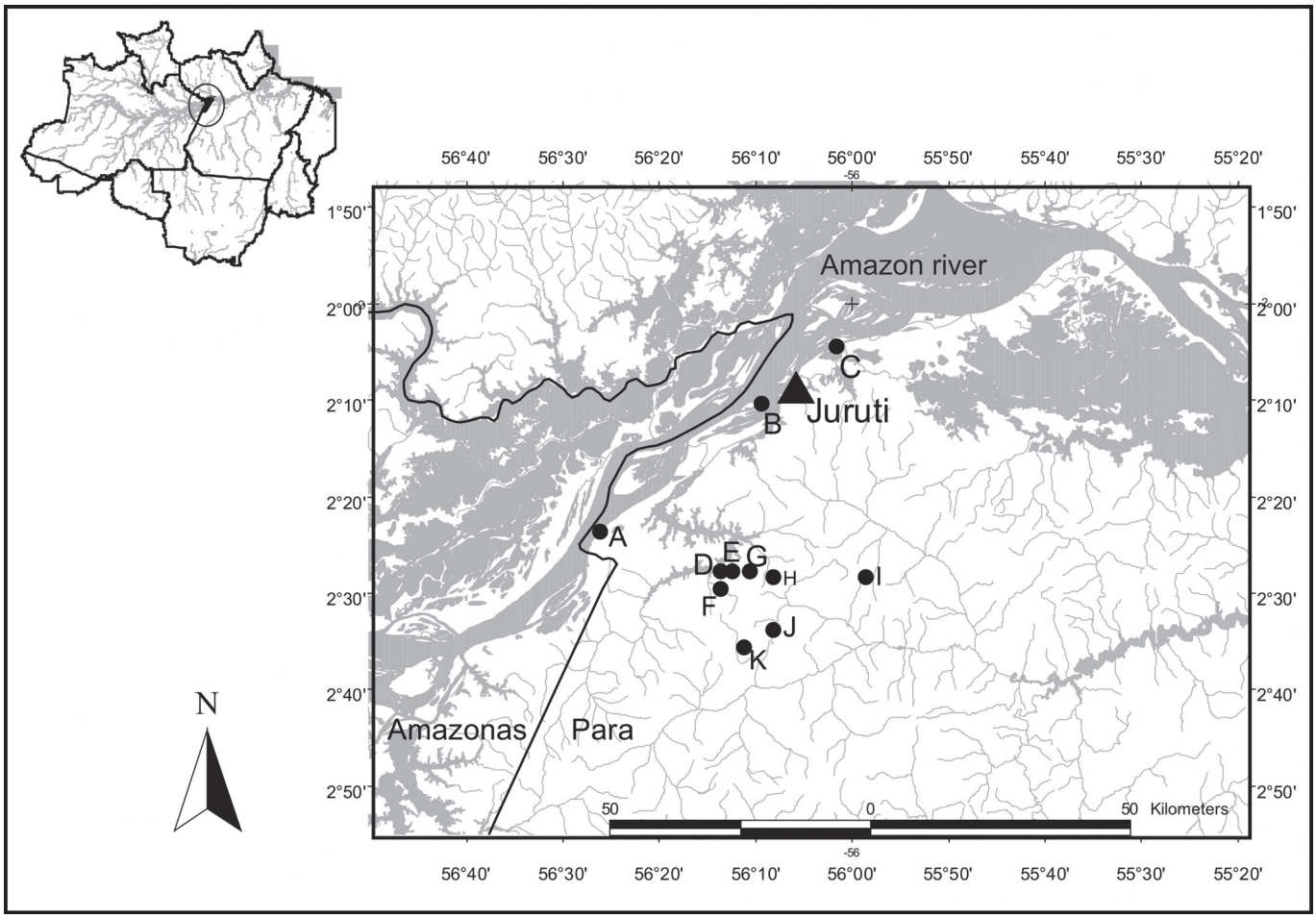

FIGURE 1: Geographic location of the Juruti region, showing the sampling sites: (A) Fazenda São Joaquim; (B) Rio Amazonas; (C) Lago Santana; (D) Fazenda Santa Lúcia; (E) Base Capiranga; (F) Piçarreira do Platô Capiranga; (G) Adutora; (H) Platô Capiranga; (I) Acampamento Barroso; (J) Ramal Pacoval; (K) Acampamento Mutum.

location possesses a large area of laterite (gravel, or 'piçarra' in Portuguese) extraction. Encircling this area of gravel extraction there is secondary vegetation in the process of regenerating, forming a strip of about 30 meters. Beyond this strip is well-preserved, submontane ombrophilous forest. This location is among three at which it was possible to record *Anodorhynchus hyacinthinus,* along with Capiranga Plateau and Mutum Creek.

Adutora (02°28'S; 56°10'W): This area represents a depression by which passes an aqueduct bringing water from Juruti Velho Lake to the bauxite mining plant at Capiranga Plateau. It corresponds to a 'road' around 50 meters wide, extending for some kilometers, cutting an extremely well-preserved, dense submontane forestal area, which presents a closed understory with palm trees and canopy about 35 meters high.

Pacoval Extention (02°34'S; 56°08'W): This sampling point is an old woodcutter's road that cuts an extensive area of submontane, ombrophilous forest. Even having suffered from wood cutting in the past, it generally holds the aspect of being well-preserved, has a dense understory, and canopy around 35 meters high.

Santana Lake (02°05'S; 56°01'W): This sampling point is characterized by the presence of fragments of *várzea* forest in various successional stages, interwoven by natural fields, encircling Lake Santana, and situated adjacent to the southern margin of the Amazonas River.

Amazonas River (02°11'S; 56°09'W): This sampling point, located in the immediate vicinity of Juruti, is characterized by the presence of fragments of *várzea* forest of distinct successional sizes and stages, as well as by natural fields.

Santa Julia Farm (02°28'S; 56°13'W) and São Joaquim Farm (02°24'S; 56°26'W): These are bordering farms that encompass *várzea* areas of the Amazonas River. Between September 16-19, 2002, samples were taken beginning from herbaceous formations through forestal *várzea* formations. The vegetal covering of these areas are characterized by vast heterogeneity, due to natural traits and various levels of human intervention. The natural gradients are determined, principally, by the differing levels of inundation which defines the habitats of strictly aquatic dwellers through solely terrestrial ones. *Várzea* forests of the sampling present significant variations regarding height and stratification. A significant part of the area sampled shows secondary vegetal covering. The open formations (herbaceous), in turn, are largely products of human action, created through the conversion of *várzea* areas to pastures for the rearing of livestock. In the middle of forested areas and in fields, various lagoons are observed, both seasonal and perennial. A great quantity of aquatic macrophytes is associated with these marginal lagoons.

In order to realize the field surveys, three distinct methods were employed: observation with the aid of binoculars (Pentax 10 × 42, Nikon Monarch 10 × 42 and Zeiss 10 × 40) in a systematic way, throughout the morning (between 05:30 and 12:00 h), which is considered to be the period with greatest avifaunal activity (Blake, 1992), and in the afternoon (between 15:00 and 18:30 h) following the method described by Lacher and Brandes (2005); recording/playback with employment of specific equipment (Sony TCM 500/Marantz PMD 670 recorders and Sennheiser ME66 Microphone); captures in mist-nets which remain open during the entire diurnal period, visited periodically for recording and collecting or release of captured individuals. For each specimen collected, the following data were recorded throughout its preparation: locality of the collection (with coordinates obtained from a GPS), weight, moulting stage of feathers, gender, size of gonads, presence or absence of bursa of Fabricius, degree of cranial ossification, quantity of fat, stomach content (preserved in ethyl alcohol of 70% concentration), color of iris and bare parts, and finally habitat and extract of vegetation from where the specimen was collected. For each specimen collected, a sample of tissue was preserved in absolute ethyl alcohol. All of the specimens and associated materials collected were deposited in the 'Fernando C. Novaes' Ornithological Collection of MPEG in Belém, Pará, Brazil.

The taxonomic nomenclature and common names adopted in assembling the lists of avifauna, based on primary and secondary data, are recommended by the Brazilian Society of Ornithology (CBRO 2011).

RESULTS AND DISCUSSION

A total of 490 species of birds was recorded for the Juruti region, state of Pará, including 68 families, 43 of which are not passerine and 25 which are (Appendix). Representing voucher material, 493 specimens were collected pertaining to 178 species, which were deposited at MPEG. This total number of recorded species establishes the Juruti region as the locality with the greatest number of bird species already recorded at the Madeira-Tapajós interfluvium, followed by the Roosevelt River region with 481 species (Whittaker 2009). Within this same interfluvium, there are still various localities with an elevated richness of species. The Jí-Paraná region in Rondônia is recorded to have 459 species (Stotz *et al.* 1997), Amazônia National Park has 448 species (Oren and Parker III, 1997), and Marmelos River has 330 species (Aleixo and Poletto, 2007).

Haffer (1974) recognizes the Madeira-Tapajós interfluvium as one of the largest and most important areas of endemism for birds in South America ('Rondônia Center'), compiling 15 endemic taxa. Posteriorly, Cracraft (1985) also recognized the 'Rondônia' area of endemism, albeit listing a greater number of taxa (21), of which eight coincide with those presented by Haffer (1974). Considering the 15 taxa compiled by Haffer (1974), there presently are three in the Juruti region with confirmed records: *Capito brunneipectus, Phlegopsis borbae* and *Dendrocolaptes hoffmannsi.* On the other hand, considering the 21 taxa of Cracraft (1985), there would be four already recorded in the Juruti area, those being *Hylexetastes uniformis* (actually in the endemic 'Rondônia Center'), *Dendrocolaptes hoffmannsi, Rhegmatorhina berlepschi* and *Phlegopsis borbae.* These data further strengthen the suggestion that the Juruti region serves as the limit of distribution for one whole group of bird species, which is related geographically to the Madeira-Tapajós interfluvium.

Most of the species of birds in Juruti were recorded from the ombrophilous forest area of *terra firme* (355; 72%), followed by anthropic areas (178; 37%), *várzea* (159; 33%), beach or riparian environments (92; 19%), and *igapó* (87; 18%). Of 490 species registered in the area, 197 (40%) occur exclusively in the forest area of *terra firme*, followed by exclusive species of *várzea* environments (54), beach and riparian environments (28), anthropic areas (10) and *igapó* (1).

Among the exclusive *terra firme* species, birds of the understory that seek army ants come to capture them by taking advantage of displacement, according to Willis and Oniki (1992), which serves as more than 50% of total food intake. Many species are army ant seekers, however only some may be called 'specialists', possessing adaptations (*e.g.,* speed of displacement, perching vertically) that favor them in relation to others when exploiting these resources. This adaptation allows great advantages. However it also makes them vulnerable to alterations that target these species of ants negatively and/or that come to modify the structure of the understory. Beyond specialists, there exist others that also take advantage of these army ants to feed. However, they are referred to as 'non-specialists' or 'opportunists' and seek army ants only occasionally. They do not have the adaptations of specialists. Some species that frequently seek army ants were observed in the region. This was the case of *Dendrocincla fuliginosa, Dendrocincla merula, Willisornis poecilonotus, Rhegmatorhina berlepschi, Phlegopsis nigromaculata* and *Phlegopsis borbae,* the last three being particularly adapted to do so.

Other indicative groups of *terra firme* forest are birds that forage in mixed understory flocks. In the study area, the species that were most frequently observed participating in these interspecific groupings were: *Thamnomanes caesius* (core species), *T. saturninus, Epinecrophylla leucophthalma, Myrmotherula hauxwelli, M. iheringi, M. longipennis, Glyphorhynchus spirurus, Xiphorhynchus guttatus, X. ocellatus, Philydor erythrocercus, P. pyrrhodes, Automolus ochrolaemus, Habia rubica,* among others. According to Thiollay (1992), the small insectivores of the understory, markedly members of the mixed flocks, such as some Furnariidae (*Philydor, Automolus*) and Thamnophilidae (*Myrmotherula*), along with the core species mentioned above, suffer from alterations, as the presence of these formations many times become rare in disturbed locations. Some insectivores that do not participate in these associations area also seriously affected, as in the case of some Furnariidae (*e.g., Sclerurus*) and Formicariidae (*e.g., Formicarius*). In those areas dominated by secondary formations, mixed understory flocks simply have not been recorded on any occasion.

Also observed were flocks of insectivores that forage between the wood's medium stratum and dossal, a behavior that does not include the participation of *T. caesius.* Taking part in this flock of species are *Piaya cayana, Capito brunneipectus, Sittasomus griseicapillus, Lepidocolaptes albolineatus, Philydor erythrocercus, Xenops minutus, Myrmotherula brachyura,* among others.

The dossal flocks, principally formed by Tanagers (*Tangara* spp.), were constantly encountered, those of the understory being relatively more common. Among those in the region that participated in these species associations were *Piprites chloris, Vireo olivaceus, Tachyphonus cristatus, Tangara chilensis, Tangara velia, Tangara gyrola, Dacnis cayana, Cyanerpes nitidus, Cyanerpes cyaneus, Chlorophanes spiza,* among others. These species, by frequenting peripheral environments, are less affected, principally when considering that the transformations provoked by selective cutting produce favorable environments to the development of pioneer vegetation (*e.g., Cecropia* spp.). This is characterized by the large production of fruit, increasing the availability of food for many of these birds whose basic food source is fruit.

The second most important environment by order of species richness is *várzea*. Among the sampled environments during the course of this field study, *várzea* is that which was most intensely transformed. Most of Amazônia's rivers serve as principle means of communication between cities and villages, principally the Amazonas River. In function of this fact, the margins of this body of water have been affected. The stretch of *várzea* studied is occupied by farms, with the main activity being cattle farming. Large extensions have been made into pastures for the raising of cow and buffalo stock. The most drastic alterations were done with the conversion of *várzea* forested area to pastures, reducing this forestal formation to isolated fragments. As stated, the community of birds present in *várzea* has a distinguished identity from those of *terra firme* environments. According to Remsen and Parker (1983), about 15% of non-aquatic

avifauna of the Amazon basin occurs restrictedly in those environments created by water, among which lies *várzea*. Many of the recorded birds exclusively found in *várzea*, especially those with forestal habits, respond negatively to the anthropic process. Among the total species recorded exclusively in *várzea*, only five are highly sensitive to environmental alterations, all of them having forestal habits: *Nasica longirostris, Campylorhamphus trochilirostris, Atilla bolivianus, A. cinnamomeus* and *Myiopagis flavivertex.* Also among the species aggrieved by anthropic activity, it is worth mentioning: *Dendroplex kienerii, Sakesphorus luctuosus, Myrmotherula assimilis, Myrmoborus lugubris* and *Pipra aureola.* Some species did not only have their records restricted to areas of *várzea*, but are exclusively of this environment, many of these with associated evolutionary pasts, for example as in the case of *Picumnus varzeae, Myrmoborus lugubris, Myrmotherula assimils* and *Conirostrum bicolor,* all having habits to forestall.

On the other hand, examples of typical species of open environments associated to *várzea* are: *Ammodramus aurifrons, Leistes militaris, Synallaxis albigularis, Furnarius figulus, F. leucopus, Sicalis columbiana, Sporophila castaneiventris, S. americana* and *Agelaius icterocephalus.* During the surveys, some typical species were recorded from open formations like that of Brazil Central which penetrates Amazônia through the waterfall of the Amazonas River, occupying pioneer natural formations, as well as areas modified by humans along the water course. For example, this is the case of *Ramphastos toco,* which targets the mean portion of the Branco River, as well as *Synallaxis albescens* and *Euphonia chlorotica.*

Among migratory species recorded in this survey, we have highlighted some septentrional visitors originating from North America, such as *Pluvialis dominica* and *Tringa solitaria,* as well as *Pandion halieatus* and *Contopus virens.* Species such as Tyrannidae, *Tyrannus savana, T. melancholicus, Elaenia cristata* and *Myiodynastes maculatus,* present displacement of their meridional populations in the direction of warmer regions, as in the north of the country during meridional winter.

Important Records

Nothocrax urumutum

On March 8, 2006 two individuals, possibly a couple, were observed by MPDS crossing a street connecting Capiranga Base with Mutum Creek. This species is among the rarest Cracidae of Amazônia, having few records in the Madeira-Tapajós interfluvium. This low number of records is possibly due to its crepuscular habits, which together with its low density hampers efforts to encounter it during the day (Hoyo 1994).

Leucopternis melanops

On September 12, 2002 this species was recorded by FMH. One individual of *Leucopternis melanops* was found near a street between Capiranga Base and Mutum Creek (02°36'28"S; 56°13'28"W). Posteriorly, AA registered the species (possibly one same individual vocalizing) in the area of Mutum Creek (02°36'47.3"S; 56°11'50.7"W) on May 27, 2009 and September 22, 2010 (when the same was recorded). The occurrence of *Leucopternis melanops,* until recently, was known only from septentrional Amazônia (Sick 1997). The Amazonas River was considered the southern limit of this taxon's distribution. The first record south of the Amazonas River is one individual collected by A. M. Olalla in the lower Tapajós (Amadon 1964). Since then, an increasing number of records of this species has been seen in the forests on the right margin of the Amazonas River (*e.g.,* Barlow *et al.* 2002, Amaral *et al.* 2007), Part of them are in sympatry with *L. kuhli,* considering its geographic substitution in meridional Amazônia.

Anodorhynchus hyacinthinus

This species is considered as Threatened (Guedes *et al.* 2008). Various individuals (six to twelve) were observed on diverse occasions, but only at two sampling points, on the Capiranga Plateau and the Capiranga Plateau gravel pit. It is emphasized that these two areas are at the main point of installation of the Juruti Project to extract bauxite, which includes the construction of the mine and the entire fabrication infrastructure. This provoked a large suppression of vegetation in this area. On the last trips related to the samplings in 2008 and 2009, there were no registers of the species at these points, which suggests that the impact of the bauxite mine could have caused the disappearance of this population in the Juruti region. However, on September 22, 2010 the species (possibly a couple) was heard and recorded in the area of Mutum Creek (02°36'40.7"S; 56°11'49.5"W). The record of this population in the Juruti region is configured as an extension of its distribution in the northwesterly direction, and is presently the northern most record of a population of *Anodorhynchus hyacinthinus* in Amazônia.

Aratinga aurea

Flocks of four to eight individuals were noted visually and heard by AA on two occasions on May 16 and 17, 2008 while flying over an area of open *várzea* near Santana Lake. This species is mainly distributed among the cerrados of central Brazil, but also occurs along lower Amazonas (Rowley and Collar, 1997).

Forpus passerinus

One sole flock with four individuals were seen on May 17, 2008 by AA flying over an area of open *várzea* of Santana Lake. This species is mainly distributed among open areas in the north of South America, reaching the median and lower courses of the Amazonas River (Rowley and Collar, 1997).

Neomorphus geoffroyi

An individual was observed on the morning of August 9, 2004 by MPDS crossing a street connecting Capiranga Plateau to Barroso Camp. A second individual was observed also by MPDS on November 25, 2007 in the ombrophilous forest in the Pacoval extension, and was found feeding on army ants. This is one of the rarest birds in Amazônia and the register of two individuals during the field sampling highlights the excellent state of preservation of the forests around Juruti.

Nyctibius bracteatus

On the dawn of June 1, 2009, AA heard the callings and typical territorial song of two individuals of *Nyctibius bracteatus* in the *terra firme* forest of the Mutum Creek region (02°37'32.1"S; 56°11'57.9"W), during the point counts. Posteriorly, new registers and recordings were obtained on September 21 and 23, 2010 at the same location, when three individuals vocalizing at different points were registered. These represent the first registers of *N. bracteatus* for the state of Pará and east of the Madeira River, among the most updated eastward records for the species (InfoNatura 2007). The record obtained closest to Juruti comes from Manaus, around 400 km to the west, at the northern bank of the Amazonas/Solimões River (Cohn-Haft 1999). This new Juruti record seems to confirm the prevision of Cohn-Haft (1999) that *N. bracteatus* is probably distributed all over Amazônia.

Capito brunneipectus

This species occurs in a tight strip to the south of the Amazonas River, between the Madeira and Tapajós Rivers (Short and Horne, 2002), having been registered in the areas of Mutum Creek and Barroso where it is relatively common and occasionally has accompanied mixed canopy flocks. Four males were collected (MPEG 58264, 62233, 62234, 69730) of this species during fieldwork in the Juruti region.

Picumnus varzeae

On the day of September 16, 2002 two juvenile individuals were observed by FMH, one of them collected (MPEG 56601), foraging between the trunks of thin trees of a secondary *várzea* forest at São Joaquim Farm. The occurrence of *Picumnus varzeae,* as well as *Myrmoborus lugubris, Myrmotherula assimils* and *Conirostrum bicolor,* registered in Juruti, is restricted to *várzea*. However, as a distinction of these species, *P. varzeae* occurs only in *várzea* formations of the Amazonas River downriver from the Negro River, as in the case of other taxa like, for example, *Cranioleuca muelleri* and *Myrmotherula klagesi.* There apparently is a biogeographical break in the region of confluence of the Negro River, separating one fauna of *várzea* upriver and another downriver of this region (Cohn-Haft *et al.* 2007).

Rhegmatorhina berlepschi

Endemic species of the Madeira-Tapajós interfluvium, it is normally associated with army ants. In the Juruti Region this species is common in the understory of *terra firme* areas, having been captured in mistnets and recorded by other methods in all campaigns realized in this area of study. Throughout the entire fieldwork, 13 specimens were collected, eight males and five females (MPEG 56713-56719, 58131, 60970, 60971, 64930, 64931, 69733).

Phlegopsis borbae

Two individuals were heard by AA vocalizing the territorial song of the species about 500 m from each other on May 31, 2009 in the Galiléia region, while following columns of army ants. The sound of one of these individuals was recorded. This was the only record of this endemic species of the Madeira-Tapajós interfluvium obtained by us in Juruti, probably indicating low density in the area.

Pachyramphus surinamus

On March 24, 2011, AA heard and tape-recorded the callings of a pair of this species while joining in a canopy mixed-species flock along the forest edge a few kilometers to the south of the Barroso Camp (*i.e.,* Aruã, *ca.* 02°33'45.0"S; 55°55'07.8"W). This represents the second published record of this species south of the Amazon River, after that of the Urucú River in the western part of the state of Amazonas (Peres and Whittaker, 1991; Mobley, 2004). Nonetheless, there is at least one unpublished record from Borba, State of Amazonas, *ca.* 470 km to the southwest of Juruti in the same interfluve, where Nick Athanas tape-recorded *P. surinamus* in February 2006 (www.xeno-canto.org/browse.php?query=Pachyramphus+surinamus). Together, these records indicate a more widespread, yet spotty occurrence of *P. surinamus* south of the Amazon River.

Contopus virens

One solitary individual of this septentrional migrant species was heard vocalizing the territorial chant of this species on May 17, 2008 in the canopies bordering Santana Lake's *várzea* forest. The record can be considered untimely for this species in the Amazon Basin, as it generally appears in the basin's western portion during autumn and winter of the northern hemisphere, between the months of September and April (Farnsworth and Lebbin 2004).

Cyanicterus cyanicterus

On March 24, 2011, AA heard the callings of group of this species joining in a canopy mixed-species flock during point counts in dense forest a few kilometers to the south of the Barroso Camp (*i.e.,* Aruã, *ca.* 02°33'45.0"S; 55°55'07.8"W). This represents the second published record of this species south of the Amazon River, after that of the Urucú River in the western part of the state of Amazonas (Peres and Whittaker, 1991). Nonetheless, *C. cyanicterus* is also known to occur in Caxiuanã, also in the State of Pará, and *ca.* 500 km to the east of Juruti in the Xingu – Tocantins interfluve, where several individuals were seen and tape-recorded since 2003 (*pers. obs.*). Together, these records indicate a more widespread, yet spotty occurrence of this species south of the Amazon River.

ACKNOWLEDGEMENTS

We are grateful to ALCOA World Alumina and CNEC Engineering for financial and logistical support in the field. AA would like to thank CNPq for a fellowship in research productivity, as well as other aid in research (processes 310593/2009-3, 574008/2008-0 and 476212/2007-3). Thank you also to the National Institute of Science and Technology in Biodiversity and to Use of Amazonian Land (CNPq/FAPESPA); and to the ALCOA World Alumina – MPEG accord for monitoring of the fauna of Juruti. The collecting of specimens was realized with the authorization of license DIFAP/SUPES-PA n$^{os.}$ 064/07, 083/08 and 022/09.

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APPENDIX: Checklist of birds from the Juruti region, Pará, Brazil.
Habitats: (TF) upland *terra-firme* forest, (VZ) seasonally-flooded white-water *várzea* forest, (PRA) beaches and river banks, (IG) seasonally flooded black-water *igapó* forest, (AA) anthropogenic/disturbed habitats.
Records: (Ob) sighted, (VC) heard, (Gr) tape-recorded, (MPEG) collected and specimen(s) deposited at Museu Paraense Emilio Goeldi.

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Tinamiformes Huxley, 1872							
Tinamidae Gray, 1840							
Tinamus tao Temminck, 1815	Gray Tinamou	X					Ob, Vc, Gr
Tinamus guttatus Pelzeln, 1863	White-throated Tinamou	X					Ob, Vc, Gr
Crypturellus cinereus (Gmelin, 1789)	Cinereous Tinamou	X					Ob, Vc, Gr
Crypturellus soui (Hermann, 1783)	Little Tinamou	X					Ob, Vc
Crypturellus undulatus (Temminck, 1815)	Undulated Tinamou	X					Ob, Vc, Gr
Crypturellus strigulosus (Temminck, 1815)	Brazilian Tinamou	X					Ob, Vc
Crypturellus variegatus (Gmelin, 1789)	Variegated Tinamou	X					Ob, Vc
Anseriformes Linnaeus, 1758							
Anhimidae Stejneger, 1885							
Anhima cornuta (Linnaeus, 1766)	Horned Screamer			X			Ob
Anatidae Leach, 1820							
Dendrocygna bicolor (Vieillot, 1816)	Fulvous Whistling-Duck			X			Ob
Dendrocygna viduata (Linnaeus, 1766)	White-faced Whistling-Duck			X			Ob
Dendrocygna autumnalis (Linnaeus, 1758)	Black-bellied Whistling-Duck			X			Ob
Cairina moschata (Linnaeus, 1758)	Muscovy Duck			X			Ob
Sarkidiornis sylvicola Ihering and Ihering, 1907	Comb Duck			X			Ob
Amazonetta brasiliensis (Gmelin, 1789)	Brazilian Teal			X			Ob
Galliformes Linnaeus, 1758							
Cracidae Rafinesque, 1815							
Ortalis guttata (Spix, 1825)	Speckled Chachalaca	X					Ob
Penelope superciliaris Temminck, 1815	Rusty-margined Guan	X					Ob
Penelope jacquacu Spix, 1825	Spix's Guan	X					Ob
Penelope pileata Wagler, 1830	White-crested Guan	X					Ob, MPEG
Aburria cujubi (Pelzeln, 1858)	Red-throated Piping Guan	X	X				Ob, Vc, MPEG
Nothocrax urumutum (Spix, 1825)	Nocturnal Curassow	X					Ob
Pauxi tuberosa (Spix, 1825)	Razor-billed Curassow	X					Ob, Vc, MPEG
Odontophoridae Gould, 1844							
Odontophorus gujanensis (Gmelin, 1789)	Marbled Wood-Quail	X					Ob, Vc, Gr
Podicipediformes Fürbringer, 1888							
Podicipedidae Bonaparte, 1831							
Tachybaptus dominicus (Linnaeus, 1766)	Least Grebe		X	X	X		Ob
Podilymbus podiceps (Linnaeus, 1758)	Pied-billed Grebe		X	X	X		Ob
Ciconiiformes Bonaparte, 1854							
Ciconiidae Sundevall, 1836							
Ciconia maguari (Gmelin, 1789)	Maguari Stork			X			Ob
Suliformes Sharpe, 1891							
Phalacrocoracidae Reichenbach, 1849							
Phalacrocorax brasilianus (Gmelin, 1789)	Neotropic Cormorant		X	X			Ob
Anhingidae Reichenbach, 1849							
Anhinga anhinga (Linnaeus, 1766)	Anhinga		X	X			Ob
Pelecaniformes Sharpe, 1891							
Ardeidae Leach, 1820							
Tigrisoma lineatum (Boddaert, 1783)	Rufescent Tiger-Heron		X				Ob
Agamia agami (Gmelin, 1789)	Agami Heron		X	X			Ob
Cochlearius cochlearius (Linnaeus, 1766)	Boat-billed Heron			X			Ob
Zebrilus undulatus (Gmelin, 1789)	Zigzag Heron			X			Ob
Ixobrychus exilis (Gmelin, 1789)	Least Bittern		X		X		Ob
Nycticorax nycticorax (Linnaeus, 1758)	Black-crowned Night-Heron			X			Ob
Butorides striata (Linnaeus, 1758)	Striated Heron		X				Ob
Bubulcus ibis (Linnaeus, 1758)	Cattle Egret		X				Ob

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Ardea cocoi Linnaeus, 1766	Cocoi Heron			X			Ob
Ardea alba Linnaeus, 1758	Great Egret			X			Ob
Pilherodius pileatus (Boddaert, 1783)	Capped Heron		X				Ob
Egretta thula (Molina, 1782)	Snowy Egret		X				Ob
Egretta caerulea (Linnaeus, 1758)	Little Blue Heron		X				Ob
Threskiornithidae Poche, 1904							
Mesembrinibis cayennensis (Gmelin, 1789)	Green Ibis		X		X		Ob, Vc, Gr
Theristicus caudatus (Boddaert, 1783)	Buff-necked Ibis		X				Ob
Cathartiformes Seebohm, 1890							
Cathartidae Lafresnaye, 1839							
Cathartes aura (Linnaeus, 1758)	Turkey Vulture	X	X	X	X	X	Ob
Cathartes melambrotus Wetmore, 1964	Greater Yellow-headed Vulture	X			X	X	Ob
Coragyps atratus (Bechstein, 1793)	Black Vulture	X	X	X	X	X	Ob
Sarcoramphus papa (Linnaeus, 1758)	King Vulture	X	X	X	X	X	Ob
Accipitriformes Bonaparte, 1831							
Pandionidae Bonaparte, 1854							
Pandion haliaetus (Linnaeus, 1758)	Osprey			X			Ob
Accipitridae Vigors, 1824							
Leptodon cayanensis (Latham, 1790)	Gray-headed Kite	X	X		X		Ob
Chondrohierax uncinatus (Temminck, 1822)	Hook-billed Kite		X				Ob
Elanoides forficatus (Linnaeus, 1758)	Swallow-tailed Kite	X	X	X	X	X	Ob
Gampsonyx Swainson*ii* Vigors, 1825	Pearl Kite	X	X	X	X	X	Ob
Harpagus bidentatus (Latham, 1790)	Double-toothed Kite		X				Ob
Accipiter superciliosus (Linnaeus, 1766)	Tiny Hawk	X					Ob, Vc
Accipiter bicolor (Vieillot, 1817)	Bicolored Hawk	X	X			X	Ob
Ictinia plumbea (Gmelin, 1788)	Plumbeous Kite	X	X	X	X	X	Ob
Busarellus nigricollis (Latham, 1790)	Black-collared Hawk		X				Ob
Rostrhamus sociabilis (Vieillot, 1817)	Snail Kite		X				Ob, MPEG
Helicolestes hamatus (Temminck, 1821)	Slender-billed Kite				X		Ob
Leucopternis schistaceus (Sundevall, 1851)	Slate-colored Hawk			X			Ob
Heterospizias meridionalis (Latham, 1790)	Savanna Hawk		X				Ob
Urubitinga urubitinga (Gmelin, 1788)	Great Black-Hawk			X			Ob, Vc
Rupornis magnirostris (Gmelin, 1788)	Roadside Hawk	X	X	X	X	X	Ob, Vc, Gr, MPEG
Pseudastur albicollis (Latham, 1790)	White Hawk	X					Ob, Vc, MPEG
Leucopternis melanops (Latham, 1790)	Black-faced Hawk	X					Ob
Leucopternis kuhli Bonaparte, 1850	White-browed Hawk					X	Ob
Buteo nitidus (Latham, 1790)	Gray Hawk		X			X	Ob
Morphnus guianensis (Daudin, 1800)	Crested Eagle	X					Vc, Gr
Harpia harpyja (Linnaeus, 1758)	Harpy Eagle	X					Ob
Spizaetus tyrannus (Wied, 1820)	Black Hawk-Eagle	X					Ob, Vc
Spizaetus ornatus (Daudin, 1800)	Ornate Hawk-Eagle	X					Ob, Vc
Falconiformes Bonaparte, 1831							
Falconidae Leach, 1820							
Daptrius ater Vieillot, 1816	Black Caracara	X	X				Ob, Vc, Gr
Ibycter americanus (Boddaert, 1783)	Red-throated Caracara	X	X				Ob, Vc, Gr, MPEG
Caracara plancus (Miller, 1777)	Southern Caracara			X		X	Ob
Milvago chimachima (Vieillot, 1816)	Yellow-headed Caracara			X		X	Ob, Vc
Herpetotheres cachinnans (Linnaeus, 1758)	Laughing Falcon	X	X	X	X	X	Ob, Vc
Micrastur ruficollis (Vieillot, 1817)	Barred Forest-Falcon	X			X		Ob, Vc, Gr
Micrastur mintoni Whittaker, 2002	Cryptic Forest-Falcon	X					Ob, Vc
Micrastur mirandollei (Schlegel, 1862)	Slaty-backed Forest-Falcon	X				X	Ob, Vc, Gr, MPEG
Micrastur semitorquatus (Vieillot, 1817)	Collared Forest-Falcon	X				X	Ob, Vc, gr, MPEG
Falco sparverius Linnaeus, 1758	American Kestrel					X	Ob
Falco rufigularis Daudin, 1800	Bat Falcon	X					Ob, MPEG
Eurypygiformes Furbringer, 1888							
Eurypygidae Selby, 1840							
Eurypyga helias (Pallas, 1781)	Sunbittern		X				Ob, Vc, Gr

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Gruiformes Bonaparte, 1854							
Aramidae Bonaparte, 1852							
Aramus guarauna (Linnaeus, 1766)	Limpkin		X	X			Ob
Psophiidae Bonaparte, 1831							
Psophia viridis Spix, 1825	Green-winged Trumpeter	X					Ob, Vc, Gr
Rallidae Rafinesque, 1815							
Aramides cajanea (Statius Muller, 1776)	Gray-necked Wood-Rail	X			X		Ob, Vc
Porzana albicollis (Vieillot, 1819)	Ash-throated Crake	X			X		Ob
Porphyrio martinica (Linnaeus, 1766)	Purple Gallinule		X				Ob
Heliornithidae Gray, 1840							
Heliornis fulica (Boddaert, 1783)	Sungrebe		X				Ob
Charadriiformes Huxley, 1867							
Charadriidae Leach, 1820							
Vanellus cayanus (Latham, 1790)	Pied Lapwing			X			Ob
Vanellus chilensis (Molina, 1782)	Southern Lapwing		X	X		X	Ob, Vc
Charadrius collaris Vieillot, 1818	Collared Plover			X			Ob
Recurvirostridae Bonaparte, 1831							
Himantopus mexicanus (Statius Muller, 1776)	Black-necked Stilt			X			Ob
Scolopacidae Rafinesque, 1815							
Gallinago paraguaiae (Vieillot, 1816)	South American Snipe		X	X			Ob
Actitis macularius (Linnaeus, 1766)	Spotted Sandpiper			X			Ob
Tringa solitaria Wilson, 1813	Solitary Sandpiper		X	X			Ob
Jacanidae Chenu and Des Murs, 1854							
Jacana jacana (Linnaeus, 1766)	Wattled Jacana			X			Ob, Vc
Sternidae Vigors, 1825							
Sternula superciliaris (Vieillot, 1819)	Yellow-billed Tern			X			Ob
Phaetusa simplex (Gmelin, 1789)	Large-billed Tern		X	X			Ob
Sterna hirundo Linnaeus, 1758	Common Tern			X			Ob
Rynchopidae Bonaparte, 1838							
Rynchops niger Linnaeus, 1758	Black Skimmer			X			Ob
Columbiformes Latham, 1790							
Columbidae Leach, 1820							
Columbina passerina (Linnaeus, 1758)	Common Ground-Dove		X			X	Ob, Vc, MPEG
Columbina minuta (Linnaeus, 1766)	Plain-breasted Ground-Dove					X	Ob, Vc
Columbina talpacoti (Temminck, 1811)	Ruddy Ground-Dove		X			X	Ob, Vc
Claravis pretiosa (Ferrari-Perez, 1886)	Blue Ground-Dove					X	Ob, Vc
Columba livia Gmelin, 1789	Rock Pigeon					X	Ob
Patagioenas speciosa (Gmelin, 1789)	Scaled Pigeon	X					Ob, Vc, Gr
Patagioenas cayennensis (Bonnaterre, 1792)	Pale-vented Pigeon	X	X	X	X	X	Ob, Vc, Gr
Patagioenas plumbea (Vieillot, 1818)	Plumbeous Pigeon	X					Ob, Vc, Gr, MPEG
Patagioenas subvinacea (Lawrence, 1868)	Ruddy Pigeon	X					Ob, Vc, Gr
Leptotila verreauxi Bonaparte, 1855	White-tipped Dove	X	X	X	X	X	Ob, Vc, Gr
Leptotila rufaxilla (Richard and Bernard, 1792)	Gray-fronted Dove	X	X	X	X	X	Ob, Vc, Gr
Geotrygon montana (Linnaeus, 1758)	Ruddy Quail-Dove	X	X	X	X	X	Ob, Vc, Gr, MPEG
Psittaciformes Wagler, 1830							
Psittacidae Rafinesque, 1815							
Anodorhynchus hyacinthinus (Latham, 1790)	Hyacinth Macaw	X					Ob, Vc, Gr
Ara macao (Linnaeus, 1758)	Scarlet Macaw	X					Ob, Vc, Gr
Ara chloropterus Gray, 1859	Red-and-green Macaw	X					Ob, Vc, Gr
Ara severus (Linnaeus, 1758)	Chestnut-fronted Macaw	X					Ob, Vc, Gr
Orthopsittaca manilata (Boddaert, 1783)	Red-bellied Macaw	X	X	X	X	X	Ob, Vc, Gr
Aratinga leucophthalma (Statius Muller, 1776)	White-eyed Parakeet	X	X	X	X	X	Ob, Vc, Gr
Aratinga aurea (Gmelin, 1788)	Peach-fronted Parakeet		X				Ob, Vc
Pyrrhura perlata (Spix, 1824)	Crimson-bellied Parakeet	X					Ob, Vc
Pyrrhura picta (Statius Muller, 1776)	Painted Parakeet	X					Ob, Vc
Forpus passerinus (Linnaeus, 1758)	Green-rumped Parrotlet		X				Ob, Vc
Forpus modestus (Cabanis, 1848)	Dusky-billed Parrotlet	X		X	X	X	Ob, Vc

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Brotogeris versicolurus (Statius Muller, 1776)	Canary-winged Parakeet	X	X	X	X	X	Ob, Vc, Gr
Brotogeris chrysoptera (Linnaeus, 1766)	Golden-winged Parakeet	X	X	X	X	X	Ob, Vc, Gr, MPEG
Brotogeris sanctithomae (Statius Muller, 1776)	Tui Parakeet		X				Ob, Vc, MPEG
Pionites leucogaster (Kuhl, 1820)	White-bellied Parrot	X				X	Ob, Vc, Gr
Pyrilia sp.	Parrot	X					Ob
Graydidascalus brachyurus (Kuhl, 1820)	Short-tailed Parrot		X				Ob, Vc, Gr
Pionus menstruus (Linnaeus, 1766)	Blue-headed Parrot	X	X			X	Ob, Vc, Gr
Pionus fuscus (Statius Muller, 1776)	Dusky Parrot	X				X	Ob, Vc, Gr
Amazona farinosa (Boddaert, 1783)	Mealy Parrot	X			X	X	Ob, Vc, Gr
Amazona autumnalis (Linnaeus, 1758)	Red-lored Parrot		X				Ob, Vc, Gr
Amazona ochrocephala (Gmelin, 1788)	Yellow-crowned Parrot	X			X	X	Ob, Vc, Gr
Deroptyus accipitrinus (Linnaeus, 1758)	Red-fan Parrot	X				X	Ob, Vc, Gr
Opisthocomiforms Sclater, 1880							
Opisthocomidae Swainson, 1837							
Opisthocomus hoazin (Statius Muller, 1776)	Hoatzin		X	X	X		Ob
Cuculiformes Wagler, 1830							
Cuculidae Leach, 1820							
Coccycua minuta (Vieillot, 1817)	Little Cuckoo	X				X	Vc, MPEG
Piaya cayana (Linnaeus, 1766)	Squirrel Cuckoo	X	X			X	Ob, Vc, Gr
Piaya melanogaster (Vieillot, 1817)	Black-bellied Cuckoo	X	X		X	X	Ob, Vc, Gr
Crotophaga major Gmelin, 1788	Greater Ani	X					Ob, Vc, Gr
Crotophaga ani Linnaeus, 1758	Smooth-billed Ani	X	X		X	X	Ob, Vc, Gr
Tapera naevia (Linnaeus, 1766)	Striped Cuckoo		X	X	X	X	Ob, Vc, Gr, MPEG
Dromococcyx pavoninus Pelzeln, 1870	Pavonine Cuckoo	X	X	X	X	X	Ob, Vc, Gr
Neomorphus geoffroyi (Temminck, 1820)	Rufous-vented Ground-Cuckoo	X					Ob, Vc, Gr
Strigiformes Wagler, 1830							
Tytonidae Mathews, 1912							
Tyto alba (Scopoli, 1769)	Barn Owl					X	Ob, Vc
Strigidae Leach, 1820							
Megascops choliba (Vieillot, 1817)	Tropical Screech-Owl	X				X	Vc, Gr
Megascops usta (Sclater, 1858)	Austral Screech-Owl	X				X	Vc,Gr
Lophostrix cristata (Daudin, 1800)	Crested Owl	X				X	Vc, Gr
Pulsatrix perspicillata (Latham, 1790)	Spectacled Owl	X				X	Ob, Vc, Gr
Strix virgata (Cassin, 1849)	Mottled Owl	X					Vc, Gr
Strix huhula Daudin, 1800	Black-banded Owl	X					Vc, Gr
Glaucidium hardyi Vielliard, 1990	Amazonian Pygmy-Owl	X				X	MPEG
Caprimulgiformes Ridgway, 1881							
Nyctibiidae Chenu and Des Murs, 1851							
Nyctibius grandis (Gmelin, 1789)	Great Potoo	X					Vc, Gr, MPEG
Nyctibius griseus (Gmelin, 1789)	Common Potoo	X					Ob, Vc. Gr
Nyctibius leucopterus (Wied, 1821)	White-winged Potoo	X					Vc
Nyctibius bracteatus Gould, 1846	Rufous Potoo	X					Vc, Gr
Caprimulgidae Vigors, 1825							
Nyctiphrynus ocellatus (Tschudi, 1844)	Ocellated Poorwill	X	X	X	X	X	Ob, Vc, Gr
Lurocalis semitorquatus (Gmelin, 1789)	Short-tailed Nighthawk	X					Ob, Vc, Gr
Hydropsalis nigrescens (Cabanis, 1848)	Blackish Nightjar	X					Ob, Vc, Gr, MPEG
Hydropsalis albicollis (Gmelin, 1789)	Pauraque	X	X	X	X	X	Ob, Vc, Gr, MPEG
Hydropsalis climacocerca (Tschudi, 1844)	Ladder-tailed Nightjar	X				X	Ob, Vc, Gr
Apodiformes Peters, 1940							
Apodidae Olphe-Galliard, 1887							
Chaetura spinicaudus (Temminck, 1839)	Band-rumped Swift	X	X			X	Ob
Chaetura cinereiventris Sclater, 1862	Gray-rumped Swift	X	X	X	X	X	Ob
Chaetura brachyura (Jardine, 1846)	Short-tailed Swift	X				X	Ob
Panyptila cayennensis (Gmelin, 1789)	Lesser Swallow-tailed Swift	X	X	X	X	X	Ob
Trochilidae Vigors, 1825							
Phaethornis rupurumii Boucard, 1892	Streak-throated Hermit	X					Ob, MPEG
Phaethornis ruber (Linnaeus, 1758)	Reddish Hermit	X			X	X	Ob, Vc, MPEG

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Phaethornis malaris (Nordmann, 1835)	Great-billed Hermit	X					Ob, Vc, Gr, MPEG
Campylopterus largipennis (Boddaert, 1783)	Gray-breasted Sabrewing	X					Ob, MPEG
Florisuga mellivora (Linnaeus, 1758)	White-necked Jacobin	X				X	Ob, MPEG
Anthracothorax viridigula (Boddaert, 1783)	Green-throated Mango	X					Ob, MPEG
Thalurania furcata (Gmelin, 1788)	Fork-tailed Woodnymph	X				X	Ob, Vc, MPEG
Hylocharis cyanus (Vieillot, 1818)	White-chinned Sapphire	X					Ob, Vc, Gr
Amazilia sp	Hummingbird	X				X	Ob
Heliothryx auritus (Gmelin, 1788)	Black-eared Fairy	X					Ob
Heliomaster longirostris (Audebert and Vieillot, 1801)	Long-billed Starthroat	X					Ob
Trogoniformes A. O. U., 1886							
Trogonidae Lesson, 1828							
Trogon melanurus Swainson, 1838	Black-tailed Trogon	X				X	Ob, Vc, Gr
Trogon viridis Linnaeus, 1766	White-tailed Trogon	X	X			X	Ob, Vc, Gr, MPEG
Trogon ramonianus Deville and DesMurs, 1849	Amazonian Trogon	X				X	Ob, Vc, Gr
Trogon curucui Linnaeus, 1766	Blue-crowned Trogon	X				X	Ob, Vc, Gr
Trogon rufus Gmelin, 1788	Black-throated Trogon	X				X	Ob, Vc, Gr, MPEG
Pharomachrus pavoninus (Spix, 1824)	Pavonine Quetzal	X					Ob, Vc, Gr
Coraciiformes Forbes, 1844							
Alcedinidae Rafinesque, 1815							
Megaceryle torquata (Linnaeus, 1766)	Ringed Kingfisher			X			Ob, Vc
Chloroceryle amazona (Latham, 1790)	Amazon Kingfisher			X			Ob, Vc
Chloroceryle aenea (Pallas, 1764)	American Pygmy Kingfisher			X			Ob, MPEG
Chloroceryle americana (Gmelin, 1788)	Green Kingfisher			X			Ob, MPEG
Chloroceryle inda (Linnaeus, 1766)	Green-and-rufous Kingfisher			X			Ob, MPEG
Momotidae Gray, 1840							
Baryphthengus martii (Spix, 1824)	Rufous Motmot		X				Ob, Vc, Gr
Momotus momota (Linnaeus, 1766)	Amazonian Motmot	X	X			X	Ob, Vc, Gr
Galbuliformes Fürbringer, 1888							
Galbulidae Vigors, 1825							
Brachygalba lugubris (Swainson, 1838)	Brown Jacamar	X					Ob, Vc, Gr
Galbula cyanicollis Cassin, 1851	Blue-cheeked Jacamar	X				X	Ob, Vc, MPEG
Galbula galbula (Linnaeus, 1766)	Green-tailed Jacamar	X	X	X	X	X	Ob, Vc, Gr, MPEG
Galbula leucogastra Vieillot, 1817	Bronzy Jacamar	X					Ob, Vc, MPEG
Galbula dea (Linnaeus, 1758)	Paradise Jacamar	X					Ob, Vc, MPEG
Jacamerops aureus (Statius Muller, 1776)	Great Jacamar	X					Ob, Vc, Gr
Bucconidae Horsfield, 1821							
Notharchus hyperrhynchus (Sclater, 1856)	White-necked Puffbird	X					Ob, Vc, MPEG
Notharchus ordii (Cassin, 1851)	Brown-banded Puffbird	X					Vc, Gr
Notharchus tectus (Boddaert, 1783)	Pied Puffbird	X					Ob, Vc
Bucco tamatia Gmelin, 1788	Spotted Puffbird	X					Ob, Vc, Gr, MPEG
Bucco capensis Linnaeus, 1766	Collared Puffbird	X					Ob, Vc
Nystalus striolatus (Pelzeln, 1856)	Striolated Puffbird	X					Vc
Malacoptila rufa (Spix, 1824)	Rufous-necked Puffbird	X	X		X	X	Ob, Vc, MPEG
Monasa nigrifrons (Spix, 1824)	Black-fronted Nunbird		X		X		Ob, Vc, Gr, MPEG
Monasa morphoeus (Hahn and Küster, 1823)	White-fronted Nunbird	X					Ob, Vc, Gr, MPEG
Chelidoptera tenebrosa (Pallas, 1782)	Swallow-winged Puffbird	X		X	X	X	Ob, Vc
Piciformes Meyer and Wolf, 1810							
Capitonidae Bonaparte, 1838							
Capito dayi Cherrie, 1916	Black-girdled Barbet	X					Ob, Vc, Gr
Capito brunneipectus Chapman, 1921	Brown-chested Barbet	X					Ob, Vc, Gr, MPEG
Ramphastidae Vigors, 1825							
Ramphastos toco Statius Muller, 1776	Toco Toucan		X				Ob
Ramphastos tucanus Linnaeus, 1758	White-throated Toucan	X	X		X	X	Ob, Vc, Gr, MPEG
Ramphastos vitellinus Lichtenstein, 1823	Channel-billed Toucan	X	X			X	Ob, Vc, Gr, MPEG
Selenidera gouldii (Natterer, 1837)	Gould's Toucanet	X					Ob, Vc, Gr, MPEG
Pteroglossus inscriptus Swainson, 1822	Lettered Aracari	X					Ob, Vc, Gr
Pteroglossus bitorquatus Vigors, 1826	Red-necked Aracari	X					Ob, Vc, Gr

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Pteroglossus aracari (Linnaeus, 1758)	Black-necked Aracari	X	X		X	X	Ob, Vc, Gr, MPEG
Picidae Leach, 1820							
Picumnus aurifrons Pelzeln, 1870	Bar-breasted Piculet	X					Ob, Vc, Gr
Picumnus varzeae Snethlage, 1912	Varzea Piculet		X				Ob, Vc, MPEG
Picumnus cirratus Temminck, 1825	White-barred Piculet		X				Ob, Vc, Gr
Melanerpes cruentatus (Boddaert, 1783)	Yellow-tufted Woodpecker	X				X	Ob, Vc, Gr
Veniliornis affinis (Swainson, 1821)	Red-stained Woodpecker	X					Ob, Vc
Veniliornis passerinus (Linnaeus, 1766)	Little Woodpecker	X				X	Ob
Piculus flavigula (Boddaert, 1783)	Yellow-throated Woodpecker	X					Ob, Vc, Gr
Piculus chrysochloros (Vieillot, 1818)	Golden-green Woodpecker	X					Vc
Colaptes punctigula (Boddaert, 1783)	Spot-breasted Woodpecker		X				Ob, Vc, MPEG
Celeus grammicus (Natterer and Malherbe, 1845)	Scaly-breasted Woodpecker	X					Ob, Vc, Gr, MPEG
Celeus elegans (Statius Muller, 1776)	Chestnut Woodpecker	X					Ob, Vc, Gr
Celeus flavescens (Gmelin, 1788)	Blond-crested Woodpecker		X				Ob, Vc, MPEG
Celeus flavus (Statius Muller, 1776)	Cream-colored Woodpecker	X	X	X	X	X	Ob, Vc
Celeus torquatus (Boddaert, 1783)	Ringed Woodpecker	X				X	Ob, Vc, Gr, MPEG
Dryocopus lineatus (Linnaeus, 1766)	Lineated Woodpecker	X	X	X	X	X	Ob, Vc, Gr
Campephilus rubricollis (Boddaert, 1783)	Red-necked Woodpecker	X				X	Ob, Vc, Gr
Campephilus melanoleucos (Gmelin, 1788)	Crimson-crested Woodpecker		X				Ob, Vc, Gr
Passeriformes Linnaeus, 1758							
Thamnophilidae Swainson, 1824							
Terenura spodioptila Sclater and Salvin, 1881	Ash-winged Antwren	X					Ob, Vc, Gr
Myrmornis torquata (Boddaert, 1783)	Wing-banded Antbird	X					Ob, Vc, Gr, MPEG
Microrhopias quixensis (Cornalia, 1849)	Dot-winged Antwren	X				X	Ob, Vc, Gr, MPEG
Myrmeciza atrothorax (Boddaert, 1783)	Black-throated Antbird	X					Ob, Vc, Gr
Epinecrophylla leucophthalma (Pelzeln, 1868)	White-eyed Antwren	X					Ob, Vc, Gr, MPEG
Epinecrophylla ornata (Sclater, 1853)	Ornate Antwren	X					Ob, Vc, Gr
Myrmotherula brachyura (Hermann, 1783)	Pygmy Antwren	X					Ob, Vc, Gr
Myrmotherula sclateri Snethlage, 1912	Sclater's Antwren	X					Ob, Vc, Gr, MPEG
Myrmotherula hauxwelli (Sclater, 1857)	Plain-throated Antwren	X				X	Ob, Vc, Gr, MPEG
Myrmotherula axillaris (Vieillot, 1817)	White-flanked Antwren	X					Ob, Vc, Gr, MPEG
Myrmotherula longipennis Pelzeln, 1868	Long-winged Antwren	X					Ob, Vc, Gr, MPEG
Myrmotherula Iheringi Snethlage, 1914	Ihering's Antwren	X					Ob, Vc, Gr, MPEG
Myrmotherula menetriesii (d'Orbigny, 1837)	Gray Antwren	X					Ob, Vc, Gr
Myrmotherula assimilis Pelzeln, 1868	Leaden Antwren		X				Ob, Vc, Gr, MPEG
Formicivora grisea (Boddaert, 1783)	White-fringed Antwren	X				X	Ob, Vc, Gr
Thamnomanes saturninus (Pelzeln, 1878)	Saturnine Antshrike	X				X	Ob, Vc, Gr, MPEG
Thamnomanes caesius (Temminck, 1820)	Cinereous Antshrike	X				X	Ob, Vc, Gr, MPEG
Dichrozona cincta (Pelzeln, 1868)	Banded Antbird	x					Ob, Vc, Gr
Herpsilochmus rufimarginatus (Temminck, 1822)	Rufous-winged Antwren	X					Ob, Vc, Gr
Sakesphorus luctuosus (Lichtenstein, 1823)	Glossy Antshrike		X		X		Ob, Vc, Gr, MPEG
Thamnophilus doliatus (Linnaeus, 1764)	Barred Antshrike	X	X		X	X	Ob, Vc, Gr, MPEG
Thamnophilus schistaceus d'Orbigny, 1835	Plain-winged Antshrike	X				X	Ob, Vc, Gr, MPEG
Thamnophilus aethiops Sclater, 1858	White-shouldered Antshrike	X				X	Ob, Vc, Gr, MPEG
Thamnophilus amazonicus Sclater, 1858	Amazonian Antshrike	X				X	Ob, Vc, Gr
Cymbilaimus lineatus (Leach, 1814)	Fasciated Antshrike	X					Ob, Vc, Gr, MPEG
Taraba major (Vieillot, 1816)	Great Antshrike				X	X	Ob, Vc, Gr
Sclateria naevia (Gmelin, 1788)	Silvered Antbird		X				Ob, Vc, Gr
Schistocichla rufifacies (Hellmayr, 1929)	Rufous-faced Antbird	X			X	X	Ob, Vc, Gr, MPEG
Hylophylax naevius (Gmelin, 1789)	Spot-backed Antbird	X					Ob, Vc, Gr
Hylophylax punctulatus (Des Murs, 1856)	Dot-backed Antbird	X					Ob, Vc, Gr
Myrmoborus leucophrys (Tschudi, 1844)	White-browed Antbird	X			X	X	Ob, Vc, Gr
Myrmoborus lugubris (Cabanis, 1847)	Ash-breasted Antbird		X				Ob, Vc, Gr, MPEG
Myrmoborus myotherinus (Spix, 1825)	Black-faced Antbird	X			X	X	Ob, Vc, Gr, MPEG
Cercomacra cinerascens (Sclater, 1857)	Gray Antbird	X	X			X	Ob, Vc, Gr, MPEG
Cercomacra nigrescens (Cabanis and Heine, 1859)	Blackish Antbird	X					MPEG
Hypocnemis striata (Spix, 1825)	Spix's Warbling-Antbird	X			X	X	Ob, Vc, Gr, MPEG

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Willisornis poecilinotus (Cabanis, 1847)	Scale-backed Antbird	X	X			X	Ob, Vc, Gr, MPEG
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye, 1837)	Black-spotted Bare-eye	X					Ob, Vc, Gr, MPEG
Phlegopsis borbae Hellmayr, 1907	Pale-faced Antbird	X					Ob, Vc, Gr
Rhegmatorhina berlepschi (Snethlage, 1907)	Harlequin Antbird	X					Ob, Vc, Gr, MPEG
Conopophagidae Sclater and Salvin, 1873							
Conopophaga aurita (Gmelin, 1789)	Chestnut-belted Gnateater	X					Vc
Conopophaga melanogaster Ménétriès, 1835	Black-bellied Gnateater	X					Ob, Vc, Gr, MPEG
Grallariidae Sclater and Salvin, 1873							
Grallaria varia (Boddaert, 1783)	Variegated Antpitta	X					Ob, Vc, Gr, MPEG
Hylopezus macularius (Temminck, 1823)	Spotted Antpitta	X					Ob, Vc, Gr
Myrmothera campanisona (Hermann, 1783)	Thrush-like Antpitta	X					Ob, Vc, Gr, MPEG
Rhinocryptidae Wetmore, 1930							
Liosceles thoracicus (Sclater, 1865)	Rusty-belted Tapaculo	X					Vc, Gr, MPEG
Formicariidae Gray, 1840							
Formicarius colma Boddaert, 1783	Rufous-capped Antthrush	X					Ob, Vc, Gr, MPEG
Formicarius analis (d'Orbigny and Lafresnaye, 1837)	Black-faced Antthrush	X				X	Ob, Vc, Gr
Scleruridae Swainson, 1827							
Sclerurus mexicanus Sclater, 1857	Tawny-throated Leaftosser	X				X	Ob, Vc, Gr
Sclerurus rufigularis Pelzeln, 1868	Short-billed Leaftosser	X				X	Vc, Gr, MPEG
Sclerurus caudacutus (Vieillot, 1816)	Black-tailed Leaftosser	X					Vc, Gr, MPEG
Dendrocolaptidae Gray, 1840							
Dendrocincla fuliginosa (Vieillot, 1818)	Plain-brown Woodcreeper	X				X	Ob, Vc, Gr, MPEG
Dendrocincla merula (Lichtenstein, 1829)	White-chinned Woodcreeper	X					Ob, Vc, Gr, MPEG
Deconychura longicauda (Pelzeln, 1868)	Long-tailed Woodcreeper	X					Ob, Vc, Gr, MPEG
Sittasomus griseicapillus (Vieillot, 1818)	Olivaceous Woodcreeper	X					Ob, Vc, Gr, MPEG
Certhiasomus stictolaemus (Pelzeln, 1868)	Spot-throated Woodcreeper	X					Ob, Vc, Gr, MPEG
Glyphorynchus spirurus (Vieillot, 1819)	Wedge-billed Woodcreeper	X	X		X	X	Ob, Vc, Gr, MPEG
Xiphorhynchus ocellatus (Spix, 1824)	Ocellated Woodcreeper	X					Ob, Vc, Gr, MPEG
Xiphorhynchus obsoletus (Lichtenstein, 1820)	Striped Woodcreeper	X					Ob, Vc, Gr, MPEG
Xiphorhynchus guttatus (Lichtenstein, 1820)	Buff-throated Woodcreeper	X				X	Ob, Vc, Gr, MPEG
Campylorhamphus trochilirostris (Lichtenstein, 1820)	Red-billed Scythebill		x				Ob, Vc, Gr, MPEG
Campylorhamphus procurvoides (Lafresnaye, 1850)	Curve-billed Scythebill	x					Ob, Vc, Gr, MPEG
Dendroplex picus (Gmelin, 1788)	Straight-billed Woodcreeper	X				X	Ob, Vc, Gr, MPEG
Dendroplex kienerii (Des Murs, 1855)	Zimmer's Woodcreeper		X		X		Ob, Vc, Gr, MPEG
Lepidocolaptes albolineatus (Lafresnaye, 1845)	Lineated Woodcreeper	X					Ob, Vc, Gr, MPEG
Nasica longirostris (Vieillot, 1818)	Long-billed Woodcreeper		X				Ob, Vc, Gr, MPEG
Dendrexetastes rufigula (Lesson, 1844)	Cinnamon-throated Woodcreeper	X					Ob, Vc, Gr
Dendrocolaptes certhia (Boddaert, 1783)	Amazonian Barred-Woodcreeper	X	X				Ob, Vc, Gr, MPEG
Dendrocolaptes hoffmannsi Hellmayr, 1909	Hoffmanns's Woodcreeper	X					Ob, Vc, Gr, MPEG
Xiphocolaptes promeropirhynchus (Lesson, 1840)	Strong-billed Woodcreeper	X				X	Ob, Vc, Gr, MPEG
Hylexetastes uniformis Hellmayr, 1909	Uniform Woodcreeper	X				X	Ob, Vc, Gr, MPEG
Furnariidae Gray, 1840							
Xenops minutus (Sparrman, 1788)	Plain Xenops	X					Ob, Vc, Gr, MPEG
Xenops rutilans Temminck, 1821	Streaked Xenops	X					Ob, Vc, Gr
Berlepschia rikeri (Ridgway, 1886)	Point-tailed Palmcreeper					X	Ob, Vc, Gr
Furnarius figulus (Lichtenstein, 1823)	Wing-banded Hornero		X				Ob, Vc, MPEG
Furnarius leucopus Swainson, 1838	Pale-legged Hornero		X				Ob, Vc
Furnarius minor Pelzeln, 1858	Lesser Hornero		X				Ob, Vc
Ancistrops strigilatus (Spix, 1825)	Chestnut-winged Hookbill	X					Ob, Vc, Gr
Automolus ochrolaemus (Tschudi, 1844)	Buff-throated Foliage-gleaner	X				X	Ob, Vc, Gr, MPEG
Automolus infuscatus (Sclater, 1856)	Olive-backed Foliage-gleaner	X					Ob, Vc, Gr
Automolus ruftpileatus (Pelzeln, 1859)	Chestnut-crowned Foliage-gleaner	X					Ob, Vc, Gr
Philydor ruficaudatum (d'Orbigny and Lafresnaye, 1838)	Rufous-tailed Foliage-gleaner	X					Ob, Vc, Gr
Philydor erythrocercum (Pelzeln, 1859)	Rufous-rumped Foliage-gleaner	X					Ob, Vc, Gr, MPEG
Philydor erythropterum (Sclater, 1856)	Chestnut-winged Foliage-gleaner	X					Ob, Vc, Gr
Philydor pyrrhodes (Cabanis, 1848)	Cinnamon-rumped Foliage-gleaner	X					Ob, Vc, Gr, MPEG
Certhiaxis cinnamomeus (Gmelin, 1788)	Yellow-chinned Spinetail		X		X		Ob, Vc, MPEG

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Synallaxis albescens Temminck, 1823	Pale-breasted Spinetail		X				Ob, Vc, Gr, MPEG
Synallaxis albigularis Sclater, 1858	Dark-breasted Spinetail		X				Ob, Vc
Synallaxis rutilans Temminck, 1823	Ruddy Spinetail	X					Ob, Vc, Gr, MPEG
Synallaxis gujanensis (Gmelin, 1789)	Plain-crowned Spinetail		X		X		Ob, Vc, Gr, MPEG
Cranioleuca vulpina (Pelzeln, 1856)	Rusty-backed Spinetail		X		X		Ob, MPEG
Pipridae Rafinesque, 1815							
Tyranneutes stolzmanni (Hellmayr, 1906)	Dwarf Tyrant-Manakin	X					Ob, Vc, Gr, MPEG
Pipra aureola (Linnaeus, 1758)	Crimson-hooded Manakin		X				Ob, Vc
Pipra fasciicauda Hellmayr, 1906	Band-tailed Manakin	X					Ob, Vc, MPEG
Pipra rubrocapilla Temminck, 1821	cabeça-encarnada	X				X	Ob, Vc, MPEG
Lepidothrix nattereri (Sclater, 1865)	Red-headed Manakin	X					Ob, Vc, MPEG
Manacus manacus (Linnaeus, 1766)	White-bearded Manakin	X				X	Ob, Vc, MPEG
Heterocercus linteatus (Strickland, 1850)	Flame-crowned Manakin	X	X				Ob, Vc, MPEG
Machaeropterus pyrocephalus (Sclater, 1852)	Fiery-capped Manakin	X					Ob, Vc
Dixiphia pipra (Linnaeus, 1758)	White-crowned Manakin	X					Vc
Chiroxiphia pareola (Linnaeus, 1766)	Blue-backed Manakin	X					
Tityridae Gray, 1840							
Onychorhynchus coronatus (Statius Muller, 1776)	Royal Flycatcher	X				X	Ob, MPEG
Terenotriccus erythrurus (Cabanis, 1847)	Ruddy-tailed Flycatcher	X					Ob, Vc, MPEG
Myiobius barbatus (Gmelin, 1789)	Whiskered Flycatcher	X				X	Ob, Vc, MPEG
Schiffornis turdina (Wied, 1831)	Thrush-like Schiffornis	X				X	Ob, Vc, Gr, MPEG
Laniocera hypopyrra (Vieillot, 1817)	Cinereous Mourner	X					Ob, Vc, Gr, MPEG
Tityra cayana (Linnaeus, 1766)	Black-tailed Tityra	X	X	X	X	X	Ob, Vc
Pachyramphus viridis (Vieillot, 1816)	Green-backed Becard	X				X	Ob, Vc
Pachyramphus rufus (Boddaert, 1783)	Cinereous Becard		X				Ob, Vc
Pachyramphus castaneus (Jardine and Selby, 1827)	Chestnut-crowned Becard	X				X	Ob, Vc, Gr
Pachyramphus polychopterus (Vieillot, 1818)	White-winged Becard	X					Ob, Vc, Gr
Pachyramphus marginatus (Lichtenstein, 1823)	Black-capped Becard	X	X	X	X	X	Ob, Vc, Gr, MPEG
Pachyramphus surinamus (Linnaeus, 1766)	Glossy-backed Becard	X					Ob, Vc, Gr
Pachyramphus minor (Lesson, 1830)	Pink-throated Becard	X					Ob, Vc, Gr
Cotingidae Bonaparte, 1849							
Lipaugus vociferans (Wied, 1820)	Screaming Piha	X	X			X	Ob, Vc, Gr, MPEG
Gymnoderus foetidus (Linnaeus, 1758)	Bare-necked Fruitcrow	X					Ob
Xipholena lamellipennis (Lafresnaye, 1839)	White-tailed Cotinga	X					Ob, MPEG
Cotinga cotinga (Linnaeus, 1766)	Purple-breasted Cotinga	X					Ob, Vc
Cotinga cayana (Linnaeus, 1766)	Spangled Cotinga	X					Ob, MPEG
Querula purpurata (Statius Muller, 1776)	Purple-throated Fruitcrow	X			X	X	Ob, Vc, Gr
Phoenicircus carnifex (Linnaeus, 1758)	Guianan Red-Cotinga	X					Ob, Vc, Gr, MPEG
Incertae sedis							
Platyrinchus saturatus Salvin and Godman, 1882	Cinnamon-crested Spadebill	X					Ob, Vc, Gr, MPEG
Platyrinchus coronatus Sclater, 1858	Golden-crowned Spadebill	X				X	Ob, Vc, Gr
Platyrinchus platyrhynchos (Gmelin, 1788)	White-crested Spadebill	X					Ob, Vc, Gr, MPEG
Piprites chloris (Temminck, 1822)	Wing-barred Piprites	X				X	Ob, Vc, Gr, MPEG
Rhynchocyclidae Berlepsch, 1907							
Mionectes oleagineus (Lichtenstein, 1823)	Ochre-bellied Flycatcher	X					Ob, Vc, Gr
Mionectes macconnelli (Chubb, 1919)	McConnell's Flycatcher	X					Ob, Vc, Gr, MPEG
Corythopis torquatus (Tschudi, 1844)	Ringed Antpipit	X					Ob, Vc, Gr
Rhynchocyclus olivaceus (Temminck, 1820)	Olivaceous Flatbill	X					Vc, Gr
Tolmomyias sulphurescens (Spix, 1825)	Yellow-olive Flycatcher	X					Ob, Vc, Gr
Tolmomyias assimilis (Pelzeln, 1868)	Yellow-margined Flycatcher	X					Ob, Vc, Gr
Tolmomyias poliocephalus (Taczanowski, 1884)	Gray-crowned Flycatcher	X					Ob, Vc, Gr
Tolmomyias flaviventris (Wied, 1831)	Yellow-breasted Flycatcher	X				X	Ob, Vc, Gr, MPEG
Todirostrum maculatum (Desmarest, 1806)	Spotted Tody-Flycatcher		X				Ob, Vc, Gr, MPEG
Todirostrum chrysocrotaphum Strickland, 1850	Yellow-browed Tody-Flycatcher	X				X	Ob, Vc, Gr
Poecilotriccus fumifrons (Hartlaub, 1853)	Smoky-fronted Tody-Flycatcher	X					Ob, Vc, Gr
Poecilotriccus latirostris (Pelzeln, 1868)	Rusty-fronted Tody-Flycatcher		X				Ob, Vc, Gr
Myiornis ecaudatus (d'Orbigny and Lafresnaye, 1837)	Short-tailed Pygmy-Tyrant	X					Ob, Vc, Gr, MPEG

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Hemitriccus minor (Snethlage, 1907)	Snethlage's Tody-Tyrant	X					Ob, Vc, Gr, MPEG
Hemitriccus striaticollis (Lafresnaye, 1853)	Stripe-necked Tody-Tyrant	X					Ob, Vc, Gr
Hemitriccus minimus (Todd, 1925)	Zimmer's Tody-Tyrant	X					Ob, Vc, Gr
Tyrannidae Vigors, 1825							
Zimmerius gracilipes (Sclater and Salvin, 1868)	Slender-footed Tyrannulet	X				X	Ob, Vc, Gr
Ornithion inerme Hartlaub, 1853	White-lored Tyrannulet	X					Ob, Vc, Gr
Camptostoma obsoletum (Temminck, 1824)	Southern Beardless-Tyrannulet	X	X	X	X	X	Ob, Vc, Gr
Elaenia flavogaster (Thunberg, 1822)	Yellow-bellied Elaenia	X					Ob, Vc, Gr, MPEG
Elaenia parvirostris Pelzeln, 1868	Small-billed Elaenia	X				X	Ob, Vc, Gr, MPEG
Elaenia cristata Pelzeln, 1868	Plain-crested Elaenia					X	Ob, Vc, Gr
Myiopagis gaimardii (d'Orbigny, 1839)	Forest Elaenia	X					Ob, Vc, Gr
Myiopagis flavivertex (Sclater, 1887)	Yellow-crowned Elaenia		X		X		Ob, Vc, Gr, MPEG
Tyrannulus elatus (Latham, 1790)	Yellow-crowned Tyrannulet	X					Ob, Vc, Gr
Phaeomyias murina (Spix, 1825)	Mouse-colored Tyrannulet	X					Ob, Vc, Gr
Attila cinnamomeus (Gmelin, 1789)	Cinnamon Attila		X				Ob, Vc, Gr, MPEG
Attila bolivianus Lafresnaye, 1848	Dull-capped Attila		X				Ob, Vc, Gr, MPEG
Attila spadiceus (Gmelin, 1789)	Bright-rumped Attila	X			X	X	Ob, Vc, Gr, MPEG
Legatus leucophaius (Vieillot, 1818)	Piratic Flycatcher	X	X	X	X	X	Ob, Vc, Gr
Ramphotrigon ruficauda (Spix, 1825)	Rufous-tailed Flatbill	X					Ob, Vc, Gr, MPEG
Myiarchus tuberculifer (d'Orbigny and Lafresnaye, 1837)	Dusky-capped Flycatcher	X				X	Ob, Vc, Gr
Myiarchus Swainsoni Cabanis and Heine, 1859	Swainson's Flycatcher	X	X	X	X	X	Ob, Vc, Gr
Myiarchus ferox (Gmelin, 1789)	Short-crested Flycatcher	X	X	X	X	X	Ob, Vc, Gr
Sirystes sibilator (Vieillot, 1818)	Sirystes	X					Ob, Vc, Gr
Rhytipterna simplex (Lichtenstein, 1823)	Grayish Mourner	X					Ob, Vc, Gr, MPEG
Pitangus sulphuratus (Linnaeus, 1766)	Great Kiskadee	X	X	X	X	X	Ob, Vc, Gr
Myiodynastes maculatus (Statius Muller, 1776)	Streaked Flycatcher	X	X	X	X	X	Ob, Vc, Gr, MPEG
Tyrannopsis sulphurea (Spix, 1825)	Sulphury Flycatcher	X					Ob, Vc, Gr
Megarynchus pitangua (Linnaeus, 1766)	Boat-billed Flycatcher		X		X	X	Ob, Vc, Gr
Myiozetetes cayanensis (Linnaeus, 1766)	Rusty-margined Flycatcher			X		X	Ob, Vc, Gr
Myiozetetes similis (Spix, 1825)	Social Flycatcher	X	X	X	X	X	Ob, Vc, Gr
Myiozetetes luteiventris (Sclater, 1858)	Dusky-chested Flycatcher	X				X	Ob, Vc, Gr, MPEG
Tyrannus melancholicus Vieillot, 1819	Tropical Kingbird	X	X			X	Ob, Vc, Gr
Tyrannus savana Vieillot, 1808	Fork-tailed Flycatcher		X			X	Ob, Vc, Gr, MPEG
Empidonomus varius (Vieillot, 1818)	Variegated Flycatcher		X		X	X	Ob, Vc, Gr, MPEG
Conopias parvus (Pelzeln, 1868)	Yellow-throated Flycatcher	X					Ob, Vc, Gr
Cnemotriccus fuscatus (Wied, 1831)	Fuscous Flycatcher	X	X		X	X	Ob, Vc, Gr, MPEG
Contopus virens (Linnaeus, 1766)	Eastern Wood-Pewee		X				Ob
Contopus nigrescens (Sclater and Salvin, 1880)	Blackish Pewee	X					Vc, Gr
Knipolegus poecilocercus (Pelzeln, 1868)	Amazonian Black-Tyrant		X				Ob, MPEG
Vireonidae Swainson, 1837							
Cyclarhis gujanensis (Gmelin, 1789)	Rufous-browed Peppershrike	X	X	X	X	X	Ob, Vc, Gr
Vireolanius leucotis (Swainson, 1838)	Slaty-capped Shrike-Vireo	X					Ob, Vc, Gr
Vireo olivaceus (Linnaeus, 1766)	Red-eyed Vireo	X	X		X	X	Ob, Vc, Gr
Hylophilus semicinereus Sclater and Salvin, 1867	Gray-chested Greenlet	X				X	Ob, Vc, Gr, MPEG
Hylophilus pectoralis Sclater, 1866	Ashy-headed Greenlet		X				Ob, Vc, Gr
Hylophilus muscicapinus Sclater and Salvin, 1873	Buff-cheeked Greenlet	X					Ob, Vc, Gr, MPEG
Hylophilus ochraceiceps Sclater, 1860	Tawny-crowned Greenlet	X				X	Ob, Vc, Gr, MPEG
Hirundinidae Rafinesque, 1815							
Stelgidopteryx ruficollis (Vieillot, 1817)	Southern Rough-winged Swallow		X	X		X	Ob
Progne tapera (Vieillot, 1817)	Brown-chested Martin					X	Ob
Progne subis (Linnaeus, 1758)	Purple Martin		X	X		X	Ob, MPEG
Progne chalybea (Gmelin, 1789)	Gray-breasted Martin		X	X		X	Ob
Tachycineta albiventer (Boddaert, 1783)	White-winged Swallow		X	X		X	Ob
Troglodytidae Swainson, 1831							
Microcerculus marginatus (Sclater, 1855)	Scaly-breasted Wren	X					Ob, Vc, Gr
Odontorchilus cinereus (Pelzeln, 1868)	Tooth-billed Wren	X					Ob, Vc, Gr
Troglodytes musculus Naumann, 1823	Southern House Wren	X	X	X	X	X	Ob, Vc, Gr

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Campylorhynchus turdinus (Wied, 1831)	Thrush-like Wren	X				X	Ob, Vc, Gr, MPEG
Pheugopedius genibarbis (Swainson, 1838)	Moustached Wren	X					Ob, Vc, Gr, MPEG
Cantorchilus leucotis (Lafresnaye, 1845)	Buff-breasted Wren		X			X	Ob, Vc, Gr
Cyphorhinus arada (Hermann, 1783)	Musician Wren	X					Ob, Vc, Gr, MPEG
Donacobiidae Aleixo and Pacheco, 2006							
Donacobius atricapilla (Linnaeus, 1766)	Black-capped Donacobius	X					Ob, Vc, MPEG
Polioptilidae Baird, 1858							
Ramphocaenus melanurus Vieillot, 1819	Long-billed Gnatwren	X	X				Ob, Vc, Gr
Polioptila plumbea (Gmelin, 1788)	Tropical Gnatcatcher		X				Ob, Vc
Polioptila paraensis Todd, 1937	Para Gnatcatcher	X					Ob, Vc
Turdidae Rafinesque, 1815							
Turdus hauxwelli Lawrence, 1869	Hauxwell's Thrush	X					Ob, Vc, Gr, MPEG
Turdus lawrencii Coues, 1880	Lawrence's Thrush	X					Ob, Vc, Gr
Turdus albicollis Vieillot, 1818	White-necked Thrush	X				X	Ob, Vc, Gr, MPEG
Coerebidae d'Orbigny and Lafresnaye, 1838							
Coereba flaveola (Linnaeus, 1758)	Bananaquit	X	X	X	X	X	Ob, Vc, Gr
Thraupidae Cabanis, 1847							
Saltator grossus (Linnaeus, 1766)	Slate-colored Grosbeak	X				X	Ob, Vc, Gr, MPEG
Saltator maximus (Statius Muller, 1776)	Buff-throated Saltator	X				X	Ob, Vc, Gr
Saltator coerulescens Vieillot, 1817	Grayish Saltator	X					Ob, Vc, Gr, MPEG
Parkerthraustes humeralis (Lawrence, 1867)	Yellow-shouldered Grosbeak	x					Ob, Vc, Gr, MPEG
Lamprospiza melanoleuca (Vieillot, 1817)	Red-billed Pied Tanager	X					Ob, Vc, Gr, MPEG
Nemosia pileata (Boddaert, 1783)	Hooded Tanager	X			X	X	Ob, Vc, MPEG
Ramphocelus carbo (Pallas, 1764)	Silver-beaked Tanager	X	X	X	X	X	Ob, Vc, Gr
Lanio cristatus (Linnaeus, 1766)	Flame-crested Tanager	X					Ob, Vc, MPEG
Lanio versicolor (d'Orbigny and Lafresnaye, 1837)	White-winged Shrike-Tanager	X					Ob, Vc, Gr
Lanio surinamus (Linnaeus, 1766)	Fulvous-crested Tanager	X					Ob, Vc
Lanio penicillatus (Spix, 1825)	Gray-headed Tanager	X					Ob, Vc, Gr
Tangara gyrola (Linnaeus, 1758)	Bay-headed Tanager	X					Ob, Vc, MPEG
Tangara mexicana (Linnaeus, 1766)	Turquoise Tanager	X				X	Ob, Vc
Tangara chilensis (Vigors, 1832)	Paradise Tanager	X					Ob, Vc, MPEG
Tangara velia (Linnaeus, 1758)	Opal-rumped Tanager	X					Ob, Vc
Tangara punctata (Linnaeus, 1766)	Spotted Tanager	X					Ob, Vc
Tangara episcopus (Linnaeus, 1766)	Blue-gray Tanager	X	X	X	X	X	Ob, Vc, Gr
Tangara palmarum (Wied, 1823)	Palm Tanager	X	X	X	X	X	Ob, Vc, Gr
Tangara cayana (Linnaeus, 1766)	Burnished-buff Tanager	X			X	X	Ob, Vc
Paroaria gularis (Linnaeus, 1766)	Red-capped Cardinal			X		X	Ob, Vc
Cyanicterus cyanicterus (Vieillot, 1819)	Blue-backed Tanager	X					Vc, Gr
Tersina viridis (Illiger, 1811)	Swallow Tanager	X				X	Ob, Vc
Dacnis cayana (Linnaeus, 1766)	Blue Dacnis	X	X	X	X	X	Ob, Vc
Cyanerpes nitidus (Hartlaub, 1847)	Short-billed Honeycreeper	X					Ob, Vc
Cyanerpes caeruleus (Linnaeus, 1758)	Purple Honeycreeper	X					Vc, Gr
Cyanerpes cyaneus (Linnaeus, 1766)	Red-legged Honeycreeper	X					Ob, Vc
Chlorophanes spiza (Linnaeus, 1758)	Green Honeycreeper	X					Ob, Vc
Hemithraupis guira (Linnaeus, 1766)	Guira Tanager	X			X	X	Ob, Vc, Gr, MPEG
Hemithraupis flavicollis (Vieillot, 1818)	Yellow-backed Tanager	X					Ob, Vc
Conirostrum bicolor (Vieillot, 1809)	Bicolored Conebill		X				Ob, Vc, MPEG
Emberizidae Vigors, 1825							
Ammodramus aurifrons (Spix, 1825)	Yellow-browed Sparrow					X	Ob, Vc, MPEG
Sicalis columbiana Cabanis, 1851	Orange-fronted Yellow-Finch		X				Ob, Vc
Volatinia jacarina (Linnaeus, 1766)	Blue-black Grassquit		X			X	Ob, Vc
Sporophila americana (Gmelin, 1789)	Wing-barred Seedeater		X			X	Ob, Vc, Gr
Sporophila lineola (Linnaeus, 1758)	Lined Seedeater		X				Ob, Vc
Sporophila castaneiventris Cabanis, 1849	Chestnut-bellied Seedeater		X			X	MPEG
Sporophila angolensis (Linnaeus, 1766)	Chestnut-bellied Seed-Finch	X				X	Ob, Vc, Gr
Cardinalidae Ridgway, 1901							
Habia rubica (Vieillot, 1817)	Red-crowned Ant-Tanager	X				X	Ob, Vc, Gr, MPEG

Name of Taxon	English Name	Environment					Record
		TF	VZ	PRA	IG	AA	
Granatellus Pelzelni Sclater, 1865	Rose-breasted Chat	X					Ob, Vc, Gr
Caryothraustes canadensis (Linnaeus, 1766)	Yellow-green Grosbeak	X					Ob, Vc, Gr
Cyanoloxia cyanoides (Lafresnaye, 1847)	Blue-black Grosbeak	X				X	Ob, Vc, Gr
Parulidae Wetmore, Friedmann, Lincoln, Miller, Peters, van Rossem, Van Tyne and Zimmer 1947							
Geothlypis aequinoctialis (Gmelin, 1789)	Masked Yellowthroat	X					Ob, Vc, MPEG
Icteridae Vigors, 1825							
Psarocolius viridis (Statius Muller, 1776)	Green Oropendola	X				X	Ob, Vc, Gr, MPEG
Psarocolius decumanus (Pallas, 1769)	Crested Oropendola	X			X	X	Ob, Vc, Gr
Psarocolius bifasciatus (Spix, 1824)	Olive Oropendola	X					Ob, Vc, Gr
Cacicus cela (Linnaeus, 1758)	Yellow-rumped Cacique	X	X	X	X	X	Ob, Vc, Gr
Icterus cayanensis (Linnaeus, 1766)	Epaulet Oriole	X	X				Ob, Vc, Gr, MPEG
Icterus jamacaii (Gmelin, 1788)	Campo Troupial	X					Ob, Vc
Gymnomystax mexicanus (Linnaeus, 1766)	Oriole Blackbird		X				Ob, Vc
Gnorimopsar chopi (Vieillot, 1819)	Chopi Blackbird		X				Ob, Vc, Gr
Chrysomus icterocephalus (Linnaeus, 1766)	Yellow-hooded Blackbird		X				Ob, Vc
Molothrus bonariensis (Gmelin, 1789)	Shiny Cowbird		X				Ob, Vc, Gr, MPEG
Sturnella militaris (Linnaeus, 1758)	Red-breasted Blackbird		X			X	Ob, Vc, Gr, MPEG
Fringillidae Leach, 1820							
Euphonia chlorotica (Linnaeus, 1766)	Purple-throated Euphonia	X				X	Ob, Vc, Gr
Euphonia chrysopasta Sclater and Salvin, 1869	Golden-bellied Euphonia	X					Ob, Vc, Gr, MPEG
Euphonia rufiventris (Vieillot, 1819)	Rufous-bellied Euphonia	X					Ob, Vc, Gr

Revista Brasileira de Ornitologia, 19(2), 154-166
Junho de 2011

ARTIGO

Avifaunal inventory of the Floresta Nacional de Pau-Rosa, Maués, state of Amazonas, Brazil

Sidnei de Melo Dantas[1,2], Maya Sonnenschein Faccio[1,3] and Maria de Fátima Lima[1,4]

[1.] Museu Paraense Emilio Goeldi, Coordenação de Zoologia. Avenida Perimetral, 1.901, Terra Firme, CEP 66077-830, Belém, PA, Brasil.
[2.] E-mail: smdantas@yahoo.com
[3.] E-mail: mayasonnen@yahoo.com
[4.] E-mail: flima@museu-goeldi.br

Recebido em 19/02/2011. Aceito em 30/04/2011.

RESUMO: Levantamento avifaunístico da Floresta Nacional de Pau-Rosa, Maués, Amazonas, Brasil. A Floresta Nacional (Flona) de Pau-Rosa localiza-se na Área de Endemismo Rondônia, considerada uma das mais importantes para a conservação das aves da Amazônia. Várias espécies só são encontradas nessa região, e há várias outras que são novas para a ciência. No presente trabalho, são apresentados os resultados de uma expedição de levantamento da avifauna da Flona, realizada entre 06 de fevereiro e 16 de março de 2009. O levantamento foi feito através de censos por redes de neblina, censos acústicos/visuais, e observações casuais, principalmente em florestas de terra firme, mas uma área de campina foi também amostrada. Foram registradas 269 espécies de aves na região. Seis espécies são endêmicas do Brasil, e não foram registradas espécies ameaçadas de extinção. As curvas de rarefação dos censos não estabilizaram, o que indica que o número de espécies para a região deve aumentar significativamente, em excursões futuras. A grande diversidade de aves da região se deve em grande parte à diversidade de habitats, e ambientes como as campinas e igapós, pouco amostrados nesse estudo, devem ser mais explorados futuramente.

PALAVRAS-CHAVE: Levantamento; Avifauna; Flona de Pau-Rosa; Endemismos.

ABSTRACT: Avifaunal inventory of the Floresta Nacional de Pau-Rosa, Maués, state of Amazonas, Brazil. The Floresta Nacional (Flona) de Pau-Rosa is located in the Rondônia area of endemism, one of the most important regions for conservation of Amazonian birds. Several are new to science. The results of an inventory of Flona de Pau-Rosa avifauna, conducted between February 6 and March 16, 2009, are presented here. The avifaunal inventory was done by mist-net capture, acoustic/visual censuses, and by occasional observations, mainly in '*terra firme*' forest, but also in one *campina* area. Two hundred and sixty nine species of birds were documented, six of which are endemic to Brazil, and no threatened species were found. Rarefaction curves did not stabilize, which means that we did not find all of the species at this site and that future work will increase the number of species known from the area. The great bird diversity in Flona is due partly to substantial habitat diversity. Habitats like 'campinas' and *igapós*, poorly explored in this study, must receive much more attention in future studies.

KEY-WORDS: Inventory; Avifauna; Flona de Pau-Rosa; Endemism.

The Rondônia area of endemism, comprised of the area between the Madeira and Tapajós rivers is one of the least scientifically explored areas of Brazilian Amazonia (Cohn-Haft *et al.* 2007). For this reason, it is considered a priority area for avifaunal conservation (Oren and Albuquerque 1991). Any given site in the region has been found to be highly speciose with more than 400, and most likely exceeding 500, species per site (Oren and Parker 1997; Cohn-Haft *et al.* 2007; Aleixo and Poletto 2007; Whitaker 2009). Many bird species are endemic to this area, such as *Capito brunneipectus, Rhegmatorhina berlepschi* and *Skutchia borbae.* Furthermore, there are some species only found in this area that have not yet been described (Cohn-Haft *et al.* 2007). Several studies indicate that the distribution of such species is not uniform within this area, with many tributaries of the Madeira River acting as barriers, restricting gene flow and providing the formation of small areas of endemism (Cohn-Haft *et al.* 2007; Roosmalen *et al.* 1998, 2000; Whitaker 2009).

Moreover, patches of open vegetation, which are dominant in the Madeira-Tapajós interfluvium, increase the region's ecological complexity, and include areas such as 'campinas' and *cerrados.* These are dispersed in the Madeira-Tapajós interfluvium as well in *terra firme, igapó* and *várzea* forests. Each of these ecosystems is home to specialized species, dramatically increasing local species richness (Aleixo and Poletto 2007; Cohn-Haft *et al.* 2007). However, there are very few studies on the avifauna of these non-forest areas (Henriques and Oren 1997; Silva *et al.* 1997; Sanaiotti and Cintra 2001).

Many Conservation Units (UCs) were created in the Madeira-Tapajós interfluvium to promote the rational

use of natural resources and the conservation of biodiversity. Flona de Pau-Rosa, located in the municipalities of Maués and Nova Olinda do Norte in the state of Amazonas, is comprised of almost one million hectares of *terra firme*, *igapó* and *campina* habitats. These habitats are important for the conservation of local biodiversity, yet are nearly scientifically unknown as well. A scientific expedition was conducted between February and March 2009, to characterize the biological and socioeconomic conditions of the region. The results of the avifaunal inventory compiled are presented in this paper.

Study Area

The 947,520 ha Floresta Nacional (Flona) do Pau-Rosa, created on August 7, 2001, is located between the Madeira and Tapajós rivers, in the Brazilian state of Amazonas. It lies mostly in the municipality of Maués, with a small part (13,400 ha) in Nova Olinda do Norte. Pau-Rosa is delimited by the Paraconi River and Nova Olinda do Norte to the northwest, by the Flota Maués and the Andirá-Marau indigenous reserve to the north, by the PARNA Amazônia and Flona Amana to the west, and by the Abacaxis River to the east and south. The main vegetation type is a subdivision of *terra firme* forest called tropical lowland rainforest, and the next most common vegetation type is alluvial forest. There are also small patches of *campina* distributed in Flona.

The avifaunal inventory was conducted from February 16th to March 6th, 2009, at six localities along the Paraconi River: Caiaué, Osório, Fortaleza, Cacoal, São Tomé and Santa Tereza (Table 1).

In Caiaué one area of *campina* was sampled. It consisted of open, shrubby or low-height tree vegetation, surrounded by *terra firme* forest and crops. Part of the *campina* was in the process of regenerating after a fire of anthropogenic origin. In the other localities, we sampled only *terra firme* forest. Sites sampled in lowland tropical rainforest had a mean height of 25-30 mts. There were two main types of forest: one with dense undergrowth, and the other with open undergrowth with many understory palms (Arecaceae). These habitat types could be found in the same areas, forming a mosaic along with partially flooded areas. Other vegetation types, such as a type of forest that periodically floods (*igapó*), and bamboo patches, where not sampled.

TABLE 1: Coordinates of localities visited.

Locality	Latitude	Longitude
Caiaué	S04°01'37.6"	W58°26'05.6"
Osório	S03°49'24.0"	W58°15'00.4"
Fortaleza	S03°56'46.0"	W58°27'22.0"
Cacoal	S03°56'04.3"	W58°26'47.9"
São Tomé	S03°54'25.2"	W58°24'06.5"
Santa Tereza	S03°54'52.0"	W58°17'41.0"

METHODS

We used the following methods to compile the inventory of Flona de Pau-Rosa avifauna:

Mist-net censuses

Twenty 12 × 2.5 m mist-nets were opened at four points in Flona, three in *terra firme*, and one in a small *campina* patch located among the Caiaué community. Nets were opened from 6:00 to 12:00, and checked each hour. Some individual birds were weighed and released, whereas the scientifically most important individuals were collected and deposited in Museu Paraense Emílio Goeldi's ornithological collection.

Acoustic/Visual censuses

The acoustic/visual census was done in five areas of Flona de Pau-Rosa. The 20 species method was used in the census (Mackinnon and Phillipps, 1993). It consists of walking along a trail at a non-standard speed, and recording individuals heard or seen. The censuses were conducted from 6:00 to 9:00 am, using an 8 × 40 Nikon binocular for visual identification, a Sennheiser ME66 directional microphone, and a Marantz PMD670 digital recorder for documenting bird songs.

Qualitative observations and species list

Besides standardized censuses, we kept notes on opportunistic, qualitative observations, to increase the species list. The species list was gathered from all records and by all methods described above. The taxonomic order of the list follows the CBRO (2009). The species were classified according to habitat, feeding habits, habitat specificity, and abundance. Abundance was calculated for the registered species by standardized censuses, according to a rarity index that calculates according to the inverse of richness (Rabinowitz *et al.* 1986). Species were considered rare when their relative abundance value (number of individuals divided by total number of individuals) was smaller than that of the index. Rarefaction curves were made to evaluate the efficiency of the effort used, separately for net and acoustic/visual censuses. Curves were made using the Program PAST v. 1.79 (Hammer *et al.* 2001). To measure the diversity of the sampled areas, we used the Shannon-Wiener Diversity Index (H') calculated by PAST v. 1.79 (Hammer *et al.* 2001). To verify the similarity between bird communities in the sampled areas we used the Morisita-Horn

Index calculated by Program Estimate SWin800 (Colwell 2004). Data from the mist-net census from *campina* in Taracuá were not used in the calculation of this index due to uneven sampling.

RESULTS

During the expedition 269 species of birds from 51 families were documented in Flona de Pau-Rosa (Appendix). The richest family was Tyrannidae (34 species), followed by Thamnophilidae (32 species). Most species were restricted to *terra firme* forest (139 species), and were primarily insectivores (131 species), such as Thamnophilidae (antbirds) and Bucconidae (puffbirds). In general, many of the species detected were members of mixed-flocks or were ant-following species. Other documented species include raptors (Falconiformes and Strigiformes) and frugivores, such as tinamous (Tinamidae) and parrots (Psittacidae), or seed-eaters such as finches (Emberizidae). Because few riverine and periodically flooded areas were visited, the number of species restricted to those habitats documented in this study was low (20 species), which was also true for typical *campina* species (10 species). Six documented species are endemic to Brazil: *Pyrilia aurantiocephala, Capito brunneipectus, Sakesphorus luctuosus, Rhegmatorhina berlepschi, Skutchia borbae* and *Automolus paraensis.* No threatened species were documented.

Rarity Index estimation was done for 146 species, three of which (*Capito brunneipectus, Rhegmatorhina berlepschi* and *Skutchia borbae*) had the lowest possible index value (1), being rare in all factors of rarity. Sixty species were considered rare for at least two of the factors, and 83 were common for at least two of these factors.

In 720 mist-net hours, 132 individuals from 54 species were captured. The most abundant were: *Glyphorynchus spirurus, Willisornis poecilinotus, Thamnomanes saturninus, Dendrocincla merula* and *Pipra rubrocapilla.* These species were responsible for 28% of the captures. Most captured individuals (83%) were understory insectivorous species. Of these captured species, 32 were considered rare according to the richness inverse. We collected specimens of 111 individuals of 52 species.

In 19 hours of acoustic/visual census, we observed 894 individuals of 139 species, plus 115 non-identified individuals. The most abundant species were: *Cercomacra cinerascens, Lipaugus vociferans, Brotogeris chrysopterus, Pyrrhura perlata, Tyranneutes stolzmanni, Patagioenas plumbea, Ramphastos tucanus* and *Amazona farinosa.* Together these taxa were responsible for 22% of the total documented. Of the individual birds documented, 423 were insectivorous and 246 were frugivorous. Eighty-nine of the species registered were considered rare. A high number of rare species is expected in mature tropical rain forests (Stouffer and Bierregaard Jr. 1995; Henriques 2005). One hundred and five species were registered only in the acoustic/visual censuses and 11 only in the mist-net censuses.

TABLE 2: Morisita-Horn Index values for the mist-net census.

Localities (communities)	Santa Tereza	São Tomé
Fortaleza	0.326	0.537
Santa Tereza		0.337

TABLE 3: Morisita-Horn Index values for the acoustic/visual census.

Localities (communities)	Fortaleza	Osório	Santa Tereza	São Tomé
Cacoal	0.778	0.804	0.691	0.802
Fortaleza		0.763	0.730	0.776
Osório			0.755	0.756
Santa Tereza	0.730	0.755		0.698

The rarefaction curves did not reach asymptote (Figure 1). Values of the Shannon-Wiener Index for mist-net and acoustic/visual censuses were 3.577 and 4.491, respectively. The Morisita-Horn Index values are found in Tables 2 and 3.

Species Accounts

Aratinga pertinax

This small parakeet is sparsely distributed in the Amazon basin and inhabits open vegetation formations. Principally, it is found north of the Amazon River, and a disjunct subspecies (*A. p. paraensis*) is known south of the Amazon between the Xingu and Tapajós rivers (Pacheco and Olmos 2005). Several individuals were observed west and east of the Madeira River (Cohn-Haft *et al.* 2007), but not collected. We observed this species several times in Flona in natural or anthropogenic open areas, such as 'campinas', around small villages on the river banks, in pairs or small flocks. One individual (MPEG 67008) was collected, in a *campina* at the Caiaué community.

Pyrilia aurantiocephala

This Brazilian endemic species, known to occur from the lower Madiera River to the Xingu River, was recently described (Gaban-Lima *et al.* 2002) as a split from its sister species *P. vulturine.* Previously, it had been misidentified as an immature form of *P. vulturina.* It was common along the Paraconi River, where flocks of up to 12 individuals were seen or heard several times.

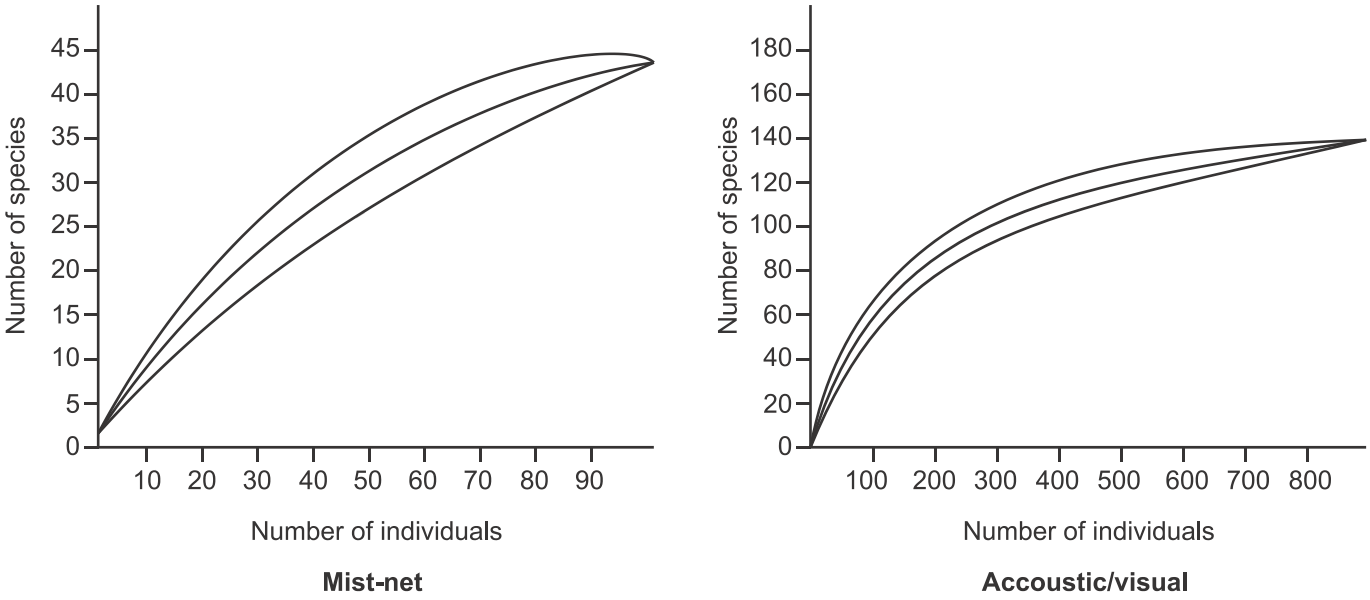

FIGURE 1: Rarefaction curves for the mist-net and acoustic/visual censuses. Curves are the mean ± SD.

Capito brunneipectus

This species is endemic to a small area between the Madeira and Tapajós rivers. Although it was observed in almost all areas sampled, it was considered rare in the study. It was seen or heard mainly while following canopy or understory mixed flocks.

Megastictus margaritatus

A rare and local understory antbird (Ridgely and Tudor 2009), normally found in mixed-flocks in *terra firme* forest. One female mist-netted next to the Fortaleza community, was collected (MPEG 67402).

Epinecrophylla leucophthalma

The subspecies *E. l. phaeonota,* is endemic to the Madeira-Tapajós area, differing from all the other subspecies in having a rufous back. It is easily confused with *E. haematonota* (Stipple-throated antwren). This form probably deserves full species status. It was rare in the study area, usually seen in understory mixed-flocks, and two females were collected (MPEG 67057, 67058).

Myrmotherula iheringi

This species is another one that may be split in the future because there are significant morphological and vocal differences between the nominate form, endemic to the Tapajós-Madeira interfluvium (Whitaker, 2009), and the ones west of the Madeira. It is a mixed-flock species linked to vine tangles, at least east of the Madeira. It was rare and only observed twice in the study areas.

Rhegmatorhina berlepschi

This obligate ant-follower, which is endemic to the Tapajós-Madeira interfluvium, was sometimes observed with *Phlegopsis nigromaculata.* It was rare in the study area. Three individuals were collected (MPEG 67061, 67062, 67063).

Phlegopsis borbae

Also a Madeira-Tapajos endemic, it was the rarest of the ant-followers documented in the study area, with only two individuals observed at São Tome community.

Automolus paraensis

Recently split from *A. infuscatus* (Zimmer 2002), *A. paraensis* is endemic to southeastern Brazilian Amazonia. It is a common mixed-flock species in *terra firme* forest, being abundant in all sampled areas of Flona. One individual was collected (MPEG 67038).

Conopias parvus

This species was believed to be rare on the south bank of the Amazon River until some time ago, but in fact it is common in many sites (Cohn-Haft *et al.* 2007), and connected in some degree to *campina* areas (Aleixo *pers. comm.*). It was abundant in the *terra firme* forest along the Paraconi River, documented in all areas sampled alone or in canopy mixed-flocks. It normally forages with *Myiozetetes luteiventris* (Dusky-chested Flycatcher).

DISCUSSION

The total number of species registered in Flona de Pau-Rosa was considered satisfactory, despite the small amount of time spent in the area. The area is a very important refuge for the local avifauna, and most Madeira-Tapajos endemic species expected to occur there were documented during the expedition. Additional fieldwork will certainly add species to the list.

The low similarity between forest-based sampled areas in the mist-net census may be due to little effort spent in each one, or due to the general pattern of patchiness of species in Amazonian forest. Differences in the distribution and foraging height of the species in different areas may influence results, even in similar-habitat areas (Remsen 1995).

The high percentage of rare species is normal in tropical bird communities (Stouffer and Bierregaard Jr. 1995; Henriques 2005). Acoustic censuses normally allow detection of more species than mist-net censuses, but the other methods are important to detect non-vocalizing species with secretive habits (Derlindati and Caziani 2005; Whitman *et al.* 1999). Most individuals detected both in the mist-nets and in acoustic/visual censuses were insectivorous, but frugivorous species also comprised a significant portion of the community found during the acoustic/visual census. These species are better detected by vocalization or observation because they are generally large in size or canopy-dwelling (Derlindati and Caziani 2005).

Terra firme forests are priority conservation areas, but other habitat types observed in Flona, like the 'campinas' and *igapó* forests and bamboo patches, should be further explored in future studies. This will give a clearer idea of the true avifaunal diversity in the region, as these distinct habitats hold a substantial number of specialist or semi-specialist species, not found in *terra firme* (Cohn-Haft *et al.* 2007; Guilherme and Santos 2009; Remsen and Parker 1983). In the only *campina* sampled, there were signs of regeneration after anthropic action. Recuperation of these Amazonian sand-based vegetations is normally slow because the sandy soil is poor in nutrients (Borges 2004). Some birds are specialists in 'campinas' and/or were only found there in the study (*Galbula leucogastra, Heterocercus linteatus, Polytmus guainumbi*). This kind of habitat should be the target of more detailed studies in the future.

ACKNOWLEDGEMENTS

We thank Conservation International for lending financial support for this study. The Instituto Nacional de Pesquisas da Amazônia (INPA) and Fundação Djalma Batista also provided financial and logistical support that made this study possible. We thank Pedro Peloso and Marcelo Sturaro (both MPEG) for friendship and help during our work, as well as the INPA researchers and technicians on the same expedition. Mario Cohn-Haft, Alexandre Aleixo, Curtis Marantz, and other professionals helped us identify our voice recordings.

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APPENDIX: Birds recorded in Flona de Pau-Rosa.
Habitat: tf = *terra firme* forest; ca = *capoeira* (second-growth vegetation); cm = *campina;* va = *várzea, igapó;* ri = riverside. In bold = specialist.
Diet: ar = arthropods; ca = vertebrates (carnivores); fr = fruit; cn = carrion; ne = nectar; om = omnivore; fi = fish; se = seeds.
Abundance: abundance was determined using an index by Rabinowitz *et al.* (1986), whose value is the inverse of the registered richness. Species were considered 'rare' when their relative abundance value was smaller than the index value; and 'common' when they were higher than that value. Abundance was determined only for those species registered in the censuses.

Scientific name	English name	Habitat	diet	Abundance in the study
Order Tinamiformes				
Family Tinamidae				
Tinamus tao Temminck, 1815	Gray Tinamou	**Tf**	fr	rare
Tinamus major (Gmelin, 1789)	Great Tinamou	Tf, va	fr	
Tinamus guttatus Pelzeln, 1863	White-throated Tinamou	**Tf**	fr	common
*Crypturellus cinereus (*Gmelin, 1789)	Cinereous Tinamou	Tf, va	fr	rare
Crypturellus soui (Hermann, 1783)	Little Tinamou	Tf, va	fr	
Crypturellus strigulosus (Temminck, 1815)	Brazilian Tinamou	Tf	fr	rare
Crypturellus variegatus (Gmelin, 1789)	Variegated Tinamou	**Tf**	fr	common
Order Anseriformes				
Family Anatidae				
Cairina moschata (Linnaeus, 1758)	Muscovy Duck	**Ri**	fi	
Order Galliformes				
Family Cracidae				
Pauxi tuberosa (Spix, 1825)	Razor-billed Curassow	**Tf**	fr	
Family Odontophoridae				
Odontophorus gujanensis (Gmelin, 1789)	Marbled Wood-Quail	**Tf**	om	
Order Suliformes				
Family Phalacrocoracidae				
Phalacrocorax brasilianus (Gmelin, 1789)	Neotropic Cormorant	**Ri**	fi	
Order Pelecaniformes				
Family Ardeidae				
Zebrilus undulatus (Gmelin, 1789)	Zigzag Heron	**va**	fi	
Bubulcus ibis (Linnaeus, 1758)	Cattle Egret	ca, ri	ar	
Ardea alba Linnaeus, 1758	Great Egret	ca, ri	fi	
Pilherodius pileatus (Boddaert, 1783)	Capped Heron	ca, ri	fi	
Egretta thula (Molina, 1782)	Snowy Egret	ca, ri	fi	
Family Threskiornithidae				
Mesembrinibis cayennensis (Gmelin, 1789)	Green Ibis	Tf, ri	fi, ar	
Order Cathartiformes				
Family Cathartidae				
Cathartes aura (Linnaeus, 1758)	Turkey Vulture	Tf, ca, cm	cn	
Cathartes burrovianus Cassin, 1845	Lesser Yellow-headed Vulture	ca	cn	
Coragyps atratus (Bechstein, 1793)	Black Vulture	ca	cn	
Order Accipitriformes				
Family Accipitridae				
Elanoides forficatus (Linnaeus, 1758)	Swallow-tailed Kite	Tf, ca	ca, ar	
Harpagus bidentatus (Latham, 1790)	Double-toothed Kite	**Tf**	ca, ar	rare
Ictinia plumbea (Gmelin, 1788)	Crumbeous Kite	**Tf**	ca, ar	
Urubitinga urubitinga (Gmelin, 1788)	Great Black-Hawk	Tf, ca	ca	
Rupornis magnirostris (Gmelin, 1788)	Roadside Hawk	ca, cm	ca	
Buteo nitidus (Latham, 1790)	Gray Hawk	ca	ca	
Spizaetus ornatus (Daudin, 1800)	Ornate Hawk-Eagle	**Tf**	ca	rare
Order Falconiformes				
Family Falconidae				
Daptrius ater Vieillot, 1816	Black Caracara	Tf, ca, ri	ca	rare
Ibycter americanus (Boddaert, 1783)	Red-throated Caracara	**Tf**	om	common
Milvago chimachima (Vieillot, 1816)	Yellow-headed Caracara	ca, cm	om	
Herpetotheres cachinnans (Linnaeus, 1758)	Laughing Falcon	ca, cm	ca	
Micrastur ruficollis (Vieillot, 1817)	Barred Forest-Falcon	**Tf**	ca	
Micrastur mintoni Whittaker, 2002	Cryptic Forest-falcon	**Tf**	ca	

Scientific name	English name	Habitat	diet	Abundance in the study
Micrastur mirandollei (Schlegel, 1862)	Slaty-backed Forest-Falcon	**Tf**	ca	
Micrastur semitorquatus (Vieillot, 1817)	Collared Forest-Falcon	**Tf**	ca	
Falco rufigularis Daudin, 1800	Bat Falcon	**Tf**	ca, ar	rare
Order Eurypygiformes				
Family Eurypigidae				
Eurypyga helias (Pallas, 1781)	Sunbittern	ca, ri	ar, fi	
Order Gruiformes				
Family Psophiidae				
Psophia viridis Spix, 1825	Dark-winged Trumpeter	**Tf**	om	
Family Rallidae				
Aramides cajanea (Statius Muller, 1776)	Gray-necked Wood-Rail	Tf, ca, ri	ar	rare
Order Charadriiformes				
Family Charadriidae				
Vanellus cayanus (Latham, 1790)	Pied Lapwing	ca, ri	ar	
Family Sternidae				
Phaetusa simplex (Gmelin, 1789)	Large-billed Tern	ca, ri	fi	
Order Columbiformes				
Family Columbidae				
Columbina passerina (Linnaeus, 1758)	Common Ground-Dove	ca, cm	se	
Claravis pretiosa (Ferrari-Perez, 1886)	Blue Ground-Dove	ca, cm	se	
Patagioenas speciosa (Gmelin, 1789)	Scaled Pigeon	**Tf**	fr	
Patagioenas plumbea (Vieillot, 1818)	Pale-vented Pigeon	**Tf**	fr	
Leptotila verreauxi Bonaparte, 1855	White-tipped Dove	**Tf**	fr	common
Geotrygon montana (Linnaeus, 1758)	Ruddy Quail-Dove	**Tf**	se	rare
Order Psittaciformes				
Family Psittacidae				
Ara macao (Linnaeus, 1758)	Scarlet Macaw	**Tf**	fr	
Ara chloropterus Gray, 1859	Red-and-green Macaw	**Tf**	fr	rare
Aratinga leucophthalma (Statius Muller, 1776)	White-eyed Parakeet	Tf, ca	fr	rare
Aratinga pertinax (Linnaeus, 1758)	Brown-throated Parakeet	**cm**	fr	
Pyrrhura perlata (Spix, 1824)	Crimson-bellied Parakeet	**tf**	fr	common
Brotogeris chrysoptera (Linnaeus, 1766)	Golden-winged Parakeet	**Tf**	fr	common
Pyrilia aurantiocephala (Gaban-Lima, Raposo and Höfling, 2002)	Bald Parrot	**Tf**	fr	common
Pionus menstruus (Linnaeus, 1766)	Blue-headed Parrot	Tf	fr	common
Pionus fuscus (Statius Muller, 1776)	Dusky Parrot	**Tf**	fr	common
Amazona farinosa (Boddaert, 1783)	Mealy Parrot	**Tf**	fr	common
Amazona amazonica (Linnaeus, 1766)	Orange-winged Parrot	**Tf**	fr	
Deroptyus accipitrinus (Linnaeus, 1758)	Red-fan Parrot	Tf, va	fr	common
Order Cuculiformes				
Family Cuculidae				
Coccycua minuta (Vieillot, 1817)	Little Cuckoo	ca, ri	ar	
Piaya cayana (Linnaeus, 1766)	Squirrel Cuckoo	Tf, va	ar	
Piaya melanogaster (Vieillot, 1817)	Black-bellied Cuckoo	**Tf**	ar	rare
Crotophaga major Gmelin, 1788	Greater Ani	**Ri**	ar	
Crotophaga ani Linnaeus, 1758	Smooth-billed Ani	ca	ar	
Order Strigiformes				
Family Strigidae				
Megascops choliba (Vieillot, 1817)	Tropical Screech-Owl	ca	ar, ca	
Megascops usta (Sclater, 1858)	Austral Screech-Owl	**Tf**	ar, ca	
Pulsatrix perspicillata (Latham, 1790)	Spectacled Owl	**Tf**	ca	
Glaucidium hardyi Vielliard, 1990	Amazonian Pygmy-Owl	**Tf**	ar, ca	rare
Order Caprimulgiformes				
Family Nyctibiidae				
Nyctibius grandis (Gmelin, 1789)	Great Potoo	Tf, va	ar	
Family Caprimulgidae				
Lurocalis semitorquatus (Gmelin, 1789)	Short-tailed Nighthawk	**tf**	ar	
Hidorpsalis leucopyga (Spix, 1825)	Band-tailed Nighthawk	**Ri**	ar	

Scientific name	English name	Habitat	diet	Abundance in the study
Hydropsalis albicollis (Gmelin, 1789)	Pauraque	ca, cm	ar	
Order Apodiformes				
Family Apodidae				
Chaetura spinicaudus (Temminck, 1839)	Band-rumped Swift	**Tf**	ar	
Chaetura brachyura (Jardine, 1846)	Short-tailed Swift	Tf, va	ar	
Family Trochilidae				
Phaethornis ruber (Linnaeus, 1758)	Reddish Hermit	Tf, ca	ne	rare
Phaethornis philippii (Bourcier, 1847)	Needle-billed Hermit	**Tf**	ne	
Campylopterus largipennis (Boddaert, 1783)	Gray-breasted Sabrewing	Tf, va	ne	
Thalurania furcata (Gmelin, 1788)	Fork-tailed Woodnymph	Tf, va	ne	rare
Polytmus guainumbi (Pallas, 1764)	White-tailed Goldenthroat	**cm**	ne	
Amazilia versicolor (Vieillot, 1818)	Versicolored Emerald	ca	ne	
Heliothryx auritus (Gmelin, 1788)	Black-eared Fairy	Tf, va	ne	
Order Trogoniformes				
Family Trogonidae				
Trogon melanurus Swainson, 1838	Black-tailed Trogon	Tf, va	om	rare
Trogon viridis Linnaeus, 1766	White-tailed Trogon	Tf, Ca, va	om	common
Trogon ramonianus Deville and DesMurs, 1849	Amazonian Trogon	**Tf**	om	common
Trogon curucui Linnaeus, 1766	Blue-crowned Trogon	tf, va	om	rare
Trogon rufus Gmelin, 1788	Black-throated Trogon	**tf**	om	common
Pharomachrus pavoninus (Spix, 1824)	Pavonine Quetzal	**tf**	om	
Order Coraciiformes				
Family Alcedinidae				
Megaceryle torquata (Linnaeus, 1766)	Ringed Kingfisher	ca, ri	fi	
Chloroceryle amazona (Latham, 1790)	Amazon Kingfisher	tf, ca, ri	fi	
Chloroceryle americana (Gmelin, 1788)	Green Kingfisher	tf, ca, ri	fi	
Order Galbuliformes				
Family Galbulidae				
Galbula cyanicollis Cassin, 1851	Blue-cheeked Jacamar	**tf**	ar	rare
Galbula leucogastra Vieillot, 1817	Bronzy Jacamar	**tf, ca**	ar	
Galbula dea (Linnaeus, 1758)	Paradise Jacamar	tf, ca, va	ar	common
Jacamerops aureus (Statius Muller, 1776)	Great Jacamar	**tf**	ar	
Family Bucconidae				
Notharchus hyperrhynchus (Sclater, 1856)	White-necked Puffbird	tf, ca, va	ar	rare
Notharchus tectus (Boddaert, 1783)	Pied Puffbird	tf, ca	ar	
Malacoptila rufa (Spix, 1824)	Rufous-necked Puffbird	**tf**	ar	rare
Monasa nigrifrons (Spix, 1824)	Black-fronted Nunbird	Tf, va, ca	ar	
Monasa morphoeus (Hahn and Küster, 1823)	White-fronted Nunbird	**tf**	ar	rare
Chelidoptera tenebrosa (Pallas, 1782)	Swallow-wing	tf, ca	ar	
Order Piciformes				
Family Capitonidae				
Capito brunneipectus Chapman, 1921	Brown-chested Barbet	**tf**	om	rare
Family Ramphastidae				
Ramphastos tucanus Linnaeus, 1758	Red-billed Toucan	tf, va	om	common
Ramphastos vitellinus Lichtenstein, 1823	Channel-billed Toucan	Tf, va	om	common
Selenidera gouldii (Natterer, 1837)	Gould's Toucanet	**tf**	om	rare
Pteroglossus bitorquatus Vigors, 1826	Red-necked Aracari	**tf**	om	rare
Pteroglossus aracari (Linnaeus, 1758)	Black-necked Aracari	tf, va	om	rare
Family Picidae				
Picumnus aurifrons Pelzeln, 1870	Bar-breasted Piculet	Tf, va, ca	ar	rare
Melanerpes cruentatus (Boddaert, 1783)	Yellow-tufted Woodpecker	tf, ca, va	om	rare
Veniliornis affinis (Swainson, 1821)	Red-stained Woodpecker	**tf**	ar	rare
Piculus flavigula (Boddaert, 1783)	Yellow-throated Woodpecker	**tf**	ar	rare
Celeus grammicus (Natterer and Malherbe, 1845)	Scaly-breasted Woodpecker	**tf**	om	rare
Celeus elegans (Statius Muller, 1776)	Chestnut Woodpecker	Tf, va, ca	om	rare
Celeus flavus (Statius Muller, 1776)	Cream-colored Woodpecker	**tf**	om	common
Celeus torquatus (Boddaert, 1783)	Ringed Woodpecker	**tf**	om	rare

Scientific name	English name	Habitat	diet	Abundance in the study
Dryocopus lineatus (Linnaeus, 1766)	Lineated Woodpecker	tf, ca, va	om	
Campephilus rubricollis (Boddaert, 1783)	Red-necked Woodpecker	**tf**	om	rare
Campephilus melanoleucos (Gmelin, 1788)	Crimson-crested Woodpecker	Tf, ca	om	
Order Passeriformes				
FamilyThamnophilidae				
Cymbilaimus lineatus (Leach, 1814)	Fasciated Antshrike	**tf**	ar	rare
Taraba major (Vieillot, 1816)	Great Antshrike	ca	ar	
Sakesphorus luctuosus (Lichtenstein, 1823)	Black-crested Antshrike	**va**	ar	
Thamnophilus schistaceus d'Orbigny, 1835	Crain-winged Antshrike	**tf**	ar	common
Thamnophilus stictocephalus Pelzeln, 1868	Natterer's Slaty-Antshrike	tf, va	ar	
Thamnophilus aethiops Sclater, 1858	White-shouldered Antshrike	**tf**	ar	rare
Megastictus margaritatus (Sclater, 1855)	Pearly Antshrike	**tf**	ar	rare
Thamnomanes saturninus (Pelzeln, 1878)	Saturnine Antshrike	**tf**	ar	common
Thamnomanes caesius (Temminck, 1820)	Cinereous Antshrike	**tf**	ar	common
Pygiptila stellaris (Spix, 1825)	Spot-winged Antshrike	**tf**	ar	rare
Epinecrophylla leucophthalma (Pelzeln, 1868)	White-eyed Antwren	**tf**	ar	rare
Myrmotherula brachyura (Hermann, 1783)	Pygmy Antwren	tf, va	ar	common
Myrmotherula sclateri Snethlage, 1912	Sclater's Antwren	**tf**	ar	common
Myrmotherula hauxwelli (Sclater, 1857)	Crain-throated Antwren	tf, va	ar	rare
Myrmotherula axillaris (Vieillot, 1817)	White-flanked Antwren	tf, va	ar	rare
Myrmotherula longipennis Pelzeln, 1868	Long-winged Antwren	**tf**	ar	common
Myrmotherula iheringi Snethlage, 1914	Ihering's Antwren	**tf**	ar	rare
Myrmotherula menetriesii (d'Orbigny, 1837)	Gray Antwren	**tf**	ar	rare
Dichrozona cincta (Pelzeln, 1868)	Banded Antbird	**tf**	ar	rare
Microrhopias quixensis (Cornalia, 1849)	Dot-winged Antwren	tf, va	ar	common
Formicivora grisea (Boddaert, 1783)	White-fringed Antwren	**cm**	ar	
Cercomacra cinerascens (Sclater, 1857)	Gray Antbird	tf, va	ar	common
Cercomacra nigrescens (Cabanis and Heine, 1859)	Blackish Antbird	tf, va	ar	
Myrmoborus myotherinus (Spix, 1825)	Black-faced Antbird	**tf**	ar	common
Hypocnemis striata (Spix, 1825)	Spix's Warbling-Antbird	**tf**	ar	common
Hypocnemoides maculicauda (Pelzeln, 1868)	Band-tailed Antbird	**tf**	ar	
Sclateria naevia (Gmelin, 1788)	Silvered Antbird	**tf**	ar	rare
Schistocichla rufifacies (Hellmayr, 1929)	Spot-winged Antbird	**tf**	ar	rare
Myrmornis torquata (Boddaert, 1783)	Wing-banded Antbird	**tf**	ar	rare
Rhegmatorhina berlepschi (Snethlage, 1907)	Harlequin Antbird	**tf**	ar	rare
Hylophylax naevius (Gmelin, 1789)	Spot-backed Antbird	**tf**	ar	rare
Willisornis poecilinotus (Cabanis, 1847)	Scale-backed Antbird	**tf**	ar	common
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye, 1837)	Black-spotted Bare-eye	**tf**	ar	common
Phlegopsis borbae (Hellmayr, 1907)	Pale-faced Antbird	**tf**	ar	rare
Family Grallaridae				
Grallaria varia (Boddaert, 1783)	Variegated Antpitta	**tf**	ar	rare
Hylopezus berlepschi (Hellmayr, 1903)	Amazonian Antpitta	tf, va	ar	
Myrmothera campanisona (Hermann, 1783)	Thrush-like Antpitta	**tf**	ar	rare
Family Rhinocryptidae				
Liosceles thoracicus (Sclater, 1865)	Rusty-belted Tapaculo	**tf**	ar	rare
Family Formicariidae				
Formicarius colma Boddaert, 1783	Rufous-capped Antthrush	**tf**	ar	rare
Formicarius analis (d'Orbigny and Lafresnaye, 1837)	Black-faced Antthrush	**tf**	ar	rare
Family Scleruridae				
Sclerurus rufigularis Pelzeln, 1868	Short-billed Leaftosser	**tf**	ar	
Sclerurus caudacutus (Vieillot, 1816)	Black-tailed Leaftosser	**tf**	ar	rare
Family Dendrocolaptidae				
Dendrocincla fuliginosa (Vieillot, 1818)	Crain-brown Woodcreeper	**tf**	ar	rare
Dendrocincla merula (Lichtenstein, 1829)	White-chinned Woodcreeper	**tf**	ar	common
Deconychura longicauda (Pelzeln, 1868)	Long-tailed Woodcreeper	**tf**	ar	rare
Sittasomus griseicapillus (Vieillot, 1818)	Olivaceous Woodcreeper	**tf**	ar	rare
Certhiasomus stictolaemus (Pelzeln, 1868)	Spot-throated Woodcreeper	**tf**	ar	rare

Scientific name	English name	Habitat	diet	Abundance in the study
Glyphorynchus spirurus (Vieillot, 1819)	Wedge-billed Woodcreeper	tf, va	ar	common
Nasica longirostris (Vieillot, 1818)	Long-billed Woodcreeper	**va**	ar	
Hylexetastes uniformis Hellmayr, 1909	Uniform Woodcreeper	**tf**	ar	rare
Xiphocolaptes promeropirhynchus (Lesson, 1840)	Strong-billed Woodcreeper	**tf**	ar	
Dendrocolaptes certhia (Boddaert, 1783)	Amazonian Barred-Woodcreeper	**tf**	ar	
Dendrocolaptes picumnus Lichtenstein, 1820	Black-banded Woodcreeper	**tf**	ar	rare
Dendroplex picus (Gmelin, 1788)	Straight-billed Woodcreeper	ca	ar	
Xiphorhynchus ocellatus (Spix, 1824)	Ocellated Woodcreeper	**tf**	ar	common
Xiphorhynchus obsoletus (Lichtenstein, 1820)	Striped Woodcreeper	**va**	ar	
Xiphorhynchus guttatus (Lichtenstein, 1820)	Buff-throated Woodcreeper	**tf**	ar	common
Lepidocolaptes albolineatus (Lafresnaye, 1845)	Lineated Woodcreeper	**tf**	ar	common
Campylorhamphus procurvoides (Lafresnaye, 1850)	Curve-billed Scythebill	**tf**	ar	rare
Family Furnariidae				
Philydor ruficaudatum (d'Orbigny and Lafresnaye, 1838)	Rufous-Tailed Foliage-gleaner	**tf**	ar	common
Philydor erythrocercum (Pelzeln, 1859)	Rufous-rumped Foliage-gleaner	**tf**	ar	rare
Philydor pyrrhodes (Cabanis, 1848)	Cinnamon-rumped Foliage-gleaner	**tf**	ar	rare
Automolus ochrolaemus (Tschudi, 1844)	Buff-throated Foliage-gleaner	**tf**	ar	
Automolus paraensis Hartert, 1902	Pará Foliage-gleaner	**tf**	ar	common
Xenops minutus (Sparrman, 1788)	Plain Xenops	tf, va	ar	common
Family Rhynchocyclidae				
Tolmomyias flaviventris (Wied, 1831)	Yellow-breasted Flycatcher	tf, ca, cm	ar	
Todirostrum maculatum (Desmarest, 1806)	Spotted Tody-Flycatcher	tf, ca	ar	
Todirostrum chrysocrotaphum Strickland, 1850	Yellow-browed Tody-Flycatcher	Tf, ca	ar	
Hemitriccus minor (Snethlage, 1907)	Snethlage's Tody-Tyrant	**tf**	ar	common
Myiornis ecaudatus (d'Orbigny and Lafresnaye, 1837)	Short-tailed Pygmy-Tyrant	tf, va	ar	rare
Mionectes oleagineus (Lichtenstein, 1823)	Ochre-bellied Flycatcher	tf, va	om	
Corythopis torquatus (Tschudi, 1844)	Ringed Antpipit	**tf**	ar	rare
Family Tyrannidae				
Tyrannulus elatus (Latham, 1790)	Yellow-crowned Tyrannulet	tf, ca, va	ar	common
Myiopagis gaimardii (d'Orbigny, 1839)	Forest Elaenia	tf, ca, va	ar	common
Myiopagis caniceps (Swainson, 1835)	Gray Elaenia	**tf**	ar	rare
Ornithion inerme Hartlaub, 1853	White-lored Tyrannulet	tf, va	ar, fr	rare
Camptostoma obsoletum (Temminck, 1824)	Southern Beardless-Tyrannulet	tf, ca, cm	ar, fr	rare
Phaeomyias murina (Spix, 1825)	Mouse-colored Tyrannulet	tf, ca, cm	ar, fr	
Zimmerius gracilipes (Sclater and Salvin, 1868)	Slender-footed Tyrannulet	tf, va	ar, fr	common
Inezia subflava (Sclater and Salvin, 1873)	Amazonian Tyrannulet	**va**	ar	
Piprites chloris (Temminck, 1822)	Wing-barred Piprites	**tf**	ar	common
Platyrinchus platyrhynchos (Gmelin, 1788)	White-crested Spadebill	**tf**	ar	rare
Lathrotriccus euleri (Cabanis, 1868)	Euler's Flycatcher	tf, va	ar	rare
Legatus leucophaius (Vieillot, 1818)	Piratic Flycatcher	tf, ca, va	ar, fr	
Myiozetetes cayanensis (Linnaeus, 1766)	Rusty-margined Flycatcher	ca	ar, fr	
Myiozetetes luteiventris (Sclater, 1858)	Dusky-chested Flycatcher	**tf**	ar, fr	rare
Pitangus sulphuratus (Linnaeus, 1766)	Great Kiskadee	ca	om	rare
Philohydor lictor (Lichtenstein, 1823)	Lesser Kiskadee	tf, ca, ri	ar	
Conopias parvus (Pelzeln, 1868)	Yellow-throated Flycatcher	**tf, cm**	ar	common
Megarynchus pitangua (Linnaeus, 1766)	Boat-billed Flycatcher	tf, ca, cm	ar, fr	
Tyrannopsis sulphurea (Spix, 1825)	Sulphury Flycatcher	tf, ca, va	ar	
Empidonomus varius (Vieillot, 1818)	Variegated Flycatcher	tf, ca, cm	ar, fr	
Tyrannus melancholicus Vieillot, 1819	Tropical Kingbird	tf, ca, cm	ar, fr	
Tyrannus savana Vieillot, 1808	Fork-tailed Flycatcher	tf, ca, cm	ar, fr	
Rhytipterna simplex (Lichtenstein, 1823)	Grayish Mourner	**tf**	ar	rare
Myiarchus tuberculifer (d'Orbigny and Lafresnaye, 1837)	Dusky-capped Flycatcher	tf, ca, va	ar, fr	rare
Myiarchus ferox (Gmelin, 1789)	Short-crested Flycatcher	ca, cm	ar, fr	rare
Attila bolivianus Lafresnaye, 1848	Dull-capped Attila	**va**	ar	rare
Attila spadiceus (Gmelin, 1789)	Bright-rumped Attila	**tf**	ar	rare
Family Cotingidae				
Lipaugus vociferans (Wied, 1820)	Screaming Piha	**tf**	fr, ar	common

Scientific name	English name	Habitat	diet	Abundance in the study
Family Pipridae				
Tyranneutes stolzmanni (Hellmayr, 1906)	Dwarf Tyrant-Manakin	tf, va	fr	common
Lepidothrix nattereri (Sclater, 1865)	Snow-capped Manakin	**tf**	fr	common
Heterocercus linteatus (Strickland, 1850)	Flame-crested Manakin	tf, ca, va	fr	
Pipra rubrocapilla Temminck, 1821	Red-headed Manakin	tf, va	fr	common
Family Tityridae				
Terenotriccus erythrurus (Cabanis, 1847)	Ruddy-tailed Flycatcher	tf, va	ar	rare
Schiffornis turdina (Wied, 1831)	Thrush-like Schiffornis	**tf**	ar, fr	rare
Pachyramphus rufus (Boddaert, 1783)	Cinereous Becard	tf, va	ar	
Pachyramphus marginatus (Lichtenstein, 1823)	Black-capped Becard	**tf**	ar	common
Family Vireonidae				
Cyclarhis gujanensis (Gmelin, 1789)	Rufous-browed Peppershrike	tf, va	ar	common
Vireolanius leucotis (Swainson, 1838)	Slaty-capped Shrike-Vireo	**tf**	ar	common
Vireo olivaceus (Linnaeus, 1766)	Red-eyed Vireo	tf, ca, va	ar	rare
Hylophilus semicinereus Sclater and Salvin, 1867	Gray-chested Greenlet	tf, va	ar	
Hylophilus pectoralis Sclater, 1866	Ashy-headed Greenlet	cm, ca	ar	
Hylophilus hypoxanthus Pelzeln, 1868	Dusky-capped Greenlet	**tf**	ar	common
Hylophilus ochraceiceps Sclater, 1860	Tawny-crowned Greenlet	**tf**	ar	
Family Hirundinidae				
Stelgidopteryx ruficollis (Vieillot, 1817)	Southern Rough-winged Swallow	tf, ca, va, ri	ar	
Progne tapera (Vieillot, 1817)	Brown-chested Martin	ca, ri	ar	
Progne subis (Linnaeus, 1758)	Purcre Martin	ca, ri	ar	
Tachycineta albiventer (Boddaert, 1783)	White-winged Swallow	ca, ri	ar	
Hirundo rustica Linnaeus, 1758	Barn Swallow	ca	ar	
Family Troglodytidae				
Microcerculus marginatus (Sclater, 1855)	Scaly-breasted Wren	tf, va	ar	Rare
Troglodytes musculus Naumann, 1823	Southern House-Wren	ca	ar	
Cantorchilus leucotis (Lafresnaye, 1845)	Buff-breasted Wren	va, ca	ar	
Family Polioptilidae				
Ramphocaenus melanurus Vieillot, 1819	Long-billed Gnatwren	tf, va	ar	Rare
Family Turdidae				
Turdus albicollis Vieillot, 1818	White-necked Thrush	**tf**	fr, ar	Common
Family Thraupidae				
Saltator grossus (Linnaeus, 1766)	Slate-colored Grosbeak	tf, va	fr, ar	Rare
Saltator maximus (Statius Muller, 1776)	Buff-throated Saltator	tf, va	fr, ar	
Saltator coerulescens Vieillot, 1817	Grayish Saltator	tf, ca, va	fr, ar	
Lamprospiza melanoleuca (Vieillot, 1817)	Red-billed Pied Tanager	**tf**	fr	Rare
Ramphocelus carbo (Pallas, 1764)	Silver-beaked Tanager	ca	fr, ar	
Lanio cristatus (Linnaeus, 1766)	Flame-crested Tanager	tf, va	fr, ar	Rare
Tangara mexicana (Linnaeus, 1766)	Turquoise Tanager	tf, ca, va	fr	
Tangara chilensis (Vigors, 1832)	Paradise Tanager	tf	fr	Rare
Tangara episcopus (Linnaeus, 1766)	Blue-gray Tanager	ca	fr, ar	
Tangara palmarum (Wied, 1823)	Palm Tanager	ca	fr, ar	
Paroaria gularis (Linnaeus, 1766)	Red-capped Cardinal	ca, ri	se, ar	
Family Emberizidae				
Ammodramus aurifrons (Spix, 1825)	Yellow-browed Sparrow	ca, cm	se, ar	
Sicalis columbiana Cabanis, 1851	Orange-fronted Yellow-finch	Va, ca	se	
Volatinia jacarina (Linnaeus, 1766)	Blue-black Grassquit	ca, cm	se	
Sporophila americana (Gmelin, 1789)	Wing-barred Seedeater	ca, cm	se	
Arremon taciturnus (Hermann, 1783)	Pectoral Sparrow	tf, va	se, ar	
Family Cardinalidae				
Habia rubica (Vieillot, 1817)	Red-crowned Ant-Tanager	**tf**	ar, fr	Common
Granatellus pelzelni Sclater, 1865	Rose-breasted Chat	tf, va	ar	Rare
Caryothraustes canadensis (Linnaeus, 1766)	Yellow-green Grosbeak	tf	fr, ar	Common
Cyanoloxia cyanoides (Lafresnaye, 1847)	Blue-black Grosbeak	tf, va	fr, se, ar	Rare
Family Icteridae				
Psarocolius decumanus (Pallas, 1769)	Crested Oropendola	tf, ca, cm	om	

Scientific name	English name	Habitat	diet	Abundance in the study
Psarocolius bifasciatus (Spix, 1824)	Olive Oropendola	tf, va	om	
Cacicus cela (Linnaeus, 1758)	Yellow-rumped Cacique	tf, ca, va	om	Rare
Molothrus oryzivorus	Giant Cowbird	ca	om	
Family Fringillidae				
Euphonia chlorotica (Linnaeus, 1766)	Purple-throated Euphonia	ca, cm	fr	
Euphonia rufiventris (Vieillot, 1819)	Rufous-bellied Euphonia	tf, va	fr	Rare

Revista Brasileira de Ornitologia, 19(2), 167-184
Junho de 2011

ARTIGO

Annotated checklist of birds recorded between 1998 and 2009 at nine areas in the Belém area of endemism, with notes on some range extensions and the conservation status of endangered species

Carlos Eduardo B. Portes[1], Lincoln S. Carneiro[2,7], Fabio Schunck[3], Marcelo de Sousa e Silva[2,8], Kevin J. Zimmer[4], Andrew Whittaker[5], Fabíola Poletto[2,9], Luís Fábio Silveira[3,10] and Alexandre Aleixo[2,6]

1. Curso de Pós-graduação em Zoologia, Universidade Federal do Pará, Museu Paraense Emílio Goeldi, Belém, PA, Brasil. Caixa Postal 399, CEP 66040-170. E-mail: dudaportes@yahoo.com.br
2. Museu Paraense Emilio Goeldi, Coordenação de Zoologia, Belém, PA, Brasil. Caixa Postal 399, CEP 66040-170.
3. Museu de Zoologia da USP, São Paulo, SP, Brasil. Caixa Postal 42.494, CEP 04218-970. E-mail: fabio_schunck@yahoo.com.br
4. 1665 Garcia Road, Atascadero, CA 93422, EUA. E-mail: kjzimmer@charter.net
5. Conjunto Acariquara, Rua Sumaúmas 214, Manaus, AM, Brasil. CEP 69085-410. E-mail: andrew@birdingbraziltours.com
6. E-mail of author for correspondence: aleixo@museu-goeldi.br
7. E-mail: lincoln_carneiro@yahoo.com.br
8. E-mail: marcelossilvaxp@hotmail.com
9. E-mail: fpoletto@hotmail.com
10. E-mail: lfsilvei@usp.br

Recebido em 09/03/2011. Aceito em 25/05/2011.

RESUMO: Lista anotada de aves registradas entre 1998 e 2009 em nove áreas do centro de endemismo Belém, com notas sobre algumas extensões de distribuição e o *status* de conservação de algumas espécies ameaçadas. O centro de endemismo Belém, por incluir a capital do estado do Pará em seus limites, foi um dos mais bem estudados de toda a Amazônia com relação à sua avifauna. Entretanto, atualmente essa região biogeográfica é o setor mais desflorestado de toda a Amazônia devido ao avanço da agropecuária, além da extração de madeira para fabricação de carvão, restando poucos fragmentos de grande tamanho e estado de conservação satisfatório. Com o objetivo de aprimorar o conhecimento sobre a avifauna da região, incluindo uma avaliação do *status* atual de conservação de algumas espécies ameaçadas de extinção, apresentamos aqui dados inéditos de levantamentos de avifauna realizados entre 1998 e 2009, em localidades dos municípios de Capitão Poço, Dom Eliseu, Paragominas, Santa Bárbara do Pará, Tailândia e Tomé-Açu, todos situados no centro de endemismo Belém. O número de espécies registrado durante os levantamentos (441) é significativo em relação ao total já registrado para o centro de endemismo Belém (529 espécies), apontando os fragmentos florestais de maior tamanho e conectividade dos municípios de Paragominas, Tailândia e Tomé-Açu como aqueles que ainda detêm um maior número de espécies, abrigando também o maior número (14) de espécies/táxons de aves ameaçados de extinção de toda a Amazônia. O fato de estes fragmentos estarem situados em propriedades de grupos empresariais ligados aos ramos madeireiros e de bio-combustíveis, demonstra o importante papel e a responsabilidade destes ramos do setor produtivo setores para com a conservação da biodiversidade Amazônica.

PALAVRAS-CHAVE: Amazônia; Centro de endemismo Belém; Conservação; Espécies ameaçadas; Extensão de distribuição.

ABSTRACT: Annotated checklist of birds recorded between 1998 and 2009 at nine areas in the Belém area of endemism, with notes on some range extensions and the conservation status of endangered species. The Belém center of endemism is one of the best known areas in Amazonia from an ornithological standpoint, in part due to the fact that the capital city of the state of Pará is included within its limits. However, the expansion of agribusiness and logging has currently made this the most deforested sector of Amazonia, with only a few large and well-preserved forest tracts. Here we present novel data on the avifauna of this part of Amazonia by reporting on field data collected by us between 1998 and 2009 at some localities in the municipalities of Capitão Poço, Dom Eliseu, Paragominas, Santa Bárbara do Pará, Tailândia, and Tomé-Açu; all situated in the Belém center of endemism. In addition to contributing to the ornithological knowledge of this part of Amazonia, we also sought to evaluate the current conservation status of several threatened species found in the area. Our surveys recorded a total of 441 species, a significant number when compared to the total avian species richness reported so far for the Belém center of endemism (*i.e.,* 529 species). This has indicated that the largest and more connected fragments of Paragominas, Tailândia, and Tomé-Açu have the highest species richness, including 14 endangered species/taxa, which is the highest number recorded so far in the entire Amazon. The fact that those fragments of land are owned by companies linked to the timber and biofuel industries demonstrates the importance and responsibility of these economic sectors to biodiversity conservation in the Amazon.

KEY-WORDS: Amazon; Belém center of endemism; Conservation; Range extension; Threatened species.

Amazonia is not homogeneous in its plant and animal communities, but rather it is a mosaic of distinct areas of endemism separated by large rivers, each with its own evolution and biotic groupings (Silva *et al.* 2005). The forests situated in the west of Pará State, between the right bank (east) of the Tocantins River and the west of Maranhão State, possess diverse endemic taxa, which together are called the Belém center of endemism (hereby referred to as CE Belém; Roma, 1996; Silva *et al.* 2005). This center of endemism is principally formed by *terra-firme* forests, and its size is around 145,000 km^2 (Silva *et al.* 2005). As expected, the region adjacent to the capital of Pará was the first to be researched in relation to its avifauna. The first inventories of grand stature begin to appear from the second half of the nineteenth century, thanks to the efforts of naturalists and researchers like J. Natterer, E. Goeldi, E. Snethlage. Principally among these is Fernando da Costa Novaes, who significantly contributed to increasing the understanding of birds of CE Belém (Novaes and Pimentel 1973, Novaes and Lima 2009, Roma 1996).

Knowledge of birds from CE Belém may be considered reasonable, owing to its location and easy access. As such, Roma (1996) lists 529 species for all of eastern Pará, while Novaes and Lima (2009) list 482 species for the region of greater Belém (including the municipality near Ananindeua). It is important to note that both studies are a compilation of dozens (in some cases, more than hundreds) of years of intense collecting in this region done by various researchers and professional collectors. In certain cases, some species are cited that were registered only once, like the Blue Macaw (*Anodorhynchus hyacinthinus*) and the Black Acan (*Laterallus jamaicensis* – Novaes and Lima 1994), and were never again registered by any other researcher.

Western Maranhão State and the region east of Pará are among the areas that suffer the most from anthropic action in all of Amazonia. The extensive forests of the region, classified as dense ombrophilous forest and situated below 100 m altitude, are currently considerably fragmented and degraded (Vieira and Almeida 2006). The actions of lumberjacks and the frontiers of colonization begin exactly in this region, forming the eastern portion of the "arc of deforestation", which extends to the south and west in the direction of Rondônia State. Furthermore, various municipalities of eastern Pará already have 100% of their areas completely altered by human actions (Almeida *et al.* 2010). About 70% of CE Belém is already deforested (Silva *et al.* 2005), and is considered to hold the greatest index of deforestation throughout all of the Amazonian Forest (Capobianco *et al.* 2001, Silva *et al.* 2005). These formerly extensive forests, situated between the west of Maranhão and the Tocantins River, shelter hundreds of taxa of vertebrates and invertebrates, many of them endemic. Furthermore, this is one of the most important areas in relation to Amazonian vertebrate diversity. Yet despite its biogeographical importance, the percentage of protected areas in CE Belém is insignificant with only 1.4% strictly protected area, 9.77% area of sustainable use, and 6.49% of area occupied by indigenous lands (Silva *et al.* 2005). Most of the areas still forested are under the guard of companies or big landowners, the latter of which still constantly cut down large portions of forest to open the way for pastures (Almeida *et al.* 2010). It is important to note that all taxa of birds threatened with extinction, occurring in the Amazonian biome, occur principally or exclusively in CE Belém (Machado *et al.* 2008). In this sense, recent studies on the avifauna of CE Belém are essential to verify the current status of bird communities, and to furnish information which guides conservation programs in this very singular and important area, at the same time so unprotected.

In this article, we report for the first time the results of fieldwork realized by us between the years 1998 and 2009 in forestal fragment in the municipalities of Capitão Poço, Dom Eliseu, Paragominas, Santa Bárbara do Pará, Tailândia and Tomé-Açu; all sites situated in CE Belém, Pará State. We discuss with special attention those records that imply extensions of considerable distribution, as well as those obtained for species considered threatened from extinction in state and national levels (Machado *et al.* 2008) (SEMA 2007).

MATERIAL AND METHODS

Study Areas

In the years 1998, 2004, 2005, 2006, 2007 and 2009 campaigns were conducted in 9 areas of CE Belém, distributed among the municipalities of Tailândia, Paragominas, Tomé-Açu, Dom Eliseu, Santa Bárbara do Pará and Capitão Poço (Figure 1).

The vegetal covering of CE Belém is classified as dense ombrophilous forest of *terra-firme*, with predominance of liana forests in some regions (Vieira and Almeida 2006). A brief description of visited areas, including periods of sampling and vegetal typology found in each, is presented below. The numbers next to the names of municipalities and localities are the same as in Figure 1.

1) Santa Bárbara do Pará – Gumna Ecological Park: This locality constitutes a forestal fragment of private property with around 540 ha of secondary vegetation and significant anthropic influence situated approximately 45 km from the Center of Belém (01°11'57.3"S; 48°17'57.1"W), at the margins of Augusto Meira Highway (Belém – Mosqueiro). It is also flanked by various settlements. The area was sampled by CEBP, MSS and AA on October 8-15, 2005.

2) Tailândia – Agropalma Group Forestal Reserves (RFGA): These are components of *terra-firme* forest from a group of forestal remnants, totaling approximately 75,000 ha, aside from other vegetal formations (*e.g.,* fields). They were sampled by FS and LFS between January 18 – February 5, and August 28 – September 6, 2004, and between January 3-15 and September 1-10, 2006, totaling 34 days of fieldwork. The following localities were selected for sampling, considered the most relevant in terms of forest quality: Maçaranduba (02°36'0.07"S; 48°47'0.00"W); Maxixe (02°38'S; 48°55'W); Águas Claras (02°33'S; 48°53'W); Amapalma (02°40'S; 48°55'W); Amapalma, line 67 (02°24'S; 48°49'W); Agropalma Forestal Reserve (02°36'S; 48°44'W); Agropalma – Trail II (02°37'S; 48°48'W); Dendê (02°38'S; 48°48'W); and Aiu-açu (02°33'S; 48°53'W).

3) Tomé-Açu – SAFs: In this area, the predominant vegetation is dense ombrophilous lowland forest. Secondary vegetation is distributed in small fragments, with the presence of pastures and areas in which agro-forestal systems are implemented (SAFs). The area was sampled by CEBP, FP, MSS and AA on March 22-27, 2005, when the following localities considered the most relevant in terms of forest quality were sampled: Arai Farm (02°30'6.8"S; 48°17'30.8"W); Inada Farm (02°27'41.6"S; 48°18'37.4"W); and the Cultural Association of Tomé-Açú – ACTA (02°35'50.9"S; 48°20'30.7"W). Between December 16-21, 2009, CEBP and LCS visited a fourth locality in the same area: Madeiracap Farm (02°31'49.6"S; 47°58'51.7"W).

4) Paragominas – (Estrada Vicinal) Side Road: The municipality of Paragominas possesses heterogeneous levels of forestal fragmentation and degradation at different points. The portion south of the municipality, near the border with the neighboring municipality of Ulianópolis, was briefly sampled by AA on May 13, 2005 along a side road (03°45'19.8"S; 48°03'53.4"W), where areas of pasture and agro-forestal systems (SAFs) predominate.

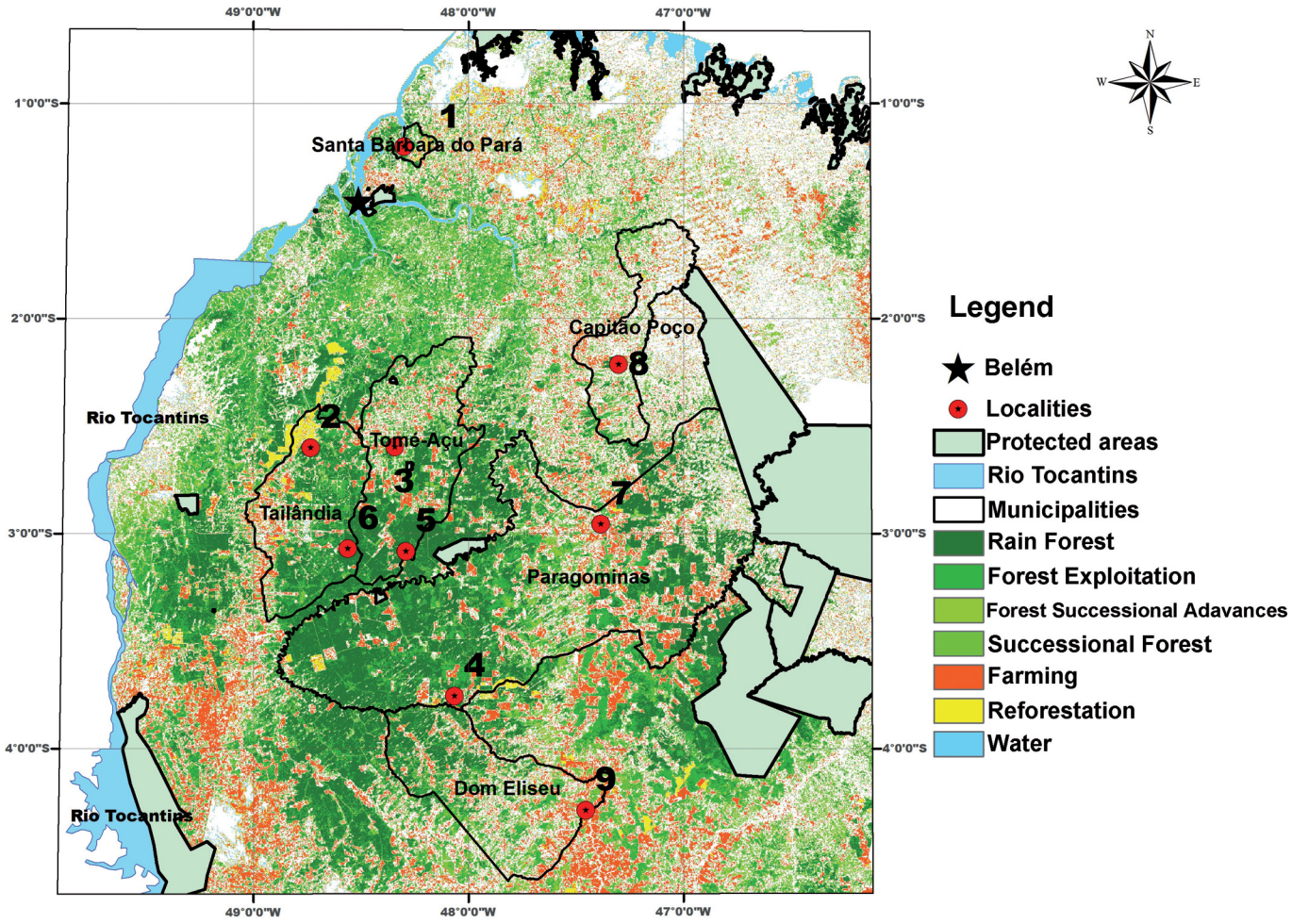

FIGURE 1: Map with municipalities, landscapes, vegetation types, and surroundings associated with localities surveyed for birds between 1998 and 2009, in the Belém area of endemism, state of Pará, Brazil. Red dots depict actual sampling points numbered as follows (see text for a detailed description of localities): 1 = Santa Bárbara do Pará (Gunma), 2 = Tailândia (RFGA), 3 = Tomé-açu (SAFs), 4 = Paragominas (Side Road), 5 = Tomé-Açu (Cauaxi Farm), 6 = Tailândia (Rio Capim Farm), 7 = Paragominas (Vitória Farm), 8 = Capitão-poço (São Marcos Farm), and 9 = Dom Eliseu. Map based on vegetation and land-use data from Vieira and Almeida (2006).

5) Tomé Açú – Cauaxi Farm: This location (situated at 03°04'52.2"S; 48°17'25.7"W) was sampled during three distinct periods: January 16-25 and August 3-11, 1998 (AA); and May 9-15, 2005 (CEBP, FP, MSS and AA). Cauaxi Farm is situated adjacent to Rio Capim Farm. Both are connected to a large forestal fragment, which is one of the largest still existent in CE Belém (Figure 1).

6) Tailândia – Rio Capim Farm: Rio Capim Farm (situated at 03°04'10.7"S; 48°33'34.7"W) covers an area of 150,000 ha, in which 95,000 ha are occupied by primary forest. A second forestal fragment with different levels of degradation is approximately 30,000 ha, and extends outside the limits of the farm. This area was visited from July 10-30, 2005 by CEBP and MSS, from June 22-23, 2007 by AA and FP, and from August 28 – September 3, 2007 by KJZ and AW.

7) Paragominas – Vitória Farm: The area sampled constitutes a small degraded forestal fragment of 280 ha, completely isolated by pastures and plantations. Situated in the periphery of Paragominas (02°57'21.4"S; 47°22'59.1"W), it was visited by AA on May 13-14, 2005.

8) Capitão Poço – São Marcos Farm: This municipality was originally covered by dense ombrophilous *terra-firme* forest (Vieira and Almeida 2006); a reduced number of fragments currently remaining (Figure 1). The area sampled is a forestal fragment of about 3, 500 ha (situated at 02°12'42.5"S; 47°18'3.3"W), visited by CEBP and MSS on October 11-20, 2005. It is constituted by secondary forest and bordered by large areas of pasture.

9) Dom Eliseu: In this area, vegetation of dense ombrophilous lowland forest predominates, along with secondary vegetation and a matrix of agricultural areas. The sampled area (situated at 04°17'09.0"S; 47°27'12.3"W) was visited by CEBP and LSC on December 9-14, 2009.

Sampling of Avifauna

Species of birds were identified visually with the aid of 10 × 40 and 8.5 × 45 binoculars. The diverse sonorific manifestations emitted by birds were recorded in analog format (Sony TCM 5000 EV Recorder and Sennheiser ME 66 Microphone), and in digital format (Sharp MD DR7 Recorder, Marantz PMD 670 and Sennheiser ME 66 Microphone). To capture and collect the birds we used mist-nets extended in open transects at chosen areas. Birds of large stature and those that inhabit more elevated strata of vegetation are more difficult to capture by mist-nets. Therefore, for their collection and sampling, rifles were used of .22, .20, .28 and .36 caliber. Generally, the activities of avifauna sampling began around 5:00 in the morning and extended until around 20:00 for the observation of nocturnal birds. Mist-nets were usually opened at 6:00 in the morning and closed at 11:00. The number of mist-nets varied according to locality, always maintaining a number of nets between 10 and 20 (12 meters in length and 2.40 m high – from 36 to 30 mm mesh).

Birds collected were taxidermied in standard positions for systematic studies. Some examples collected in duplicate were fixed whole in 4% formaldehyde, and subsequently preserved in 70% ethanol, as were all carcasses of birds that were taxidermied. Biometric data (mass and total length), and coloration of bare parts were also noted for each example collected. Tissue samples (pectoral musculature) were taken from all birds collected, serving for future genetic studies. All materials collected were deposited at the Museu de Zoologia da Universidade de São Paulo, São Paulo, SP (MZUSP), and at the Coleção Ornitológica Fernando C. Novaes of the Museu Paraense Emílio Goeldi, Belém, PA (MPEG).

RESULTS AND DISCUSSION

In all, 441 species belonging to 60 families were registered along the course of this study (Appendix). Of this total, 231 species have voucher specimens deposited at MPEG and/or MZUSP. Table 1 demonstrates the species richness registered in the study area, aside from the number of taxa endemic to CE Belém (Cracraft 1985, Roma 1996, Stotz *et al.* 1996), threatened (Machado *et al.* 2008, SEMA 2007, IUCN 2010), and with restricted distribution (Stotz *et al.* 1996).

Within all of the sampled localities, those situated in the municipalities of Tailândia (Forestal Reserves of the Agropalma Group and Rio Capim Farm), as well as Tomé-Açu (Cauaxi Farm, Madeiracap Farm and SAFs), had the most global richness of species/taxa, including those that are threatened and those with restricted distribution (Table 1). That is besides others of special interest related to conservation, such as migrants of North America (*Ictinia mississippiensis* and *Progne subis*), which serve as indicators of good environmental quality (*Morphnus guianensis, Harpia harpyja, Spizaetus* spp. and *Neomorphus geoffroyi*) and of high hunting value (*Aburria cujubi, Pauxi tuberosa* and *Crax fasciolata pinima*). This can be explained by the existence of large, connected, dense ombrophilous forestal fragments in good state of conservation in the municipalities of Paragominas, Tailândia and Tomé-Açu (Figure 1). On the other hand, the forestal matrix of the municipalities of Capitão-Poço, Dom Eliseu and Santa Bárbara do Pará, besides part of the municipality of Paragominas, principally include forestal fragments of relatively reduced size and in advanced stage of degradation (Figure 1). This explains the presence of

TABLE 1: Richness and number of endemic, threatened, and range-restricted taxa/species recorded during bird surveys carried out between 1998 and 2009 at several localities in the Belém area of endemism, state of Pará, Brazil.

Locality	Number of observed species	No. endemic taxa*	No. threatened species/taxa**	No. species with restricted distribution***
Santa Bárbara do Pará – Gumna	155	8	3	6
Tailândia – RFGA	330	15	12	9
Tomé-açu – SAFs	226	17	9	6
Paragominas – Side Road	39	—	—	—
Cauaxi Farm	241	18	13	9
Rio Capim Farm	233	18	11	8
Vitória Farm	128	6	3	2
Capitão Poço – São Marcos Farm	28	3	2	1
Dom Eliseu	106	6	4	—

* Taxa endemic to the Belém area of endemism according to Cracraft (1985), Roma (1996), and Stotz *et al.* (1996).
** Species/taxa regarded as Vulnerable, Endangered, and Critically Endangered according to Machado *et al.* (2008), SEMA (2007), and IUCN (2010).
*** According to Stotz *et al.* (1996).

more impoverished bird communities with smaller numbers of species that are of special interest for conservation (Table 1).

Among all taxa threatened with extinction and/or endemic to CE Belém (Roma 1996; Machado *et al.* 2008), only two were not registered from the sampled localities: *Threnetes leucurus medianus* (Trochilidae) and *Dendrexetastes rufigula paraensis* (Dendrocolaptidae). In relation to the first taxon, it is possible that more intense sampling using mist-nets would bring individuals of this subspecies to the register, as it is a silent hummingbird that inhabits the dense understory of *terra-firme* forest, especially near creeks. However, in the case of *Threnetes leucurus medianus,* it is possible that the sampling was not sufficiently intense to register this species with naturally low density. On the other hand, the complete absence of records of *Dendrexetastes rufigula paraensis* seems to reflect a true local extinction in the sampled localities, as this is a species with a highly conspicuous vocalization. It makes worrisome the conservation of this taxon endemic to CE Belém, listed as threatened with extinction (Machado *et al.* 2008). The only recent records in CE Belém attributed to this taxon were realized by Sidnei de Melo Dantas on the west bank of the Tocantins River in the region of the hydroelectric plant of Tucuruí, during the period between 2005 and 2007 (Dantas, *pers. comm.,* 2007). In contrast, the intense degradation of the original forestal matrix in parts of CE Belém, as verified in some of the sampled localities, lead to a recent invasion of a species typically associated with open landscapes and usually absent from this biogeographical region of Amazonia, as is the case of *Furnarius rufus* (Furnariidae); or to the populational expansion of other species generally restricted to *várzea* environments and cerrado enclaves in the biome of Amazonia (*e.g., Crypturellus parvirostris* – Tinamidae, *Melanerpes candidus* – Picidae, *Ramphastos toco* – Ramphastidae, *Synallaxis albescens* – Furnariidae, *Piranga flava* – Thraupidae and *Sturnella militaris* – Icteridae).

Relevant Records

Crax fasciolata pinima

This subspecies is one of the least known taxa of the family Cracidae (Silveira 2008), listed as "Endangered" in the national level (Silveira 2008), as well as in the state of Pará (SEMA 2007). Endemic to CE Belém, it was originally found in *terra-firme* forests between the west of Maranhão and the east of the Tocantins River in Pará State. There is no information on the ecology, habits, and habitat of this bird that has not been seen in nature since the end of the 1970s, when the last specimens were collected (del Hoyo 1994, Silveira 2008). Among all of the localities sampled, this species was only registered at the Agropalma Group Forestal Reserves (Appendix) through reports given to LFS by local inhabitants. The inhabitants affirmed that the Bare-Faced Currasow is still can be found in the region, but in very low density in the most conserved patches of forest. It is rarer than *Pauxi tuberosa,* which is larger and very sought after by hunters (Silveira 2008).

Psophia obscura

This endemic taxon of CE Belém is considered as "Endangered" in the national (Machado *et al.* 2008) and at the state level in Pará (SEMA 2007) and recently received a species status (Oppenheimer and Silveira 2009). Among all localities sampled, this taxon was found only in those with the best and most extensive fragments of dense ombrophilous forest: Agropalma Group Forestal Reserves, Cauaxi Farm, and Rio Capim Farm (Figure 1; Appendix). Generally, flocks varying between 3 and 19 individuals were observed on the ground of dense ombrophilous *terra-firme* forest. Hunting, destruction of habitat, and activities like keeping wild pets (still practiced in various localities) are the principal causes of its

decline in CE Belém. Remaining populations probably still occur in fragments still well-conserved in the northeast of Pará and west of Maranhão (Oppenheimer and Silveira 2009).

Guarouba guarouba

This parrot is considered as threatened since 1981 (Laranjeiras 2008). It is listed in IUCN (2010) in the category "Endangered", aside from being considered threatened on the national level (Silveira 2008), and in the state of Pará where it is listed as "Vulnerable" (SEMA 2007). Among all of the sampled localities, this taxon was found only in those with the best and most extensive fragments of dense ombrophilous forest: Agropalma Group Forestal Reserves, Cauaxi Farm and Rio Capim Farm (Figure 1; Appendix). Generally, flocks varying between 3 and 7 individuals were observed perched or flying overhead the dossal of dense, ombrophilous *terra-firme* forest. Intense reproductive activity was verified in the Agropalma Group Forestal Reserves (Silveira and Belmonte 2005). Through technical work realized by CEBP in nearby localities (Goianésia do Pará and Breu Branco) this species also was registered with relative frequency.

Pyrrhura lepida lepida

This taxon is considered as "Endangered" in the national level (Silveira 2008), as well as at the state level in Pará (SEMA 2007). Among all localities sampled, this taxon was found only in those with the best and most extensive fragments of dense, ombrophilous forest (Agropalma Group Forestal Reserves, Cauaxi Farm, Rio Capim Farm and Tomé-Açu – SAFs; Figure 1; Appendix), where it occurred in the forest as well as in hutches and borders of woods. Generally, flocks of up to 15 individuals were observed in the forest dossal and bordering wooded areas. Despite an apparent tolerance for degraded forests, this taxon is found to be threatened by extensive deforestation, aside from clandestine commerce of wild birds which still imposes pressure on remaining populations (Silveira 2008).

Neomorphus geoffroyi

A couple of this species was observed by AW and KJZ on September 2, 2007 at Rio Capim Farm, following army ants. The following day, one sole individual was observed and recorded at the same location. These records confirm the strategic importance of existing forestal fragments in the municipalities of Tomé-Açu, Paragominas and Tailândia for the conservation of species which serve as bioindicators of environmental quality in CE Belém. This is the case of *N. geoffroyi,* a species that occurs in low populational density, even in well-preserved areas (Payne 1997).

Nyctibius leucopterus

At dusk on August 9, 1998, AA heard the typical territorial call of an individual of this species at the border of a *terra-firme* forest along a road in Cauaxi Farm. Subsequently, KJZ and AW registered the species along a road in Rio Capim Farm on August 28 and on September 2, 2007. These represent the first records of *N. leucopterus* for CE Belém, constituting the easternmost obtained until now for this species in Amazonia (InfoNatura 2007). The register the record closest to these hereby reported are from Juruti, also in Pará State around 850 km to the west (Santos *et al.* submitted). The new records for CE Belém appear to confirm the prevision of Cohn-Haft (1999) that *N. leucopterus* is probably distributed locally throughout all of Amazonia.

Pteroglossus bitorquatus bitorquatus

This taxon endemic to CE Belém is considered as "Vulnerable" in the national (Silveira 2008) and "Endangered" at the state level in Pará (SEMA 2007). It was found at most of the localities sampled in primary and secondary forests, except Capitão-Poço, Paragominas – Side Road, Paragominas – Vitória Farm and Santa Bárbara do Pará (Figure 1; Appendix). This indicates a certain tolerance for degradation and forestal fragmentation, as per what was confirmed by CEBP in the region of Jacundá, also in CE Belém, where a species was registered in fragments less than 100 ha.

Piculus chrysochloros paraensis

This taxon is considered as "Endangered" on the list of threatened species of Pará (SEMA 2007). Among all the localities sampled, this taxon was found only at two of those with the best and most extensive fragments of dense ombrophilous forest: Agropalma Group forestal reserve and Cauaxi Farm (Figure 1; Appendix). In these localities, the taxon was rare, and on one occasion (at Cauaxi Farm) a solitary individual was observed foraging in the company of a mixed band. The low populational density of this taxon, linked with its restricted distribution, and associated only to the best forestal fragments among those sampled, suggests that it should be listed as threatened on the national level as well.

Celeus torquatus pieteroyensis

This taxon, with restricted distribution to CE Belém and the forested portion of Marajó Island, is considered as "Endangered" on the list of threatened species of Pará State (SEMA 2007). During fieldwork, this taxon was registered solely at Cauaxi Farm in 2005 in *terra-firme* ombrophilous forest, where one single individual was

heard and recorded. The low populational density of this taxon, linked with its restricted distribution and associated with the best forestal fragments among those sampled, suggests that it should be listed as threatened on the national level as well.

Thamnophilus aethiops incertus

This taxon endemic to CE Belém is considered as "Endangered" on the list of threatened species of Pará State (SEMA 2007). This taxon was commonly found in primary and secondary forests of *terra-firme* at almost all localities sampled, except Paragominas – Side Road (Figure 1; Appendix), which indicates a reasonable degree of tolerance to the degradation and forestal fragmentation currently present in CE Belém.

Phlegopsis nigromaculata paraensis

This taxon endemic to CE Belém is considered as "Endangered" in the national (Machado *et al.* 2008) and at the state level in Pará (SEMA 2007). This taxon was found in primary and secondary forests of *terra-firme* at almost all of the localities sampled, except Paragominas – Side Road and Paragominas – Vitória Farm (Figure 1; Appendix), which indicates a reasonable degree of tolerance to the degradation and forestal fragmentation currently present in CE Belém.

Dendrocolaptes certhia medius

This taxon, with restricted distribution to CE Belém in Amazonia and CE Pernambuco in the northeastern Atlantic Forest, is considered as "Endangered" in the national (Machado *et al.* 2008) and at the state level in Pará (SEMA 2007). Solitary individuals or couples were regularly registered in primary and secondary *terra-firme* Forest at most of the localities sampled, except Dom Eliseu, Paragominas – Side Road and Santa Bárbara do Pará (Figure 1; Appendix), which indicates a reasonable degree of tolerance to degradation and forestal fragmentation. The record of one population of this taxon in a forest fragment of about 8,000 ha, situated in the municipality of Marituba (in the metropolitan region of Belém), corroborates this idea (Dantas, *pers. comm.,* 2010).

Dendrocincla merula badia

This taxon endemic to CE Belém is considered as "Endangered" in the national (Machado *et al.* 2008) and at the state level in Pará (SEMA 2007). Among the localities sampled, this taxon was found only at those with the best and most extensive dense, ombrophilous forest fragments in good state of conservation: Agropalma Group Forestal Reserves, Cauaxi Farm, Rio Capim Farm and Tomé-Açu – SAFs (Figure 1; Appendix). The high degree of ecological specialization of this taxon, as well as its strict association to little-fragmented forests in good state of conservation, are attributes that make it one of the most threatened species of CE Belém (Machado *et al.* 2008).

Synallaxis rutilans omissa

This taxon endemic to CE Belém is considered "Endangered" on the list of threatened species of Pará State (SEMA 2007). It was found in primary and secondary *terra-firme* forests at almost all localities sampled, except Dom Eliseu, Paragominas – Side Road and Paragominas – Vitória Farm (Figure 1; Appendix), which indicates a reasonable degree of tolerance to degradation and forestal fragmentation.

Hemitriccus minimus

On the morning of May 10, 2005, AA heard and recorded the typical territorial call of at least two individuals of this species at the border of a *terra-firme* forest along one of the roads at Cauaxi Farm. These represent the first records of *H. minimus* in CE Belém, apparently to confirm the prevision of Fitzpatrick *et al.* (2004) that this species is probably distributed locally throughout all of Amazonia.

Phylloscartes virescens

This monotypical species, even with restricted distribution to the Guyana Shield, occurs in Brazil in the states of Amapá, Amazonas and Pará (Fitzpatrick *et al.* 2004, Aleixo *et al.* in press). On August 31, 2007, an individual was seen, heard and recorded by KJZ. The next day (September 1st), AW recorded a couple on a different trail, also seen on September 3rd when AW and KJZ together observed and recorded a couple of the species. On all occasions, the observed individuals were foraging in mixed canopy flocks. This is the first register of the species outside of the Guyana Shield (Fitzpatrick *et al.* 2004).

Tolmomyias assimilis paraensis

This taxon endemic to CE Belém is considered "Endangered" on the list of threatened species of Pará State (SEMA 2007), having been found in low densities in primary and secondary forests at Cauaxi Farm, Rio Capim Farm, Vitória Farm, Santa Bárbara do Pará, and Tomé-Açu SAFs (Figure 1; Appendix). This indicates a certain degree of tolerance for degradation and forestal fragmentation.

Conopias parvus

AA registered this species through a single audio contact along a road at Rio Capim Farm on May 23, 2007.

Subsequently, KJZ registered a species through a single individual vocalizing at the same locality. These records are the first for CE Belém and represent the easternmost known of the species (Fitzpatrick *et al.* 2004). Recent fieldwork has revealed the presence of this species in at least three localities of the Madeira – Tapajós interfluvium in the states of Amazonas (Poletto and Aleixo 2005, Dantas *et al.* submitted) and Pará (Santos *et al.* submitted).

Piprites chloris griseicens

This taxon endemic to CE Belém is considered "Endangered" on the list of threatened species of Pará State (SEMA 2007), found in low densities only in those localities of primary forest in good state of conservation: Cauaxi Farm, Rio Capim Farm, Agropalma Group Forestal Reserves, and Dom Eliseu (Figure 1; Appendix). This indicates a certain degree of vulnerability to degradation and forestal fragmentation. The low populational density of this taxon, aligned with its restricted distribution, and associated only with the best forestal fragments among those sampled, suggest that it should be listed as threatened on the national level as well.

Hylophilus hypoxanthus

Audio records of this species obtained by AA in 1998 and 2005 at Cauaxi Farm, and by AW and KJZ in 2007 at Rio Capim Farm (where one individual was recorded on September 2nd) apparently constitute the first records for CE Belém (Ridgely and Tudor 1989, InfoNatura, 2007). On all occasions, the species was registered in mixed canopy flocks.

Tangara velia signata

This taxon endemic to CE Belém is considered "Endangered" on the list of threatened species of Pará state (SEMA 2007). The taxon was found in low densities only at three localities of forestal fragments in the best state of conservation: Cauaxi Farm, Rio Capim Farm and Tomé Açu – SAFs (Figure 1; Appendix). This indicates a certain degree of vulnerability to degradation and forestal fragmentation. Low populational density of this taxon, aligned with its restricted distribution, and associated only with the best forestal fragments among those sampled, suggest that it should be listed as threatened at the national level as well.

Cyanerpes nitidus

Visual records with 1-5 individuals of this species were obtained daily from August 29 through September 2 at Rio Capim Farm by AW and KJZ, apparently constituting the first records for CE Belém (Ridgely and Tudor 1989, InfoNatura, 2007), considerably amplifying its known distribution. On all occasions, the species was registered in mixed canopy flocks.

Political-Environmental Scenario of Eastern Pará

The greatest rates of deforestation in Amazonia occur in the region known as the "Arc of Deforestation", situated in CE Belém. This is explained by a strong pressure from economic groups that occupy public and private lands for the development of agricultural production, logging and cattle-raising (Vieira *et al.* 2008). The state of Pará in particular, on the whole being the region to the east of the Tocantins River, registers the greatest areas of deforestation in absolute terms inside lawful Amazonia (Silva *et al.* 2005). As a result, many species of fauna may have gone locally extinct, as stated in this article. It is not surprising, therefore, that most Amazonian taxa of birds, currently considered threatened in the national and in the state of Pará, are endemic or have their distributions concentrated in CE Belém. So that the conservation of animals and plants of this region may be guaranteed, it is urgent and necessary to create Conservation Units (CUs), whether they be public or private (*e.g.,* RPPNs). Only 1.4% of CE Belém is completely protected by CUs, while 9.77% are occupied by sustainably used CUs, and 6.49% by indigenous lands (Silva *et al.* 2005). Many forested areas of this center of endemism encountered today are highly fragmented and altered (Figure 1). Those in the best state of conservation are remarkable, as is the case of areas with the greatest relevance for avifauna among those sampled in this study: Rio Capim and Cauaxi Farms (administered by business groups of Cikel forestal management) and of Agropalma Group Forestal Reserves (of the biofuel field). It is desirable that an effort be made together by these owners so that the effective conservation of these forestal remains in the area may be guaranteed, including protection from hunters. Strategies like waving or reducing taxes for proprietors that maintain the forest can be efficient in guaranteeing the conservation of the best fragments of forest in CE Belém. Furthermore, the fomentation of long-term fauna monitoring programs (especially of threatened taxa) constitutes another important strategy in the conservation of birds in CE Belém.

ACKNOWLEDGEMENTS

The team of MZUSP would like to thank to Marcello Brito, Hilário Freitas, Celso Santana, Elisa Nogueira and the whole team of Agropalma in Tailândia for supporting our activities; the students and interns at the ornithological laboratory that participated in the project; UPS Brasil (Bruno Ehlers) provided field and laboratory equipment to MZUSP team. FAPESP and CNPq for the concession of fellowships. The team of MPEG would like to thank: CNPq for various research aid (processes 310593/2009-3, 574008/2008-0 and 476212/2007-3);

and the Instituto Nacional de Ciência e Tecnologia em Biodiversidade e Uso da Terra da Amazônia (CNPq/FAPESPA). Fieldwork of the latter team was also partially financed by the following projects: a) "O *Status* de Aves Endêmicas da Amazônia Oriental", supported by the Ministry of the Environment (edital PROBIO no. 01/2003) in association with CNPq (process 0014-00/04); b) "Mapeamento de condições ambientais dos municípios de Paragominas, Ulianópolis, Tomé-Açu, Ipixuna do Pará e Aurora do Pará", supported by the Vale do Rio Doce Company (CVRD); and c) "Efeitos do corte seletivo em comunidades de aves da Fazenda Cauaxi, PA", supported by the Instituto de Pesquisa Ambiental da Amazônia (IPAM), in partnership with IFT and USAID. The managerial group Cikel generously gave us access and logistical support to fieldwork at Rio Capim Farm. We also thank Fátima Lima for constant support with the collection at the Museu Paraense Emílio Goeldi, and Luciano Jorge Serejo dos Anjos for creating Figure 1.

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APPENDIX: Checklist of birds recorded between 1998 and 2009 at nine areas in the municipalities of Santa Bárbara do Pará (Gunma), Tailândia (RFGA and Rio Capim Farm), Tomé-açu (SAFs and Cauaxi Farm), Paragominas (Side Road and Vitória Farm), Capitão-poço (São Marcos Farm), and Dom Eliseu, all situated in the Belém center of endemism, state of Pará, Brazil (see Figure 1). Nomenclature and taxonomy follow CBRO (2011).

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
Tinamidae									
Tinamus tao		X			X	X			
Tinamus major		X							
*Tinamus guttatus** [1]					X				
Crypturellus cinereus	X	X	X			X			X
Crypturellus soui		X	X				X		X
*Crypturellus strigulosus**	X	X	X		X	X	X		X
*Crypturellus variegatus**	X	X	X		X	X			
Crypturellus parvirostris		X		X			X		
Anatidae									
Dendrocygna viduata		X							
Cairina moschata		X			X				
Amazonetta brasiliensis				X	X				
Cracidae									
*Ortalis superciliaris**	X	X	X						X
*Penelope superciliaris**		X	X						X
Penelope pileata [rr 2]		X	X		X				
*Aburria cujubi**					X	X			
Pauxi tuberosa		X				X			
Crax fasciolata pinima [T 3, En 4]		X							
Odontophoridae									
*Odontophorus gujanensis**		X			X	X			
Phalacrocoracidae									
Phalacrocorax brasilianus		X							
Anhingidae									
Anhinga anhinga		X							
Ardeidae									
*Tigrisoma lineatum**			X	X					X
Cochlearius cochlearius		X							
Butorides striata			X						
Bubulcus ibis		X							
Ardea alba		X							
Pilherodius pileatus		X							
Egretta thula		X							
Threskiornithidae									
Mesembrinibis cayennensis		X							
Cathartidae									
*Cathartes aura**	X	X	X		X	X		X	X
*Cathartes burrovianus**	X	X			X				
*Cathartes melambrotus**		X	X		X	X			
Coragyps atratus	X		X		X	X	X	X	X
Sarcoramphus papa					X	X			
Accipitridae									
*Leptodon cayanensis**		X	X						
Chondrohierax uncinatus						X			
Elanoides forficatus		X	X			X	X		
*Gampsonyx swainsonii**		X				X			
Elanus leucurus		X							
Rostrhamus sociabilis		X							
Harpagus diodon		X							
Accipiter superciliosus						X			
Accipiter bicolor		X							
Ictinia mississippiensis		X							
Ictinia plumbea		X	X		X				X

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
Busarellus nigricollis		X							
Geranospiza caerulescens		X							
Urubitinga urubitinga			X		X				
*Rupornis magnirostris**	X	X	X		X	X			
Geranoaetus albicaudatus		X			X	X			
*Pseudastur albicollis**		X							
*Leucopternis kuhli**		X			X				
*Buteo nitidus**		X	X			X	X		X
Buteo brachyurus		X							
Morphnus guianensis		X			X	X			
*Harpia harpyja**		X			X	X			
*Spizaetus tyrannus**		X			X				
Spizaetus ornatus			X		X	X			
Falconidae									
Daptrius ater		X	X		X				
*Ibycter americanus**		X		X	X	X			X
Caracara plancus		X			X		X		X
Milvago chimango		X							X
Herpetotheres cachinnans		X			X		X		X
*Micrastur ruficollis**	X	X			X	X			
*Micrastur mintoni** [rr]	X	X			X	X			
*Micrastur mirandollei**			X						
Micrastur semitorquatus		X							X
Falco sparverius		X							
Falco rufigularis		X	X		X	X			
Falco femoralis		X							
Eurypygidae									
Eurypyga helias		X				X			
Aramidae									
Aramus guarauna		X							
Psophiidae									
Psophia viridis obscura [T, En]		X	X		X	X			
Rallidae									
Aramides cajanea		X							
Laterallus viridis		X	X	X			X		X
Laterallus melanophaius		X							
Porzana albicollis		X							
Gallinula galeata		X							
Charadriidae									
Vanellus cayanus		X							
Vanellus chilensis	X	X		X					
Scolopacidae									
Gallinago paraguaiae		X							
*Actitis macularius**		X							
*Tringa solitaria**		X							
Tringa melanoleuca		X							
Tringa flavipes		X							
Jacanidae									
Jacana jacana		X		X	X			X	
Columbidae									
Columbina passerina	X	X	X	X		X	X		
Columbina talpacoti	X	X	X	X	X	X	X		X
Columbina squammata		X		X					
Claravis pretiosa						X			
Patagioenas speciosa		X			X				
Patagioenas cayannensis	X	X	X						X
*Patagioenas plumbea**	X	X	X		X	X			
*Patagioenas subvinacea**	X	X	X		X	X			X

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
Zenaida auriculata							X		
Leptotila verreauxi		X					X		
Leptotila rufaxilla		X	X				X		X
*Geotrygon montana**		X	X		X		X	X	
Psittacidae									
*Ara macao**		X				X			
*Ara chloropterus**	X	X	X		X	X			X
*Guaruba guarouba** [rr, T]		X			X	X			
Aratinga leucophthalma			X						
*Pyrrhura lepida lepida** [T, En]		X	X		X	X			
Pyrrhura amazonum			X		X				X
Forpus passerinus	X	X							
Brotogeris versicolurus	X	X							
*Brotogeris chrysoptera**		X	X		X	X	X		X
*Touit purpuratus**						X			
*Pionites leucogaster**	X	X	X		X	X			
*Pyrilia vulturina** [rr]		X	X		X	X			
*Pionus menstruus**	X	X	X	X	X	X	X		X
*Pionus fuscus**	X	X	X		X	X			
*Amazona farinosa**	X	X	X		X	X			
*Amazona amazonica**	X	X	X		X		X		X
*Deroptyus accipitrinus**		X	X		X	X			
Cuculidae									
Coccycua minuta		X							
*Piaya cayana**	X	X	X		X	X	X		X
Crotophaga major		X							
*Crotophaga ani**	X	X	X	X	X	X			X
Tapera naevia	X	X	X		X		X		
Dromococcyx phasianellus									X
Dromococcyx pavoninus		X				X			
*Neomorphus geoffroyi**						X			
Tytonidae									
Tyto alba		X							
Strigidae									
Megascops choliba	X	X	X		X				
*Megascops usta**		X			X	X			
Lophostrix cristata		X			X	X			
Pulsatrix perspicillata		X							
Strix virgata		X			X				
Strix huhula					X				
*Glaucidium hardyi**		X	X		X	X			
Nyctibiidae									
*Nyctibius grandis**		X	X						
Nyctibius aethereus			X						
*Nyctibius griseus**		X	X						
Nyctibius leucopterus					X	X			
Caprimulgidae									
*Nyctiphrynus ocellatus**		X			X	X			
*Antrostomus rufus**		X							
Lurocalis semitorquatus		X			X	X			
*Hydropsalis nigrescens**	X	X							
*Hydropsalis albicollis**	X	X			X	X	X		
Hydropsalis parvula		X							
Apodidae									
*Chaetura spinicaudus**		X	X		X	X			
Chaetura cinereiventris					X		X		
Chaetura meridionalis							X		
Chaetura brachyura	X	X	X		X	X			

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
Tachornis squamata		X							
Panyptila cayennensis					X				
Trochilidae									
*Glaucis hirsutus**	X	X	X		X				
*Phaethornis ruber**	X	X	X		X	X	X		X
*Phaethornis superciliosus**	X	X	X		X	X	X	X	X
*Campylopterus largipennis**	X	X	X		X	X	X		X
Eupetomena macroura					X				
*Florisuga mellivora**	X	X	X		X	X	X		
*Anthracothorax nigricollis**		X							
*Topaza pella**		X							
Chrysolampis mosquitus						X			
Lophornis gouldii						X			
Discosura longicaudus		X				X			
*Thalurania furcata**	X	X	X		X	X	X		X
*Hylocharis sapphirina**		X	X		X	X			
*Hylocharis cyanus**	X	X			X	X			
Polytmus theresiae		X							
Amazilia fimbriata			X						
*Heliothryx auritus**		X	X		X	X	X		
Heliomaster longirostris			X		X				
Trogonidae									
*Trogon melanurus**	X	X			X		X		
*Trogon viridis**	X	X	X		X	X			X
*Trogon ramonianus**		X	X						
Trogon curucui			X						X
*Trogon rufus**	X	X	X		X	X			
Alcedinidae									
Megaceryle torquata		X		X	X				
Chloroceryle amazona		X							
Chloroceryle americana		X							
Chloroceryle inda		X	X						
Momotidae									
*Momotus momota**	X	X	X		X	X			X
Galbulidae									
*Brachygalba lugubris**		X			X	X			
*Galbula cyanicollis**		X	X		X	X		X	X
Galbula ruficauda				X	X				
*Galbula dea**	X	X			X	X			
*Jacamerops aureus**		X			X	X			
Bucconidae									
*Notharchus hyperrhynchus**		X	X		X	X			
*Notharchus tectus**		X	X		X				
Bucco tamatia		X			X				
*Bucco capensis**	X				X				
*Nystalus striolatus**	X	X	X		X	X			X
*Malacoptila rufa**	X	X	X		X	X		X	
Monasa nigrifrons		X							
*Monasa morphoeus**	X	X	X		X	X	X		X
*Chelidoptera tenebrosa**	X	X	X		X				
Ramphastidae									
Ramphastos toco							X		
*Ramphastos tucanus**	X	X	X		X	X	X	X	X
*Ramphastos vitellinus**	X	X	X		X	X	X		X
*Selenidera gouldii**					X	X			
*Pteroglossus inscriptus**			X		X	X			
*Pteroglossus bitorquatus bitorquatus** [T, En]		X	X		X	X			X
*Pteroglossus aracari**	X	X	X		X	X	X		

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
Picidae									
Picumnus exilis						X			
Melanerpes candidus				X					
Melanerpes cruentatus	X	X	X		X	X			X
*Veniliornis affinis**	X	X	X		X	X	X		X
*Piculus flavigula**		X	X		X	X	X		
*Piculus chrysochloros paraensis** [T]		X			X				
Colaptes melanochloros							X		
*Celeus undatus**		X	X		X	X			
Celeus flavus			X						
Celeus torquatus pieteroyensis [T]					X				
Dryocopus lineatus	X	X	X	X			X		
*Campephilus rubricollis**	X	X	X		X	X	X	X	X
Campephilus melanoleucos		X	X			X			X
Thamnophilidae									
*Myrmornis torquata**					X	X	X		
Myrmeciza atrothorax	X				X				
Myrmotherula multostriata				X					
*Myrmotherula hauxwelli**	X	X	X		X	X	X	X	X
*Myrmotherula axillaris**	X	X	X		X	X	X		X
*Myrmotherula longipennis**	X	X	X		X	X	X	X	X
*Myrmotherula menetriesii**	X	X	X		X	X	X		
Formicivora grisea	X	X	X	X		X	X		
*Thamnomanes caesius**	X	X	X		X	X	X	X	X
*Dysithamnus mentalis**	X	X			X	X	X		
*Herpsilochmus rufimarginatus**	X	X	X		X	X			X
Thamnophilus doliatus				X					X
Thamnophilus palliatus		X	X				X		
Thamnophilus schistaceus			X			X			
Thamnophilus stictocephalus			X				X		
*Thamnophilus aethiops incertus** [T, En]	X	X	X		X	X	X		X
*Thamnophilus amazonicus**		X	X	X	X	X			X
*Taraba major**	X	X		X			X		X
Sclateria naevia		X	X						
*Hypocnemoides maculicauda**		X	X						
*Pyriglena leuconota**	X	X	X		X	X	X		X
*Cercomacra cinerascens**	X	X	X		X	X	X		X
*Cercomacra laeta**	X	X	X		X	X	X		X
*Willisornis poecilinotus**	X	X	X		X	X	X	X	X
*Phlegopsis nigromaculata paraensis** [T, En]	X	X	X		X	X		X	X
Conopophagidae									
*Conopophaga roberti** [rr]	X	X	X		X	X	X		
Grallariidae									
*Grallaria varia**					X	X			
*Hylopezus macularius**					X	X			
Formicariidae									
*Formicarius colma**		X	X		X	X			
*Formicarius analis**		X	X		X	X			
Scleruridae									
*Sclerurus mexicanus**	X	X	X		X	X		X	
*Sclerurus rufigularis**					X				
*Sclerurus caudacutus**					X				
Dendrocolaptidae									
*Dendrocincla fuliginosa**	X	X	X		X	X	X	X	
*Dendrocincla merula badia** [T, En]		X	X		X	X			
*Deconychura longicauda zimmeri** [T]		X			X	X			
*Certhiasomus stictolaemus**		X	X		X	X			
*Glyphorynchus spirurus**	X	X	X		X	X	X	X	

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
*Dendrocolaptes certhia medius** [T]		X	X		X	X	X	X	
Dendroplex picus		X	X				X		X
*Xiphorhynchus spixii** [rr]	X	X	X		X	X			
*Xiphorhynchus obsoletus**		X	X						X
*Xiphorhynchus guttatus**	X	X	X		X	X	X		X
*Lepidocolaptes albolineatus**	X		X		X	X	X		X
Furnariidae									
*Xenops minutus**	X	X	X		X	X	X	X	
Xenops rutilans		X							
Furnarius rufus			X		X				
*Automolus paraensis** [rr]	X	X			X	X			
Automolus ruftipileatus			X			X			
*Philydor ruficaudatum**		X			X	X		X	
*Philydor erythrocercum**		X	X		X	X		X	X
*Philydor erythropterum**					X				
Philydor pyrrhodes						X			
Certhiaxis cinnamomeus		X							
Synallaxis albescens		X			X		X		
*Synallaxis rutilans omissa** [En]	X	X	X		X	X		X	
*Synallaxis gujanensis**	X	X	X						
Cranioleuca gutturata						X			
Pipridae									
*Tyranneutes stolzmanni**	X	X	X		X	X	X		X
*Pipra rubrocapilla**	X	X	X		X	X			
*Lepidothrix iris** [rr]	X				X	X		X	
*Manacus manacus purissimus** [En]	X	X	X		X	X			X
*Dixiphia pipra**	X	X	X		X	X		X	
*Chiroxiphia pareola**	X	X	X		X	X			
Tityridae									
Oxyruncus cristatus					X	X			
*Onychorhynchus coronatus**	X	X			X	X	X	X	
*Terenotriccus erythrurus hellmayri** [En]		X			X	X	X	X	
*Myiobius barbatus**	X	X	X		X	X			X
*Schiffornis turdina**	X	X	X		X	X		X	
*Laniocera hypopyrra**		X			X				
*Iodopleura isabellae paraensis** [En]					X	X			
Tityra inquisitor		X			X	X			X
*Tityra cayana**		X				X	X		
Tityra semifasciata		X	X		X		X		
Pachyramphus viridis			X		X				
*Pachyramphus rufus**	X	X	X	X	X		X		X
Pachyramphus castaneus					X				
*Pachyramphus polychopterus**	X	X				X	X		
*Pachyramphus marginatus**	X	X			X	X			
*Pachyramphus minor**					X	X	X		
Pachyramphus validus						X			
Cotingidae									
*Lipaugus vociferans**	X	X	X		X	X	X	X	
*Xipholena lamellipennis** [rr]	X	X	X			X			
*Cotinga cotinga**	X					X			
Cotinga cayana	X	X			X	X			
*Haematoderus militaris**					X				
*Querula purpurata**	X	X	X		X	X	X		X
*Phoenicircus carnifex**						X			
Incertae sedis									
*Platyrinchus saturatus**	X	X	X		X	X			
Platyrinchus coronatus						X			
*Platyrinchus platyrhynchos**	X	X	X		X	X			

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
*Piprites chloris griseicens** [T, En]		X	X		X	X			X
Rhynchocyclidae									
*Taeniotriccus andrei**		X							
*Mionectes oleagineus**		X	X						
*Mionectes macconnelli**	X	X				X	X		
*Corythopis torquata**					X	X			
Phylloscartes virescens						X			
*Rhynchocyclus olivaceus**	X	X							
*Tolmomyias sulphurescens mixtus** [En]		X	X			X	X		
*Tolmomyias assimilis paraensis** [T, En]	X		X		X	X	X		
Tolmomyias poliocephalus	X		X				X		
Tolmomyias flaviventris	X	X	X	X		X	X		X
Todirostrum maculatum	X	X							
Todirostrum cinereum				X			X		
Todirostrum chrysocrotaphum	X		X						
Poecilotriccus sylvia	X	X	X	X		X	X		
Myiornis ecaudatus	X	X	X		X	X	X		
Hemitriccus minimus					X				
*Lophotriccus galeatus**	X	X	X			X	X		X
Tyrannidae									
*Zimmerius gracilipes**	X		X		X	X	X		
*Ornithion inerme**	X	X	X		X	X	X		
Camptostoma obsoletum		X	X	X		X			X
*Elaenia flavogaster**	X	X	X			X	X		
Elaenia spectabilis						X			
Elaenia chiriquensis							X		
*Myiopagis gaimardii**	X	X	X		X	X	X		X
Myiopagis caniceps			X		X	X	X		
Tyrannulus elatus	X	X	X	X	X	X			
*Phaeomyias murina**	X	X	X	X	X		X		
*Attila spadiceus**	X	X	X		X	X	X		
*Legatus leucophaius**		X	X		X	X			
*Ramphotrigon ruficauda**		X	X		X				
*Myiarchus tuberculifer**	X		X		X	X	X		X
Myiarchus ferox	X	X	X			X	X		
Sirystes sibilator			X		X	X			
*Rhytipterna simplex**	X	X	X		X	X	X		
Casiornis fuscus			X						
*Pitangus sulphuratus**	X	X	X	X	X	X	X		
Philohydor lictor		X							
Machetornis rixosa					X				
*Myiodynastes maculatus**		X			X	X			
Megarynchus pitangua	X	X	X		X				X
*Myiozetetes cayanensis**	X	X	X		X	X	X		X
Myiozetetes similis				X					X
*Tyrannus melancholicus**	X	X	X		X	X			
Griseotyrannus aurantioatrocristatus							X		
*Empidonomus varius**	X	X	X		X	X	X		X
Conopias parvus						X			
Colonia colonus						X			X
Myiophobus fasciatus				X	X		X		
*Sublegatus obscurior**	X					X			
Arundinicola leucocephala			X						
Lathrotriccus euleri			X		X				
Vireonidae									
*Cyclarhis gujanensis**		X			X	X	X		X
*Vireo olivaceus**						X			X
*Hylophilus semicinereus**		X	X			X			X

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
Hylophilus pectoralis		X					X		
Hylophilus hypoxanthus					X	X			
*Hylophilus ochraceiceps rubrifrons** [En]			X		X	X			
Hirundinidae									
Atticora tibialis						X			
*Stelgidopteryx ruficollis**	X	X	X		X	X	X		
Progne tapera		X							
*Progne subis**		X							
Progne chalybea	X	X	X		X	X			X
Tachycineta albiventer		X							
Troglodytidae									
*Microcerculus marginatus**	X	X	X		X	X			
*Troglodytes musculus**	X	X	X		X	X	X		
Campylorhynchus turdinus									X
*Pheugopedius genibarbis**	X	X	X		X	X	X		X
Cantorchilus leucotis		X							
Donacobiidae									
Donacobius atricapilla		X							
Polioptilidae									
*Ramphocaenus melanurus austerus** [En]	X	X	X		X	X	X		
Polioptila plumbea		X	X						
*Polioptila guianensis**						X			
Turdidae									
Turdus leucomelas	X	X			X		X		
Turdus fumigatus		X	X						
*Turdus albicollis**	X	X	X		X	X			
Coerebidae									
*Coereba flaveola**	X	X	X		X	X	X		
Thraupidae									
*Saltator grossus**		X	X		X	X	X		X
*Saltator maximus**	X	X	X	X	X	X	X		X
Saltator coerulescens		X							
*Lamprospiza melanoleuca**		X	X		X	X			X
Tachyphonus rufus	X	X	X		X		X		X
*Ramphocelus carbo**	X	X	X		X	X			X
*Lanio cristatus pallidigula** [En]		X	X		X	X			X
Lanio cucullatus							X		
Lanio versicolor		X							
*Lanio surinamus**	X	X	X			X			X
*Tangara gyrola**	X	X							
Tangara mexicana		X	X						X
Tangara chilensis			X						X
*Tangara velia signata** [En]			X		X	X			
*Tangara punctata**	X	X							
*Tangara episcopus**	X	X	X		X	X			
*Tangara palmarum**	X	X	X		X	X	X		X
Cissopis leverianus		X							X
Shistochlamys melanopis		X							
Tersina viridis			X						
*Dacnis lineata**		X	X			X			
*Dacnis cayana**		X	X			X			X
Cyanerpes nitidus						X			
*Cyanerpes caeruleus**	X	X	X		X	X			
*Cyanerpes cyaneus**					X				
*Chlorophanes spiza**		X	X		X	X			
Hemithraupis guira		X	X		X	X	X		X
Emberizidae									
Zonotrichia capensis	X	X					X		

TAXON	GUNMA	RFGA	SAFs	Vicinal	Cauaxi	Rio Capim	Vitória	São Marcos	Dom Eliseu
*Ammodramus aurifrons**	X	X	X			X			
Sicalis columbiana		X							
Emberizoides herbicola		X		X					
Volatinia jacarina	X	X	X	X		X	X		
*Sporophila plumbea**		X							
Sporophila americana		X	X		X		X		
Sporophila collaris			X						
Sporophila lineola				X					
*Sporophila nigricollis**		X			X				
Sporophila caerulescens			X	X			X		
*Sporophila minuta**		X					X		
*Sporophila castaneiventris**		X			X				
*Sporophila angolensis**		X	X	X			X		X
*Arremon taciturnus**	X	X	X		X	X	X		
Cardinalidae									
*Granatellus pelzelni paraensis** [En]	X		X		X	X	X		
*Caryothraustes canadensis**		X	X		X	X			
*Periporphyrus erythromelas** [rr]		X	X		X		X		
*Cyanoloxia cyanoides**	X	X	X			X			
Parulidae									
Geothlypis aequinoctialis							X		
*Phaeothlypis rivularis**		X	X			X	X		
Icteridae									
*Psarocolius viridis**		X				X			
Psarocolius decumanus		X	X						X
*Psarocolius bifasciatus bifasciatus** [En]	X	X	X		X				
Procacicus solitarius					X				
Cacicus haemorrhous		X			X		X		
*Cacicus cela**	X	X	X		X	X	X		X
Icterus cayanensis		X	X		X				X
Chrysomus ruficapillus		X							
Molothrus oryzivorus		X	X			X			
*Molothrus bonariensis**	X	X		X	X				X
Sturnella militaris		X	X	X					
Fringillidae									
Euphonia chlorotica		X							
*Euphonia violacea**			X						X
Euphonia chrysopasta					X	X			
Euphonia minuta		X							
*Euphonia cayennensis**	X	X	X		X	X			
Passeridae									
Passer domesticus		X					X		

Key to the Appendix

[1] Taxon/species names followed by an asterisk (*) denote those for which specimens were collected in or nearby the sampled areas in the Belém area of endemism. Specimens are deposited at Museu Paraense Emílio Goeldi, Belém, Pará (MPEG) and Museu de Zoologia da Universidade de São Paulo, São Paulo (MZUSP).

[2] Taxon/species names followed by the acronym (**rr**) indicate those with restricted or comparatively small ranges following Stotz *et al.* (1996).

[3] Taxon/species names followed by the acronym (**T**) indicate those regarded as Vulnerable, Endangered, and Critically Endangered according to Machado *et al.* (2008), SEMA (2007), and IUCN (2010).

[4] Taxon/species names followed by the acronym (**En**) indicate those endemic to the Belém area of endemism according to Cracraft (1985), Roma (1996), and Stotz *et al.* (1996).

Revista Brasileira de Ornitologia, 19(2), 185-199
Junho de 2011

ARTIGO

Avifauna of the Upper Purus River, State of Acre, Brazil

Edson Guilherme[1] and Sidnei de Melo Dantas[2]

[1.] Universidade Federal do Acre, Centro de Ciências Biológicas e da Natureza, Laboratório de Paleontologia. E-mail: guilherme@ufac.br
[2.] Pós-Graduação em Zoologia, Universidade Federal do Pará, Museu Paraense Emílio Goeldi. E-mail: smdantas@yahoo.com

Recebido em 28/02/2011. Aceito em 14/05/2011.

RESUMO: Avifauna do Alto Rio Purus, Estado do Acre, Brasil. Realizou-se, no período de 17 a 31 de agosto de 2007, um inventário ornitológico na calha do rio Purus dentro do estado do Acre, no trecho compreendido entre a balsa do Purus (encontro da BR-364 com o rio) até a foz do rio Chandless. Após 980 horas.rede e sete horas de gravações, registrou-se 325 espécies de Aves na região. Dentre as espécies registradas 5,9% (19), possuem distribuição geográfica restrita às terras baixas da Amazon sul-ocidental. Foram registradas também diversas espécies migratórias setentrionais e austrais e ampliou-se a distribuição geográfica de alguns táxons dentro da Amazônia brasileira.

PALAVRAS-CHAVE: Amazonia; Rio Purus; Acre; Extensões de distribuição.

ABSTRACT: Avifauna of the Upper Purus River, State of Acre, Brazil. An inventory of bird fauna was carried out on August 17-31, 2007, in the Purus River Basin, state of Acre. The area surveyed is located in the stretch between the "balsa do Purus" (location where the Brazilian road BR-364 meets the Purus River) and the mouth of the Chandless River. A total of 325 bird species was registered during 980 net.hours of mist-netting and seven hours of vocalization recordings. Nearly six percent of the species recorded (19) are endemic to the southwestern Lowland Amazon Basin. A number of important observations were made of northern and southern migrants, as well as range extension of many taxa in the Brazilian Amazon.

KEY-WORDS: Amazon; Purus River; Acre; Range extension.

The Purus River raises in Peru (Department of Ucayali) in a protected area of Peruvian Amazon, encompassing around 2.7 million hectares known as the "Zona Reservada Del Alto Purus" (Pitman 2003). In its precursor of about 3.218 km, the river cuts the Brazilian states of Acre and Amazonas until it empties into the Solimões River, not very distant from the city of Manaus, in central Amazon (Sousa-Júnior *et al.* 2006).

In Acre, the Purus River forms the second largest hydrographic basin of the state, losing only to the Juruá Basin (Acre 2000). The Purus River Basin at its headwaters is little inhabited. Most inhabitants, known in the region as 'ribeirinhos', are concentrated along both margins of the main river. The course of the Purus is meandering and sinuous (Sousa-Júnior *et al.* 2006). Owing to the dynamic of erosion/sedimentation, many stretches of the river have been abandoned through time and have formed environments known regionally as 'lakes' or 'lagoons'. During periods of heavy rain, between October and March, extensive areas of earth are flooded, resulting in *várzeas*. In contrast, during dry months the volume of water drastically diminishes, forming sandy beaches along the margins and some rapids along some determined stretches of the river bed. Locals call these rapids 'waterfalls'.

In relation to fauna and flora, the Purus Basin is poorly known. Yet the few studies conducted in the region of the river's headwaters in Peruvian territory have demonstrated unequaled biological diversity (Pitman *et al.* 2003). The large species diversity found in the upper Purus surely is related to the diversity of habitats present in the region. One part of these habitats is formed by the dynamic of the river itself. Other habitats consist of periodically inundated forests (*várzeas*), marshes and sandy beaches, and of course, the ombrophilous forests of terra-firme dominated by palm trees and/or bamboos (Pitman *et al.* 2003).

The first known avifaunistic records of the Purus Basin in Brazil were done by Snethlage (1908) from a study of 565 specimens of birds collected by a team from the Museu Paraense Emílio Goeldi in 1903 and 1904, at the central portion of the Purus, state of Amazonas. Some decades later, the Swedish Count Nils Gyldenstolpe studied in detail 1,600 specimens of birds collected in 1935-36 by the professional collector and taxidermist Sr. Alfonso M. Olalla along the central and lower Purus, also in the state of Amazonas (Gyldenstolpe 1951). Nevertheless, it is at the upper Purus River on Peruvian territory that ornithological surveys revealed an impressive diversity of birds. These were realized in the 1960s and 1970s by the American John P. O'Neill. Studies done in the region of the Curanja River, a tributary originating from the left bank of the upper Purus, registered more than 400 local

species (O'Neill 1974, 2003), besides bringing to light various species new to science (Lowery and O'Neill 1965, 1966, 1969; O'Neill 1966, 1969). According to O'Neill (2003), species records of this large quantity in one sole region had made the district of Balta in Peru the area with the greatest diversity of birds on the planet for many years. The impressive number of bird species identified from Balta was only surpassed in the 1980s with the register of more that 500 species in other localities. Examples of these localities are Cocha Cashu (Terborg *et al.* 1984) and Tambopata in Peru (Parker III *et al.* 1994), and the Alto Juruá Extractive Reserve, in Brazil (Whittaker *et al.* 2002; Brown and Freitas, 2002).

Despite the surveys mentioned above, the portion of the Purus River that cuts through the state of Acre had never again been visited from an ornithological perspective. The scarcity of biological surveys along this portion of the Purus contributes to the central region of Acre being the least known in relation to all faunistic groups (Capobianco *et al.* 2001). Therefore, aiming to augment ornithological knowledge of a distant and remote region of Brazilian Amazon, it had been decided to mount an expedition to the upper Purus Channel with the objective of recording and collecting voucher specimens for the Museu Paraense Emílio Goeldi, according to the measures outlined in the thesis project of EG entitled "Avifauna of the State of Acre: Composition, Geographic Distribution and Conservation" (Guilherme 2009).

MATERIAL AND METHODS

Study Area

The survey took place during the period of August 17-31, 2007. Three localities were visited: (a) the locality of Santa Cruz Velha, right bank of the Purus, directly upriver from where BR-364 meets with the river (09°00'48.1"S; 69°32'02.6W; Figure 1); (b) Seringal Terra-Nova, left bank of the Purus, shortly upriver from the mouth of the Chandless River (09°07'20,8"S; 69°49'39.1"W; Figure 1); (c) left bank of the Chandless River, approximately 3 km from its mouth (09°09'26,4"S; 69°50'48,3"W). Beyond these localities, additional observations were made in the region of encounter between BR-364 and the river, known as the "porto da balsa do Purus" (Purus ferry port), as well as along the river at the length between the Purus ferry and inventoried localities.

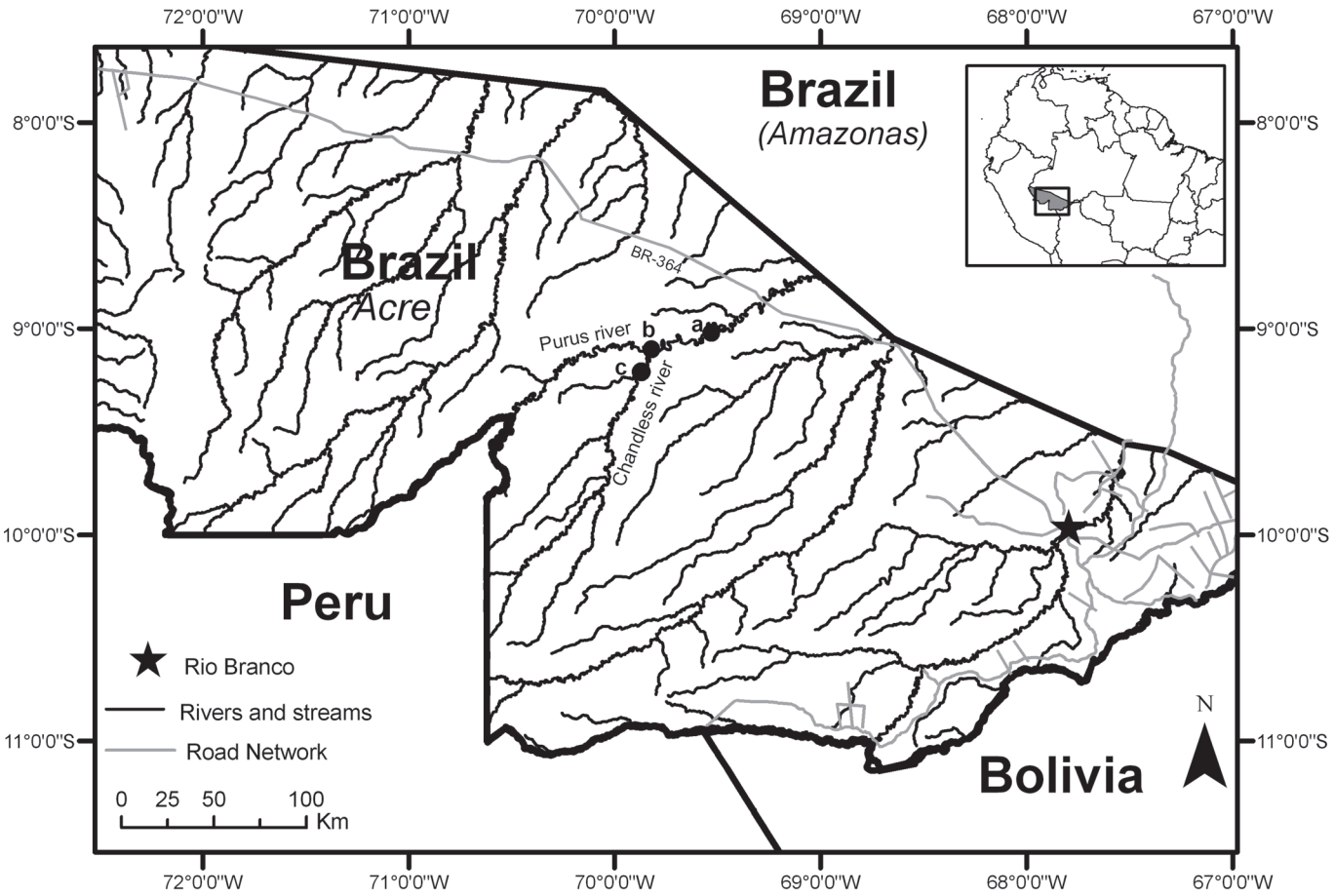

FIGURE 1: Study area: a = Locality Santa Cruz Velha, right bank of the Purus River (09°00'48.1"S; 69°32'02.6"W); b = Seringal Terra Nova, left bank of the Purus River, just upstream of the Chandless River mouth (09°07'20,8"S; 69°49'39.1"W); c = left bank of the Chandless River, approximately 3 km from its mouth (09°09'26,4"S; 69°50'48,3"W).

The sampled environments were: Ombrophilous forest of terra-firme with palm trees and/or bamboos; periodically inundated forest (*várzea*); sandy beaches, river banks and creeks (Table 1).

Survey of Species

Two approaches were taken to inventory the avifauna: (a) a quantitative approach, through the use of 20 (twenty) mist-nets of 12 m in length by 2 m in height and 36 mm mesh; and (b) a qualitative approach, through field observations using binoculars and recordings (with a Marantz analogical recorder, and a Sennheiser ME66 directional microphone). Recordings on cassette tapes were digitalized posteriorly using the program Adobe Audition 2.0. The nets were framed in linear transects, containing 10 nets each in the following environments: (a) open ombrophilous terra-firme forest dominated by palm trees and bamboos; and (b) vàrzea forest. The nets were opened at dawn at 05:30 h and remained open until 15:00 h to maximize the number of captures. Voucher specimens were collected for further lab studies. All collected specimens were prepared using standard taxidermic procedures (Hidasi-Filho, 1991).

The collection of specimens was authorized by the Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis through the SISBIO license Nº 10765-1/2007. All specimens collected were deposited in the Laboratory of Ornithology of the Museu Paraense Emílio Goeldi – MPEG. Scientific nomenclature used in this manuscript is that proposed by the CBRO (2010).

RESULTS AND DISCUSSION

After 14 days of sampling and an effort of 980 net/hours, as well as seven hours of recordings, 325 species of birds in the region were recorded (Table 1). This represents 76.4% of the 425 species recorded by O'Neill (1974) in the Balta region of the upper Purus on the Peruvian side after 18 months of sampling. Of the species recorded during this expedition, 5.8% (19) possessed geographic distribution restricted to the Inambari Area of Endemism, according to the list compiled by Cracraft (1985). This represents 42.2% of all birds restricted to this area of endemism. Some of the species recorded represent an increase in the known geographical distribution of the taxon on Brazilian territory (*e.g., Chrysolampis mosquitus* (Linnaeus 1758), *Xiphorhynchus chunchotambo* (Tschudi 1844) and *Picumnus subtilis* Stager 1968). Some are poorly known in the Brazilian Amazon like, for example, *Crypturellus atrocapillus* (Tschudi 1844), *Brachygalba albogularis* (Spix 1824), *Conioptilon mcilhennyi* Lowery and O'Neill 1966, among others. Furthermore, this survey also reveals the presence of important septentrional migratory species (Guilherme and Dantas in press; Table 1), as well as austral ones (*e.g., Tyrannus albogularis* Burmeister 1856; Table 1).

Records of Biogeographical Relevance

Crypturellus bartletti (Sclater and Salvin 1873)

Species with geographical distribution restricted to the Inambari Area of Endemism (Haffer 1978; Cracraft 1985). This species has been recorded all over the state of Acre (Novaes, 1957; Whittaker and Oren 1999; Whittaker *et al.* 2002; Aleixo and Guilherme 2010). Three male species were collected; one in the locality of Santa Cruz Velha (MPEG 63242), and two in Seringal Terra Nova (MPEG 63243-44; Table 1). All individuals of *C. bartletti* collected were in *várzea* forest, corroborating with the ideas of Stotz *et al.* (1996) and the observations of Schulenberg *et al.* (2007) that associated this species with periodically inundated forests in the Amazonian southwest.

Crypturellus atrocapillus (Tschudi 1844)

This is an endemic species of the southwestern lowlands of Amazon, near the foothills of the Andes Mountains (Cracraft 1985; Schulenberg *et al.* 2007). It was registered in Brazil for the first time by Whittaker and Oren (1999) from recordings of its vocalization in diverse localities of the upper Juruá River, west of Acre. After the first register of this species in Acre, various others were made in practically the whole state (Guilherme 2009; Guilherme and Santos 2009; Aleixo and Guilherme 2010; Mestre *et al.* 2010). Besides no other specimen having yet to be collected in Brazilian territory (Guilherme 2009), *C. atrocapillus* has an easily recognizable call, which facilitates its identification. This species was registered practically every day in diverse environments, including terra-firme ombrophilous forests with bamboos and *várzea* forests along the entire Purus Channel covered during this survey.

Anhima cornuta (Linnaeus 1766)

Even though this species is widely distributed in the Amazon and occurs in many regions of Brazil (Sick 1997; Erize *et al.* 2006), *A. cornuta* still had not been confirmed in the state of Acre. The only reference of this species in the state was from a supplementary list by Whittaker *et al.* (2002), which indicated its probable occurrence at the limits of the Alto Juruá Extractive Reserve. During our trip on the river from the ferry port until Seringal

TABLE 1: List of families and species of birds recorded in upper Purus, central region of the state of Acre.
Habitat: FP = Ombrophilous forest of terra-firme with palm trees; FB = Open ombrophilous forest with bamboos; FV = Periodically inundated forest (*várzea*); R = River banks and sandy beaches; A = Open area; AP = Open area with pasture; BF = Border of the forest.
Records: E = Specimen collected and deposited at the Museu Paraense Emílio Goeldi; O = Observed; V = Vocalization recorded and recognized. In the Records column, the superscript letter after the catalogue number indicates the locality of: a = Santa Cruz Velha; b = Seringal Terra Nova; c = left bank of the Chandless River, approximately 3 km from its mouth.

SPECIES	ENGLISH NAME	HABITAT	RECORDS
Tinamidae (6)			
Tinamus tao Temminck 1815	Gray Tinamou	FP	Vb
Crypturellus cinereus (Gmelin 1789)	Cinereous Tinamou	FP; FB	Va,b
Crypturellus soui (Hermann 1783)	Little Tinamou	FP	Va,b
Crypturellus undulatus (Temminck 1815)	Undulated Tinamou	FP	Va,b
Crypturellus atrocapillus (Tschudi 1844)	Black-capped Tinamou	FB	Va,b
Crypturellus bartletti (Sclater and Salvin 1873)*	Bartlett's Tinamou	FP; FB, FV	E (MPEG- 63242a; 63243b, 63244b)
Anhimidae (1)			
Anhima cornuta (Linnaeus 1766)	Horned Screamer	R	Oa,b
Cracidae (3)			
Ortalis guttata (Spix 1825)	Speckled Chachalaca	FP, FV, BF	E (MPEG 63245b); Va
Penelope jacquacu Spix 1825	Spix's Guan	FP, FV	Va,b
Aburria cumanensis (Jacquin 1784)	Blue-throated Piping-Guan	FV, FP	Vb
Odontophoridae (1)			
Odontophorus stellatus (Gould 1843)	Starred Wood-Quail	BF, FP	Vb
Ardeidae (7)			
Tigrisoma lineatum (Boddaert 1783)	Rufescent Tiger-Heron	R, FV	Oa,b
Butorides striata (Linnaeus 1758)	Striated Heron	R, FV	Oa,b
Bubulcus ibis (Linnaeus 1758)	Cattle Egret	R, AP	Oa,b
Ardea cocoi Linnaeus 1766	Cocoi Heron	R, FV	Oa,b
Ardea alba Linnaeus 1758	Great Egret	R	Oa,b
Pilherodius pileatus (Boddaert 1783)	Capped Heron	R, FV	Oa,b
Egretta thula (Molina 1782	Snowy Egret	R	Oa,b
Threskiornithidae (1)			
Mesembrinibis cayennensis (Gmelin 1789)	Green Ibis	R, FV	E(MPEG 63241a); Ob
Ciconiidae (1)			
Mycteria americana Linnaeus 1758	Wood Stork	R	Oa,b
Cathartidae (4)			
Cathartes aura (Linnaeus 1758)	Turkey Vulture	A	Oa,b
Cathartes melambrotus Wetmore 1964	Greater Yellow-headed Vulture	A, R	Oa,b
Coragyps atratus (Bechstein 1793)	Black Vulture	A	Oa,b
Sarcoramphus papa (Linnaeus 1758)	King Vulture	A	Oa,b
Pandionidae (1)			
Pandion haliaetus (Linnaeus 1758	Osprey	FV	Oa,b
Accipitridae (9)			
Elanoides forficatus (Linnaeus 1758)	Swallow-tailed Kite	A, BF	Oa,b
Ictinia plumbea (Gmelin 1788)	Plumbeous Kite	BF	Oa,b
Buteogallus schistaceus (Sundevall 1851)	Slate-colored Hawk	FP; BF	Oa
Urubitinga urubitinga (Gmelin 1788)	Great Black-Hawk	FV, BF	Oa,b
Rupornis magnirostris (Gmelin 1788)	Roadside Hawk	FP; FV, BF	Oa,b; Va,b
Buteo nitidus (Latham 1790)	Gray Hawk	FP, FV, BF	Oa,b; Va,b
Spizaetus tyrannus (Wied 1820)	Black Hawk-Eagle	FP, FV	Oa,b; Va,b
Spizaetus melanoleucus (Vieillot 1816)	Black-and-white Hawk-Eagle	FP, FV	Oa
Spizaetus ornatus (Daudin 1800)	Ornate Hawk-Eagle	FP	Ob
Falconidade (8)			
Daptrius ater Vieillot 1816	Black Caracara	FV	Oa,b
Ibycter americanus (Boddaert 1783)	Red-throated Caracara	FP, FV	Oa,b
Herpetotheres cachinnans (Linnaeus 1758)	Laughing Falcon	FV, BF	Oa,b
Micrastur ruficollis (Vieillot 1817)	Barred Forest-Falcon	FP	Oa
Micrastur gilvicollis (Vieillot 1817)	Lined Forest-Falcon	FP	Oa
Micrastur semitorquatus (Vieillot 1817)	Collared Forest-Falcon	FP	Ob

SPECIES	ENGLISH NAME	HABITAT	RECORDS
Micrastur buckleyi Swann 1919	Buckley's Forest-Falcon	FP	Oa
Falco rufigularis Daudin 1800	Bat Falcon	FV, BF	Oa,b
Phalacrocoracidae			
Phalacrocorax brasilianus (Gmelin 1789)	Neotropic Cormorant	FV	O
Psophiidae (1)			
Psophia leucoptera Spix 1825*	Pale-winged Trumpeter	FP	Oa,b
Rallidae (2)			
Aramides cajanea (Statius Muller 1776)	Gray-necked Wood-Rail	FV, R	Oa,b
Porphyrio martinica (Linnaeus 1766)	Purple Gallinule	FV	Oa,b
Heliornithidae (1)			
Heliornis fulica (Boddaert 1783)	Sungrebe	R	Oa
Eurypygidae (1)			
Eurypyga helias (Pallas 1781)	Sunbittern	R, FV	Ob
Charadriidae (3)			
Vanellus cayanus (Latham 1790)	Pied Lapwing	R	E (MPEG 63248b); Oa
Vanellus chilensis (Molina 1782)	Southern Lapwing	AP	Oa,b
Charadrius collaris Vieillot 1818	Collared Plover	R	E (MPEG 63249b, 63250b); Oa
Scolopacidae (4)			
Actitis macularius (Linnaeus 1766)	Spotted Sandpiper	R	Oa,b
Tringa solitaria Wilson 1813	Solitary Sandpiper	R	E (MPEG 63252b); Oa
Tringa flavipes (Gmelin 1789)	Lesser Yellowlegs	R	Oa,b
Calidris melanotos (Vieillot 1819)	Pectoral Sandpiper	R	E (MPEG 63251b); Oa
Jacanidae (1)			
Jacana jacana (Linnaeus 1766)	Wattled Jacana	R, FV	Oa,b
Sternidae (2)			
Sternula superciliaris (Vieillot 1819)	Yellow-billed Tern	R	Oa,b
Phaetusa simplex (Gmelin 1789)	Large-billed Tern	R	Oa,b
Rynchopidae (1)			
Rynchops niger Linnaeus 1758	Black Skimmer	R	E (MPEG 63247b); Oa
Columbidae (6)			
Columbina talpacoti (Temminck 1811)	Ruddy Ground-Dove	A, AP, BF	Oa,b
Patagioenas plumbea (Vieillot 1818)	Plumbeous Pigeon	FP, FB	E (MPEG 63253b)
Patagioenas subvinacea (Lawrence 1868)	Ruddy Pigeon	FP, FB	Oa,b
Leptotila verreauxi Bonaparte 1855	White-tipped Dove	A, FP, BF	Oa,b
Leptotila rufaxilla (Richard and Bernard 1792)	Gray-fronted Dove	A, FP, BF	E (MPEG 63254b); Oa
Geotrygon Montana (Linnaeus 1758)	Ruddy Quail-Dove	FP, FB	E (MPEG 63255b); Oa
Psittacidae (14)			
Ara ararauna (Linnaeus 1758)	Blue-and-yellow Macaw	FP	Oa,b
Ara macao (Linnaeus 1758)	Scarlet Macaw	FP	Oa,b
Ara chloropterus Gray 1859	Red-and-green Macaw	FP	Oa,b
Ara severus (Linnaeus 1758)	Chestnut-fronted Macaw	FP, FV	Ob
Orthopsittaca manilata (Boddaert 1783)	Red-bellied Macaw	FP	Oa,b
Aratinga leucophthalma (Statius Muller 1776)	White-eyed Parakeet	FP, BF	Oa,b
Aratinga weddellii (Deville 1851)	Dusky-headed Parakeet	FP, FV, BF	Oa,b
Brotogeris cyanoptera (Pelzeln 1870)	Cobalt-winged Parakeet	FP, FV, BF	E (MPEG 63256b); Oa
Pyrrhura rupicola (Tschudi 1844)*	Black-capped Parakeet	FP, FV	Va,b
Pionites leucogaster (Kuhl 1820)	White-bellied Parrot	FP	Oa,b
Pyrilia barrabandi (Kuhl 1820)	Orange-cheeked Parrot	FV	Oa,b
Pionus menstruus (Linnaeus 1766)	Blue-headed Parrot	FP, FV	E (MPEG 63852a, 63853a); Ob
Amazona ochrocephala (Gmelin 1788)	Yellow-crowned Parrot	FP, FV	Oa,b
Amazona farinose (Boddaert 1783)	Mealy Parrot	FP, FV	E (MPEG 63257b); Oa
Opisthocomidae (1)			
Opisthocomus hoazin (Statius Muller 1776)	Hoatzin	FV	Oa
Cuculidae (5)			
Coccycua minuta (Vieillot 1817)	Little Cuckoo	FP, FB	E (MPEG 63286a)
Piaya cayana (Linnaeus 1766)	Squirrel Cuckoo	FP, FB	Oa,b
Piaya melanogaster (Vieillot 1817)	Black-bellied Cuckoo	FP, FB	E (MPEG 63258b); Oa
Crotophaga major Gmelin 1788	Greater Ani	FV, BF	Oa,b; Va,b

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Crotophaga ani Linnaeus 1758	Smooth-billed Ani	FV, AP	Oa,b
Strigidae (6)			
Megascops choliba (Vieillot 1817)	Tropical Screech-Owl	FP, BF	E (MPEG 63259b); Va,b
Megascops usta (Sclater 1858)	Austral Screech-Owl	FP, BF	Va,b
Lophostrix cristata (Daudin 1800)	Crested Owl	FP	Vb
Asio clamator (Vieillot 1808)	Striped Owl	FV, BF	Vb
Glaucidium brasilianum (Gmelin 1788)	Ferruginous Pygmy-Owl	FV, BF	Va,b
Glaucidium hardyi Vielliard 1990	Amazonian Pygmy-Owl	FP	Vb
Nyctibiidae (2)			
Nyctibius grandis (Gmelin 1789)	Great Potoo	BF	Vb
Nyctibius griseus (Gmelin 1789	Common Potoo	BF	Vb
Caprimulgidae (4)			
Nyctiphrynus ocellatus (Tschudi 1844)	Ocellated Poorwill	AP	Vb
Hydropsalis parvulus (Gould 1837)	Little Nightjar	AP	Vb
Hydropsalis albicollis (Gmelin 1789)	Pauraque	A, AP	Vb
Hydropsalis climacocerca (Tschudi 1844)	Ladder-tailed Nightjar	R	E (MPEG 63260b); Oa,b
Apodidae (2)			
Chaetura brachyuran (Jardine 1846)	Short-tailed Swift	A	Oa,b
Panyptila cayennensis (Gmelin 1789)	Lesser Swallow-tailed Swift	A	Oa,b
Trochilidae (11)			
Glaucis hirsutus (Gmelin 1788)	Rufous-breasted Hermit	FP, FV, BF	E (MPEG 63270a, 63271a, 63425a; 63267b, 63268b, 63269b)
Threnetes leucurus (Linnaeus 1766)	Pale-tailed Barbthroat	FP, BF	E (MPEG 63261b, 63262b)
Phaethornis hispidus (Gould 1846)	White-bearded Hermit	FP, FB	E (MPEG 63263b, 63264b)
Phaethornis ruber (Linnaeus 1758)	Reddish Hermit	FP, BF	Ob
Phaethornis bourcieri (Lesson 1832)	Straight-billed Hermit	FP	E (MPEG 63265b)
Phaethornis malaris (Nordmann 1835)	Great-billed Hermit	FP	E (MPEG 63266b)
Chrysolampis mosquitus (Linnaeus 1758)	Ruby-topaz Hummingbird	BF	Oa
Chlorostilbon mellisugus (Linnaeus 1758)	Blue-tailed Emerald	BF	E (MPEG 63272a)
Thalurania furcata (Gmelin 1788)	Fork-tailed Woodnymph	BF	E (MPEG 63273a)
Hylocharis cyanus (Vieillot 1818)	White-chinned Sapphire	BF	E (MPEG 63277b)
Amazilia láctea bartletti (Sclater and Salvin 1866)*	Sapphire-spangled Emerald	A, BF	E (63274a; 63275a; 63276a)
Trogonidae (3)			
Trogon melanurus Swainson 1838	Black-tailed Trogon	FP, FV, BF	E (MPEG 63289b)
Trogon curucui Linnaeus 1766	Blue-crowned Trogon	FP, FV, BF	E (MPEG 63288a)
Trogon rufus Gmelin 1788	Black-throated Trogon	FP	Oa
Alcedinidae (3)			
Megaceryle torquata (Linnaeus 1766)	Ringed Kingfisher	R, FV	E (MPEG 63290b); Oa,b
Chloroceryle amazona (Latham 1790)	Amazon Kingfisher	R, FV	Oa,b
Chloroceryle americana (Gmelin 1788)	Green Kingfisher	R, FV	Oa,b
Momotidae (3)			
Baryphthengus martii (Spix 1824)	Rufous Motmot	FP	Ob
Momotus momota (Linnaeus 1766)	Amazonian Motmot	FP, FB	E (MPEG 63278b)
Electron platyrhynchum (Leadbeater 1829)	Broad-billed Motmot	FP	Vb
Galbulidae (5)			
Galbalcyrhynchus purusianus Goeldi 1904*	Purus Jacamar	FV, BF	E (MPEG 63287a)
Brachygalba albogularis (Spix 1824)*	White-throated Jacamar	FV, BF	Ob
Galbula cyanescens Deville 1849*	Bluish-fronted Jacamar	FP, FV, BF	Oa
Galbula dea (Linnaeus 1758)	Paradise Jacamar	FP, FV	Ob
Jacamerops aureus (Statius Muller 1776)	Great Jacamar	FP	Ob
Bucconidae (10)			
Bucco macrodactylus (Spix 1824)	Chestnut-capped Puffbird	FP, BF	E (MPEG 63280b)
Bucco tamatia Gmelin 1788	Spotted Puffbird	BF	Oa
Notharchus hyperrhynchus (Sclater 1856)	White-necked Puffbird	FV	Vb
Nystalus striolatus (Pelzeln 1856)	Striolated Puffbird	FP, FB, BF	E (MPEG 63279b)
Malacoptila semicincta Todd 1925*	Semicollared Puffbird	FP	E (MPEG 63283b, 63284b)
Nonnula sclateri Hellmayr 1907*	Fulvous-chinned Nunlet	FB	Vb

SPECIES	ENGLISH NAME	HABITAT	RECORDS
Nonnula ruficapilla (Tschudi 1844)	Rufous-capped Nunlet	FV	Ob
Monasa nigrifrons (Spix 1824)	Black-fronted Nunbird	FP, FV, BF	Oa,b
Monasa morphoeus (Hahn and Küster 1823)	White-fronted Nunbird	FP,FB	Oa,b
Chelidoptera tenebrosa (Pallas 1782)	Swallow-winged Puffbird	BF, FV, R	E (MPEG 63285a; 63282b)
Capitonidae (2)			
Eubucco richardsoni (Gray 1846)	Lemon-throated Barbet	FP, BF, FV	Oa
Capito auratus (Dumont 1816)	Gilded Barbet	FP, BF	Oa
Ramphastidae (7)			
Ramphastos tucanus Linnaeus 1758	White-throated Toucan	FP, BF, FV	Oa,b; Va,b
Ramphastos vitellinus Lichtenstein 1823	Channel-billed Toucan	FP	E (MPEG 63296b); Va
Aulacorhynchus atrogularis (Sturm and Sturm 1841)	Black-throated Toucanet	FP, FB, FV	E (MPEG 63299a)
Selenidera reinwardtii langsdorffii (Wagler 1827)*	Golden-collared Toucanet	FP	E (MPEG 63293b, 63292b)
Pteroglossus mariae Gould 1854*	Brown-mandibled Aracari	FP	E (MPEG 63295b, 63294b)
Pteroglossus castanotis Gould 1834	Chestnut-eared Aracari	FP, BF, FV	Oa,b; Va,b
Pteroglossus beauharnaesii Wagler 1832	Curl-crested Aracari	FP	Ob
Picidae (12)			
Picumnus rufiventris Bonaparte 1838	Rufous-breasted Piculet	FB	E(MPEG 63298c)
Picumnus subtilis Stager 1968*	Fine-barred Piculet	FB	Oa
Veniliornis passerinus (Linnaeus 1766)	Little Woodpecker	BF	Ob
Melanerpes cruentatus (Boddaert 1783)	Yellow-tufted Woodpecker	BF	Oa,b
Colaptes punctigula (Boddaert 1783)	Spot-breasted Woodpecker	FP	Oa,b
Celeus grammicus (Natterer and Malherbe 1845)	Scaly-breasted Woodpecker	FP	Ob
Celeus flavus (Statius Muller 1776)	Cream-colored Woodpecker	FP	E (MPEG 63297b)
Celeus spectabilis Sclater and Salvin 1880	Rufous-headed Woodpecker	FB	Ob
Celeus torquatus (Boddaert 1783)	Ringed Woodpecker	FP	Oa
Dryocopus lineatus (Linnaeus 1766)	Lineated Woodpecker	BF	Oa,b
Campephilus melanoleucos (Gmelin 1788)	Crimson-crested Woodpecker	BF	Oa,b
Campephilus rubricollis (Boddaert 1783)	Red-necked Woodpecker	FP	Vb
Thamnophilidae (28)			
Cymbilaimus lineatus (Leach 1814)	Fasciated Antshrike	FP	Vb
Cymbilaimus sanctaemariae Gyldenstolpe 1941	Bamboo Antshrike	FB	Vb
Taraba major (Vieillot 1816)	Great Antshrike	FV	Va
Thamnophilus doliatus (Linnaeus 1764)	Barred Antshrike	A, BF	E (MPEG 63330a); Va,b
Thamnophilus aethiops Sclater 1858	White-shouldered Antshrike	FP	E (MPEG 63336b, 63337b)
Thamnophilus schistaceus d'Orbigny 1835	Plain-winged Antshrike	FP	Ob
Thamnomanes ardesiacus (Sclater and Salvin 1867)	Dusky-throated Antshrike	FP	E (MPEG 63332a, 63428a; 63338b)
Thamnomanes schistogynus Hellmayr 1911 *	Bluish-slate Antshrike	FP, FB	E (MPEG 63331a; 63333c, 63334c)
Pygiptila stellaris (Spix 1825)	Spot-winged Antshrike	FP	Vb
Epinecrophylla leucophthalma (Pelzeln 1868)	White-eyed Antwren	FP	E (MPEG 63348b)
Epinecrophylla ornata (Sclater 1853)	Ornate Antwren	FP	Oa
Myrmotherula hauxwelli (Sclater 1857)	Plain-throated Antwren	FP, FB	E (MPEG 63353a; 63349b, 63350b, 63351b, 63352b)
Myrmotherula axillaris (Vieillot 1817)	White-flanked Antwren	FP, FB	E (MPEG 63339b, 63340b, 63341b, 63342b); Va,b
Myrmotherula longipennis Pelzeln 1868	Long-winged Antwren	FP, FB	E (MPEG 63343b, 63344b, 63345b, 63346b, 63347b)
Cercomacra cinerascens (Sclater 1857)	Gray Antbird	FP	Oa,b
Cercomacra nigrescens (Cabanis and Heine 1859)	Blackish Antbird	FP	Oa,b
Cercomacra manu Fitzpatrick and Willard 1990	Manu Antbird	FB	Vb
Myrmoborus leucophrys (Tschudi 1844)	White-browed Antbird	FP, FB	E (MPEG 63429a)
Myrmoborus myotherinus (Spix 1825)	Black-faced Antbird	FP, FFV	E (MPEG 63359c; 63360b, 63361b);Va,b
Hypocnemis peruviana Taczanowski 1884	Peruvian Warbling-Antbird	FP, BF	E (MPEG 63370b, 63371b); Va,b
Myrmeciza hemimelaena Sclater 1857	Chestnut-tailed Antbird	FP, FB	E (MPEG 63358c; 63357b); Va,b
Myrmeciza goeldii (Snethlage 1908)*	Goeldi's Antbird	FB, FV	E (MPEG 63354a); Va,b
Myrmeciza fortis (Sclater and Salvin 1868)	Sooty Antbird	FP	E (MPEG 63355c; 63356b)
Myrmeciza atrothorax (Boddaert 1783)	Black-throated Antbird	FP	Oa

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Gymnopithys salvini (Berlepsch 1901)*	White-throated Antbird	FP	E (MPEG 63367c; 63368b, 63369b)
Hylophylax naevius (Gmelin 1789)	Spot-backed Antbird	FP	E (MPEG 63430a; 63362b)
Willisornis poecilinotus (Cabanis 1847)	Scale-backed Antbird	FP	E (MPEG 63363b, 63365b, 63364b, 63366b)
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye 1837)	Black-spotted Bare-eye	FP, FV	E (MPEG 63373c; 63372b)
Formicariidae (2)			
Formicarius colma Boddaert 1783	Rufous-capped Antthrush	FP	E (MPEG 63376b, 63377b)
Formicarius analis (d'Orbigny and Lafresnaye 1837)	Black-faced Antthrush	FP	E (MPEG 63374a; 63375b)
Grallaridae (1)			
Hylopezus berlepschi (Hellmayr 1903)	Amazonian Antpitta	BF	Oa
Scleruridae (2)			
Sclerurus mexicanus Sclater 1857	Tawny-throated Leaftosser	FP	E (MPEG 63326a)
Sclerurus caudacutus (Vieillot 1816)	Black-tailed Leaftosser	FP	E (MPEG 63327b, 63328b, 63329b)
Dendrocolaptidae (12)			
Dendrocincla fuliginosa (Vieillot 1818)	Plain-brown Woodcreeper	FP, FB	E (MPEG 63304c; 63300b, 63301b, 63302b, 63303b)
Dendrocincla merula (Lichtenstein 1829)	White-chinned Woodcreeper	FP, FB	E (MPEG 63305c; 63306b)
Deconychura longicauda (Pelzeln 1868)	Long-tailed Woodcreeper	FP, FB	Vb
Sittasomus griseicapillus (Vieillot 1818)	Olivaceous Woodcreeper	FP	E (MPEG 63307b)
Glyphorynchus spirurus (Vieillot 1819)	Wedge-billed Woodcreeper	FP	Ob
Dendrocolaptes picumnus Lichtenstein 1820	Black-banded Woodcreeper	FP	Vb
Dendrexetastes rufigula (Lesson 1844)	Cinnamon-throated Woodcreeper	FP, FV	Oa
Dendroplex picus (Gmelin 1788)	Straight-billed Woodcreeper	FP, FB, BF	O
Xiphorhynchus chunchotambo (Tschudi 1844)	Tschudi's Woodcreeper	FP, FB	E (MPEG 63313a; 63314c)
Xiphorhynchus elegans (Pelzeln 1868)	Elegant Woodcreeper	FP	E (MPEG 63308b, 63609b)
Xiphorhynchus guttatus (Lichtenstein 1820)	Buff-throated Woodcreeper	FP, FB, FV	E (MPEG 63310b, 63311b, 63312b); Va,b
Lepidocolaptes albolineatus (Lafresnaye 1845)	Lineated Woodcreeper	FP	Vb
Furnariidae (9)			
Cranioleuca gutturata (d'Orbigny and Lafresnaye 1838)	Speckled Spinetail	FP	E (1b)
Furnarius leucopus Swainson 1838	Pale-legged Hornero	FV, R	O
Synallaxis gujanensis (Gmelin 1789)	Plain-crowned Spinetail	BF	Va
Philydor ruficaudatum (d'Orbigny and Lafresnaye 1838)	Rufous-tailed Foliage-gleaner	FP	E (MPEG 63316b)
Philydor pyrrhodes (Cabanis 1848)	Cinnamon-rumped Foliage-gleaner	FP	E (MPEG 63317b, 63318b)
Automolus ochrolaemus (Tschudi 1844)	Buff-throated Foliage-gleaner	FP	E (MPEG 63426a, 63427a; 63319b)
Automolus infuscatus (Sclater 1856)	Olive-backed Foliage-gleaner	FP, FB	E (MPEG 63320b)
Automolus rufipileatus (Pelzeln 1859)	Chestnut-crowned Foliage-gleaner	FP	E (MPEG 63321b, 63322b)
Xenops minutus (Sparrman 1788)	Plain Xenops	FP	E (MPEG 63325a; 63323b, 63324b)
Rynchocyclidae (9)			
Cnipodectes subbrunneus (Sclater 1860)	Brownish Twistwing	FP	E (MPEG 63395b, 63396b)
Rhynchocyclus olivaceus (Temminck 1820)	Olivaceous Flatbill	FP	E (MPEG 63386a)
Tolmomyias sulphurescens (Spix 1825)	Yellow-olive Flycatcher	BF	Vb
Tolmomyias poliocephalus (Taczanowski 1884)	Gray-crowned Flycatcher	BF	Vb
Todirostrum maculatum (Desmarest 1806)	Spotted Tody-Flycatcher	BF, FV	Vb
Lophotriccus eulophotes Todd 1925*	Long-crested Pygmy-Tyrant	FB	E (MPEG 63400c)
Hemitriccus flammulatus Berlepsch 1901	Flammulated Pygmy-Tyrant	FB	Va,b
Leptopogon amaurocephalus Tschudi 1846	Sepia-capped Flycatcher	FP, FV	E (MPEG 63392b)
Corythopis torquatus (Tschudi 1844)	Ringed Antpipit	FP, FB	E (MPEG 63432a; 63390b, 63391b)
Tyrannidae (31)			
Tyrannulus elatus (Latham 1790)	Yellow-crowned Tyrannulet	BF	V
Myiopagis gaimardii (d'Orbigny 1839)	Forest Elaenia	A, BF	Va,b
Elaenia spectabilis Pelzeln 1868	Large Elaenia	BF	E (MPEG 63388a, 63431a; 63389b)
Ornithion inerme Hartlaub 1853	White-lored Tyrannulet	FP	Vb

SPECIES	ENGLISH NAME	HABITAT	RECORDS
Zimmerius gracilipes (Sclater and Salvin 1868)	Slender-footed Tyrannulet	FP	Vb
Piprites chloris (Temminck 1822)	Wing-barred Piprites	FP, FB	E (MPEG 63382c)
Platyrinchus platyrhynchos (Gmelin 1788)	White-crested Spadebill	FP, FV	Ob
Platyrinchus coronatus Sclater 1858	Golden-crowned Spadebill	FV	E (MPEG 63384a, 63385a) Oa
Myiophobus fasciatus (Statius Muller 1776)	Bran-colored Flycatcher	BF	E (MPEG 63394b)
Lathrotriccus euleri (Cabanis 1868)	Euler's Flycatcher	FV	Vb
Pyrocephalus rubinus (Boddaert 1783)	Vermilion Flycatcher	BF, FV	Oa,b
Ochthornis littoralis (Pelzeln 1868)	Drab Water-Tyrant	R, FV	Oa,b
Colonia colonus (Vieillot 1818)	Long-tailed Tyrant	FV, BF	Ob
Legatus leucophaius (Vieillot 1818)	Piratic Flycatcher	BF	Vb
Myiozetetes cayanensis (Linnaeus 1766)	Rusty-margined Flycatcher	A, BF	Oa,b; Va,b
Myiozetetes similis (Spix 1825)	Social Flycatcher	A, BF	Oa,b; Va,b
Pitangus sulphuratus (Linnaeus 1766)	Great Kiskadee	A, BF	E (MPEG 63404b); Oa,c
Megarynchus pitangua (Linnaeus 1766)	Boat-billed Flycatcher	A, BF	E (MPEG 63387a); Va,b,
Tyrannus albogularis Burmeister 1856	White-throated Kingbird	A, BF	Oa
Tyrannus melancholicus Vieillot 1819	Tropical Kingbird	A, BF	E (MPEG 63405b); Va,b
Tyrannus savana Vieillot 1808	Fork-tailed Flycatcher	A, BF	Oa
Myiarchus tuberculifer (d'Orbigny and Lafresnaye 1837)	Dusky-capped Flycatcher	BF	E (1b)
Myiarchus ferox (Gmelin 1789)	Short-crested Flycatcher	BF	Va,b
Rhytipterna simplex (Lichtenstein 1823)	Grayish Mourner	FP	Vb
Sirystes sibilator (Vieillot 1818)	Sirystes	BF, A	Oa
Ramphotrigon megacephalum (Swainson 1835)	Large-headed Flatbill	FP, FB	E (MPEG 63433a; 63401c, 63402c; 64403b)
Ramphotrigon ruficauda (Spix 1825)	Rufous-tailed Flatbill	FV	Vb
Ramphotrigon fuscicauda Chapman 1925	Dusky-tailed Flatbill	FB, FV	Ob; Vb
Attila bolivianus Lafresnaye 1848	Dull-capped Attila	FP, FV	Va,b
Attila cinnamomeus (Gmelin 1789)	Cinnamon Attila	FV	Vb
Attila spadiceus (Gmelin 1789)	Bright-rumped Attila	FP, BF	E (MPEG 63406b)
Cotingidae (4)			
Lipaugus vociferans (Wied 1820)	Screaming Piha	FP, FV	Va,b
Conioptilon mcilhennyi Lowery and O'Neill 1966*	Black-faced Cotinga	FV, BF	Ob; Va,b
Gymnoderus foetidus (Linnaeus 1758)	Bare-necked Fruitcrow	FP, FV, BF	Oa,b
Querula purpurata (Statius Muller 1776)	Purple-throated Fruitcrow	FP, FV	Oa,b; Va,b
Pipridae (4)			
Neopelma sulphureiventer (Hellmayr 1903)*	Sulphur-bellied Tyrant-Manakin	FP, FB	E (MPEG 63383a)
Tyranneutes stolzmanni (Hellmayr 1906)	Dwarf Tyrant-Manakin	FV	E (MPEG 64530a)
Pipra fasciicauda Hellmayr 1906	Band-tailed Manakin	FP, FB	E (MPEG 63378b, 63379b, 63380b, 6338b)
Pipra rubrocapilla Temminck 1821	Red-headed Manakin	FP	Vb
Tityridae (8)			
Onychorhynchus coronatus (Statius Muller 1776)	Royal Flycatcher	FP	E (MPEG 63393b)
Terenotriccus erythrurus (Cabanis 1847)	Ruddy-tailed Flycatcher	FP, FB	E (MPEG 63398c, 63399c); Oa
Laniocera hypopyrra (Vieillot 1817)	Cinereous Mourner	FV	Vb
Tityra cayana (Linnaeus 1766)	Black-tailed Tityra	FP, BF	Oa,b
Tityra semifasciata (Spix 1825)	Masked Tityra	FV, BF	Oa,b
Pachyramphus polychopterus (Vieillot 1818)	White-winged Becard	FV, BF	Ob
Pachyramphus marginatus (Lichtenstein 1823)	Black-capped Becard	FP	Oa,b
Pachyramphus minor (Lesson 1830)	Pink-throated Becard	FP	Ob
Vireonidae (5)			
Cyclarhis gujanensis (Gmelin 1789)	Rufous-browed Peppershrike	BF	Va,b
Vireolanius leucotis (Swainson 1838)	Slaty-capped Shrike-Vireo	FP	Vb
Vireo olivaceus (Linnaeus 1766)	Red-eyed Vireo	BF	E (MPEG 63412a)
Hylophilus hypoxanthus Pelzeln 1868	Dusky-capped Greenlet	FP	Vb
Hylophilus pectoralis Sclater 1866	Ashy-headed Greenlet	FV	Ob
Corvidae (1)			
Cyanocorax violaceus Du Bus 1847	Violaceous Jay	FV, BF	Oa,b; Va,b
Hirundinidae (5)			
Atticora fasciata (Gmelin 1789)	White-banded Swallow	R	E (MPEG 63411a); Oa,b

SPECIES	ENGLISH NAME	HABITAT	RECORDS
Stelgidopteryx ruficollis (Vieillot 1817)	Southern Rough-winged Swallow	R	Oa,b
Progne chalybea (Gmelin 1789)	Gray-breasted Martin	A	O
Progne tapera (Vieillot 1817)	andorinha-do-campo	R	E (63408, 63409a; 63407b)
Tachycineta albiventer (Boddaert 1783)	White-winged Swallow	R	E (MPEG 63410a); Oa,b
Troglodytidae (4)			
Microcerculus marginatus (Sclater 1855)	Scaly-breasted Wren	FP	E (MPEG 63416, 63417b)
Troglodytes musculus Naumann 1823	Southern House Wren	AP, BF	Oa,b; Va,b
Pheugopedius genibarbis (Swainson 1838)	Moustached Wren	FP, FB	Va,b
Campylorhynchus turdinus (Wied 1831)	Thrush-like Wren	BF	Vb
Polioptilidae (2)			
Ramphocaenus melanurus Vieillot 1819	Long-billed Gnatwren	FP	Vb
Polioptila plumbea (Gmelin 1788)	Tropical Gnatcatcher	FP	Oa
Donacobidae (1)			
Donacobius atricapilla (Linnaeus 1766)	Black-capped Donacobius	FV	O
Turdidae (2)			
Turdus hauxwelli Lawrence 1869	Hauxwell's Thrush	FP, BF	E (MPEG 63415b); Va,b
Turdus ignobilis Sclater 1858	Black-billed Thrush	A, FV, BF	E (MPEG 63413a; 63414b)
Thraupidae (22)			
Saltator maximus (Statius Muller 1776)	Buff-throated Saltator	A, FV, BF	Oa,b; Va,b
Saltator grossus (Linnaeus 1766)	Slate-colored Grosbeak	FP	Vb
Saltator coerulescens Vieillot 1817	Grayish Saltator	A, FV, BF	Oa,b; Va,b
Cissopis leverianus (Gmelin 1788)	Magpie Tanager	FV, BF	Oa,b
Lanio luctuosus (d'Orbigny and Lafresnaye 1837)	White-shouldered Tanager	FP, FB	Ob
Lanio surinamus (Linnaeus 1766)	Fulvous-crested Tanager	FP	Ob
Lanio versicolor (d'Orbigny and Lafresnaye 1837)	White-winged Shrike-Tanager	FP	Ob
Ramphocelus nigrogularis (Spix 1825)	Masked Crimson Tanager	FV, BF	Oa,b
Ramphocelus carbo (Pallas 1764)	Silver-beaked Tanager	A, FV, BF	Oa,b; Va,b
Tangara episcopus (Linnaeus 1766)	Blue-gray Tanager	A, FV, BF	Oa,b; Va,b
Tangara palmarum (Wied 1823)	Palm Tanager	A, FV, BF	Oa,b; Va,b
Tangara mexicana (Linnaeus 1766)	Turquoise Tanager	FP, FV, BF	Oa,b
Tangara chilensis (Vigors 1832)	Paradise Tanager	FP, FV	Oa,b
Tangara schrankii (Spix 1825)	Green-and-gold Tanager	FP, FV	Oa,b
Tangara gyrola (Linnaeus 1758)	Bay-headed Tanager	FP	Ob
Tangara callophrys (Cabanis 1849)	Opal-crowned Tanager	FP	Ob
Paroaria gularis (Linnaeus 1766)	Red-capped Cardinal	R, FV	E (MPEG 63421a); Oa,b
Tersina viridis (Illiger 1811)	Swallow Tanager	FV, BF	Ob
Dacnis flaviventer d'Orbigny and Lafresnaye 1837	Yellow-bellied Dacnis	FP, FV	Oa,b
Chlorophanes spiza (Linnaeus 1758)	Green Honeycreeper	FP, FV	E (MPEG 63418b)
Hemithraupis guira (Linnaeus 1766)	Guira Tanager	FP	Ob
Conirostrum speciosum (Temminck 1824)	Chestnut-vented Conebill	FV, BF	Va
Emberizidae (6)			
Ammodramus aurifrons (Spix 1825)	Yellow-browed Sparrow	AP, BF	E (MPEG 63420b); Oa,b
Volatinia jacarina (Linnaeus 1766)	Blue-black Grassquit	AP	E (MPEG 63422a); Oa,b
Sporophila caerulescens (Vieillot 1823)	Double-collared Seedeater	AP	Ob
Sporophila angolensis (Linnaeus 1766)	Chestnut-bellied Seed-Finch	AP	E (MPEG 63424a); Va,b
Sporophila castaneiventris Cabanis 1849	Chestnut-bellied Seedeater	AP	Oa,b
Arremon taciturnus (Hermann 1783)	Pectoral Sparrow	FP, BF	Vb
Cardinalidae (1)			
Cyanoloxia cyanoides (Lafresnaye 1847)	Blue-black Grosbeak	FP	E (MPEG 63423a)
Parulidae (1)			
Phaeothlypis fulvicauda (Spix 1825)	Buff-rumped Warbler	FV	Ob
Icteridae (7)			
Psarocolius angustifrons (Spix 1824)	Russet-backed Oropendola	FP, FV	Oa,b
Psarocolius decumanus (Pallas 1769)	Crested Oropendola	FP, FV	Oa,b
Psarocolius bifasciatus (Spix 1824)	Olive Oropendola	FP, FV	Oa,b
Cacicus cela (Linnaeus 1758)	Yellow-rumped Cacique	A, FV, BF	Oa,b
Cacicus latirostris (Swainson 1838)	Band-tailed Oropendola	FV	Ob
Molothrus oryzivorus (Gmelin 1788)	Giant Cowbird	R, FV, BF	Oa,b

SPECIES	ENGLISH NAME	HABITAT	RECORDS
Sturnella militaris (Linnaeus 1758)	Red-breasted Blackbird	AP	Oa,b
Fringillidae (2)			
Euphonia laniirostris d'Orbigny and Lafresnaye 1837	Thick-billed Euphonia	FP	Ob
Euphonia rufiventris (Vieillot 1819)	Rufous-bellied Euphonia	AP	Oa,b
Euphonia chrysopasta Sclater and Salvin 1869	Golden-bellied Euphonia	BF	Vb

* Species restricted to the Inambari Area of Endemism according the list released by Cracraft (1985).

Terra Nova, just upriver of the Chandless River mouth, we had an opportunity to observe and photograph numerous individuals of this species on the sandy beaches of both banks of the Purus (Guilherme and Dantas 2007; Figure 2). This species is known regionally as "Alencó", and although it is a bird with a large physique, indigenous people and ribeirinhos in the region do not consume its meat because they consider it unhealthy. The observation of diverse populations of *A. cornuta* in the upper Purus definitively confirms its occurrence in the state of Acre.

***Chrysolampis mosquitus* (Linnaeus 1758)**

This species is commonly found on Brazilian territory in cerrado and caatinga environments of the northeast region (Sick 1997). In Brazilian Amazon, it has been registered punctually from the left bank of the Solimões River (Cohn-Haft *et al.* 1997; Borges *et al.* 2001), as well as from the right bank of the Amazonas River in the state of Pará (Pacheco *et al.* 2007). On August 28 and 29, 2007, a male *C. mosquitus* was observed and photographed while feeding among flowers of a liana species of the genus *Arrabidaea* and among inflorescence of *Inga* sp. at the border of *várzea* forest, near a small pasture area within the locality of Santa Cruz Velha (Guilherme and Dantas 2008). Recently, Tobias and Seddon (2007) registered this species at the Departments of Pando and Beni in Bolivian Amazon. Nevertheless, the record of *C. mosquitus* in upper Purus, certainly being a migrant individual, extends the distribution of this taxon at least 400 km to the west, making this register the westernmost of the species in the lowlands of Amazon.

***Galbalcyrhynchus purusianus* Goeldi 1904**

Typical species from the Amazonian southwest, including the Purus and Juruá River Basins (Snethlage, 1908; Gyldenstolpe 1945; 1951; Whittaker *et al.* 2002; Schulenberg 2007). It was registered in Acre for the first time in upper Juruá (Whittaker *et al.* 2002) and more recently in the upper Acre River (Aleixo and Guilherme 2010). On August 29, 2007 we collected a female *G. purusianus* (MPEG 63287) in *várzea* forest in the locality of Santa Cruz Velha. The species is relatively common in *várzea* forest of upper Purus and was often seen in groups of four to six individuals perched on embaúbas (*Cecropia* sp.) and in trees of median stature on both banks of the river.

***Brachygalba albogularis* (Spix 1824)**

Restricted to the Inambari Area of Endemism (Cracraft 1985). *B. albogularis* occurs in the entire state of Acre, including upper Juruá (Whittaker and Oren 1999) and east of the state (Guilherme 2001; Guilherme and Santos 2009). This species was observed various times in Seringal Terra Nova, perched alone or in couples in trees of median stature, including embaúbas (*Cecropia* sp.), on both banks of the Purus River and in small streams in the interior of *várzea* forest. On August 21, 2007 one individual was photographed by SMD in the Seringal Terra Nova (Guilherme and Dantas 2007) and one day later (August 22nd) one male individual (MPEG 63291) was collected along the left bank of the Chandless River, just upriver of its mouth.

***Malacoptila semicincta* Todd 1925**

Endemic species of southwestern Amazon and also restricted to the Inambari Area of Endemism (Cracraft, 1985). It had been registered throughout the whole state of Acre (Novaes 1957; Guilherme 2007; Guilherme and

FIGURE 2: Horned Screamer (*Anhima cornuta*) photographed on the right bank of the Purus River on August 17, 2008. (Photo: Sidnei M. Dantas).

Santos 2009; Aleixo and Guilherme 2010). On August 20 and 25, 2007 we collected one male (MPEG 63284) and one female (MPEG 63283). Both specimens were collected in a vàrzea forest dominated by bamboos (*Guadua weberbaueri*) in Seringal Terra Nova.

***Aulacorhynchus atrogularis* (Sturm and Sturm 1841)**

This species, previously considered a subspecies of *A. prasinus* (see Navarro *et al.* 2001), was recorded for the first time in Brazil by Forrester (1993) as a result of an observation close to the city of Plácido de Castro, east of Acre. Posteriorly, in 1994 D. C. Oren and his team collected in *várzea* forest inside the Alto Juruá Extractive Reserve the first skin of *A. atrogularis* on Brazilian territory (Whittaker and Oren 1999). On August 31, 2007, a female (MPEG 63299) was collected in *várzea* forest in the locality of Santa Cruz Velha. This specimen from upper Purus is the third of this taxon collected on Brazilian territory.

***Picumnus subtilis* Stager 1968**

This species is considered, until very recently, endemic to the foothills of the Andes Mountains in Peru (Clements and Shany 2001; Schulenberg *et al.* 2007). However, the record of *P. subtilis* was confirmed on Brazilian territory in 1998 after the collection of an individual male (MZUSP 76408) inside the Floresta Nacional do Macauã, municipality of Sena Madureira, state of Acre (Rego *et al.* 2009). On August 30, 2007, SMD observed an example and recorded the vocalization of *P. subtilis* in a terra-firme forest dominated by bamboos in the locality of Santa Cruz Velha. The record of this species in upper Purus amplifies the distribution of *P. subtilis* inside the lowlands of Amazon (Rego *et al.* 2009).

***Picumnus rufiventris* Bonaparte, 1838**

Although it possesses a relatively ample geographic distribution at the extreme western Amazon, including Bolivia, Peru, Brazil, Ecuador and Colombia (Restall *et al.* 2006; Erize *et al.* 2006), *P. rufiventris* is very little known on Brazilian territory (Sick 1997). The first record of this species in Brazil was made from the collection of a skin at the left bank of the Purus in a locality known as "Ponto Alegre", a region that currently belongs to the municipality of Boca do Acre in the state of Amazonas (Snethlage 1908; Gyldenstolpe 1951). After this first record, all subsequent communications regarding the occurrence of *P. rufiventris* on Brazilian territory came from the state of Acre (Pinto and Camargo 1954; Guilherme 2001; Guilherme 2009). It is a specialist that explores forests dominated by bamboos and vines (EG. *pers. obs.*). On August 22, 2007 we collected one male (MPEG 63298) in *várzea* forest dominated by bamboos on the left bank of the Chandless River approximately three kilometers from its mouth. The record of *P. rufiventris* in upper Purus indicates that this species occurs throughout the whole state of Acre in areas where the forest is dominated by bamboos.

***Myrmeciza goeldii* (Snethlage 1908)**

Endemic species of southwestern Amazon (Zimmer and Isler 2003). It occurs throughout the whole state of Acre (Whittaker and Oren 1999; Guilherme 2001; Guilherme 2009; Guilherme and Santos 2009; Aleixo and Guilherme 2010). A vocalization of *M. goeldii* was registered daily in *várzea* forest and in terra-firme forest dominated by bamboos during our entire expedition. On August 30, 2007, a male (MPEG 63354) was collected in the locality of Santa Cruz Velha.

***Xiphorhynchus chunchotambo* (Tschudi 1844)**

Recently found on Brazilian territory through a record in east Acre (Guilherme and Aleixo 2008; Guilherme 2009; Mestre *et al.* 2010). During our expedition, two females were collected (MPEG 63313-14), one from the Chandless River mouth and the other in the locality of Santa Cruz Velha (Table 1). It is remarkable that both specimens were collected at localities situated along the right bank of the Purus. Even after having concentrated most of our efforts on collecting and observing on the left bank of the river (*e.g.,* 10 days of sampling in Seringal Terra Nova) we did not register any individuals in that portion of the river. In spite of this, we consider it premature to affirm that *X. chunchotambo* has limited geographical distribution along the Purus River. It is necessary to realize new surveys inside the Purus/Juruá interfluvium in order to come to a precise conclusion regarding this question. The register of *X. chunchotambo* in upper Purus extends the geographical distribution of this species on Brazilian territory.

***Tyrannus albogularis* Burmeister1856**

Species considered as austral migrant from the northwest of South America (Fitzpatrick *et al.* 2004). According to Chesser (1997), *T. albogularis* is a summer resident of Bolivia. This species also possesses status of austral migrant in the lowlands of Peruvian Amazon (Walker *et al.* 2006). The first record of *T. albogularis* for the state of Acre was done by EG through a male (MPEG 61483) captured in a mist-net on February 09, 2005 inside the Campus of the Universidade Federal do Acre – UFAC. On August 28, 2007 we observed an individual of *T. albogularis* perched on a tree on the edge of the Purus River around our camp base in the Santa Cruz Velha locality. At

the moment of observation, *T. albogularis* was capturing insects in flight and subsequently returning to the same branch from which it would leave. This behavior, typical of Tyrannidae, permitted SMD to take a good photo of the animal (Figure 3). According to Chesser (1997), this species arrives on Bolivian territory in the middle of August and remains in the region until the month of April. This permits us to suppose that the individual observed in upper Purus was arriving in western Amazon soon after the end of its reproductive cycle which occurs in the mid-south of the continent.

***Lophotriccus eulophotes* Todd 1925**

Species with restricted geographic distribution to the lowlands of the Amazon in Peru, Brazil and Bolivia (Fitzpatrick *et al.* 2004). This is a specialist that explores forests dominated by bamboos (Stotz *et al.* 1996). In recent years, *L. eulophotes* has been recorded throughout the whole state of Acre (Whittaker and Oren 1999; Rasmussen *et al.* 2005; Guilherme 2009; Guilherme and Santos 2009). On August 20, 2007, a male (MPEG 63400) was collected in a *várzea* forest dominated by bamboos along the left bank of the Chandless River. The next day, SMD was able to photograph another individual at the same locality (Guilherme and Dantas 2007).

***Conioptilon mcilhennyi* Lowery and O'Neill 1966**

This is a species known only in lowlands of the Peruvian southeast (Ucayali and Madre de Dios), in the department of Pando in Bolivia and in the state of Acre (Snow 2004), the only Brazilian state in which this species was registered until now (Whittaker and Oren 1999; Aleixo and Guilherme 2010; Mestre *et al.* 2010). *C. mcilhennyi* prefers the wood's edge and possesses an easy call to identify. In the period of August 17-26, 2007 various individuals were audio recorded by SMD in Seringal Terra Nova, one of them being photographed (Guilherme and Dantas 2007). Recently, EG registered *C. mcilhennyi* in the Humaitá Reserve, pertaining to UFAC in the municipality of Porto Acre (09°45'S; 67°36'W), and in the ramal da Gameleira (10°38'S; 67°48'W), municipality of Capixaba (Guilherme 2009). Together, these registers considerably extends the distribution of this species in the lowlands of the Amazon.

FIGURE 3: *Tyrannus albogularis* perched on a guava tree (*Psidium guajava L.*) in the locality of Santa Cruz Velha on August 28, 2008. (Photo: Sidnei M. Dantas).

***Conirostrum speciosum* (Temminck 1824)**

Despite possessing ample distribution in Brazil (Sick, 1997) and its occurrence being expected in Acre (see Ridgely and Tudor 1994), *C. speciosum* still has not been registered at the limits of the state. On August 30, 2007, SMD audio recorded an individual at the locality of Santa Cruz Velha, in a secondary forest dominated by embaúbas (*Cecropia* sp.), a typical environment for this species. The register of this species in upper Purus was the first for the state of Acre.

FINAL CONSIDERATIONS

This survey confirms the high avifaunistic diversity of the upper Purus River. Various species were recorded whose geographic distribution is restricted to the area of transition between the foothills of the Andes Mountains and the lowlands of the Amazon. For this reason, we designate the region of upper Purus as a priority area for the realization of new ornithological surveys, from which new species will certainly emerge to increase the list of Brazilian birds.

ACKNOWLEDGEMENTS

The authors thank Conservação Internacional (CI – Belém) for lending financial support toward this expedition. We thank Dr. Alexandre Aleixo, curator of the ornithological laboratory of the Museu Paraense Emílio Goeldi, for having made available human resources and technicians that have greatly contributed to the realization of this research. Thanks also to the renowned taxidermist Sr. Manoel Santa Brígida for his dedication and preparation of specimens in the field.

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Revista Brasileira de Ornitologia, 19(2), 200-229
Junho de 2011

ARTIGO

A Contribution to the Ornithology of Rondônia, Southwest of the Brazilian Amazon

Fábio Olmos[1], Luís Fabio Silveira[2] and Giulyana Althmann Benedicto[3]

[1.] Largo do Paissandu 100/4C, 01034-010, São Paulo, SP, Brasil. E-mail: f-olmos@uol.com.br
[2.] Museu de Zoologia da Universidade de São Paulo. Caixa Postal 42.494, CEP 04218-970, São Paulo, SP, Brasil. E-mail: lfsilvei@usp.br
[3.] E-mail: giulyanasp@gmail.com

Received 18/02/2011. Accepted 14/05/2011.

RESUMO: Uma contribuição ao conhecimento ornitológico do Estado de Rondônia, sudoeste do Amazônia brasileira. A avifauna de Rondônia é uma das menos conhecidas e mais impactadas de toda a Amazônia. Nós apresentamos aqui os resultados de inventários conduzidos em quatro áreas diferentes, em ambos os lados do rio Madeira, e realizados entre 2001 e 2003. Um total de 458 espécies foi registrado, um número que representa cerca de dois terços da avifauna esperada para todo o estado. Novos dados são apresentados para algumas espécies pouco conhecidas, como *Crypturellus* aff. *bartletli* e *Accipiter poliogaster.* Rondônia sofre com altas taxas de desmatamento e as unidades de conservação, especialmente aquelas mantidas pelo poder público, são mal protegidas e tem sido atacadas por madeireiros e grileiros. Ações práticas de conservação neste Estado são urgentes.

PALAVRAS-CHAVE: Avifauna; Inventários; Brasil; Rondônia; Amazônia.

ABSTRACT: A Contribution to the Ornithology of Rondônia, Southwest of the Brazilian Amazon. The avifauna of the Brazilian state of Rondônia is one of the least known and more impacted bird communities in the Amazon. Here we report the results of surveys in four different areas studied between 2001 and 2003, located on both banks of the Madeira River. A total of 458 species were recorded. This number represents about two-thirds of total bird species expected for the whole state. New data are presented for some least known species such as *Crypturellus* aff. *bartettli* and *Accipiter poliogaster.* Rondônia has suffered huge deforestation rates and the existing reserves, especially the state-run ones, are poorly protected and have been targeted by loggers and land-grabbers. Conservation actions are urgently needed in this state.

KEY-WORDS: Avifauna; Inventories; Brazil; Rondônia; Amazônia.

The avifauna of the Brazilian state of Rondônia is one of the least known and more impacted bird communities in the Amazon basin (Stotz *et al.* 1997). After paving of the BR 364 road and government-led colonization projects in the 1980s, Rondônia experienced some of the largest deforestation rates in the Amazon. By 2003 the state had lost 29.2% of its forested area, including over 50% of all forests outside protected areas such as parks and Indigenous lands (Ferreira *et al.* 2003, 2005). Lack of concern for environmental laws has been the norm in Rondônia for the past decade and the process continues to this day, despite huge amounts of money spent by big "development with conservation" projects such as the PLANAFLORO – Plano Agropecuário e Florestal de Rondônia (Pedlowski *et al.* 2005).

The region between the Madeira and Tapajós rivers, including virtually all of Rondônia, is one of the main endemic bird areas south of the Amazon (Cracraft, 1985), thus the long-term survival of many unique taxa is jeopardized by continuous deforestation fueled by land-hungry colonists, the expansion of cattle and soybean agro business. In addition to these factors is the mostly illegal and unsustainable timber exploitation that drives the region's political-economic system (Margulis, 2004).

The bird fauna of what is now Rondônia was first studied by Johann Natterer, who collected birds along the Guaporé and Madeira rivers during the 19th century (Pelzeln 1868-1870). In the upper Guaporé, Natterer collected two species restricted to that region, *Tachyphonus nattereri* and *Picumnus fuscus,* as well as taxa with uncertain status such as *Tityra leucura* (Whittaker, 2008). The specific status of the first is still unclear, as no further specimens seem to have been collected. *P. fuscus* is found only in *várzea* forests along the Guaporé. It also occurs in Mato Grosso, parts of Bolivia (Beni) and in neighboring Rondônia.

Until recently the largest collection of birds from the state was the one assembled by Hoffmanns, who collected along the Madeira and the lower Ji-Paraná (Hellmayr, 1910), while the southern part of the state was visited by the Roosevelt-Rondon expedition (Naumburg, 1930). In 1986 and 1988 a team from the Museu de Zoologia da

Universidade de São Paulo, Brazil (MZUSP) and Field Museum of Natural History, Chicago, U.S.A. (FMNH) made an extensive inventory of birds on the left bank of the Ji-Paraná river, at Cachoeira Nazaré and Pedra Branca (Stotz *et al.* 1997). Both localities remain as the best known in the state. The 459 bird species found in Cachoeira Nazaré make it one of the richest localities in Amazonian Brazil (Stotz *et al.* 1997). Cachoeira Nazaré is also the type locality of *Clytoctantes atrogularis,* a Thamnophilidae known only from one collected female and a couple of male sightings at the type locality, as well as recently from a handful of records in Amazonas, Pará and Mato Grosso States (Lanyon *et al.* 1990; Whittaker, 2009 and references therein; Oliveira *pers. comm.*).

More recently, a series of surveys were carried out as basis for the economic-ecological zoning of Rondônia but their results remain unpublished (see Bóçon 1999, Cândido Jr., 2001). Other unpublished reports came from rapid surveys carried out in a few of the state reserves such as Guajará-Mirim State Park (PNUD, 1995) and Rio Ouro Preto Biological Reserve (Oren and Aleixo, 1999).

We had the opportunity to take part in additional surveys in different areas of Rondônia between 2001 and 2003 (Fig. 1). Here we describe the visited areas and present the results of bird surveys conducted. Additionally, we add random observations made during FO's residence in Rondônia in 1998.

Study Areas and Methods

1. Traçadal Biological Reserve

This reserve covers 20,164 ha in western Rondônia, and is bordered by the Novo, Igarapés São Francisco and Traçadal Rivers. Fieldwork was carried out by FO from January 7-24, 2001. Besides recording birds seen during the boat trip to and from the reserve (January 7-8 and 24), two of the main habitats were surveyed:

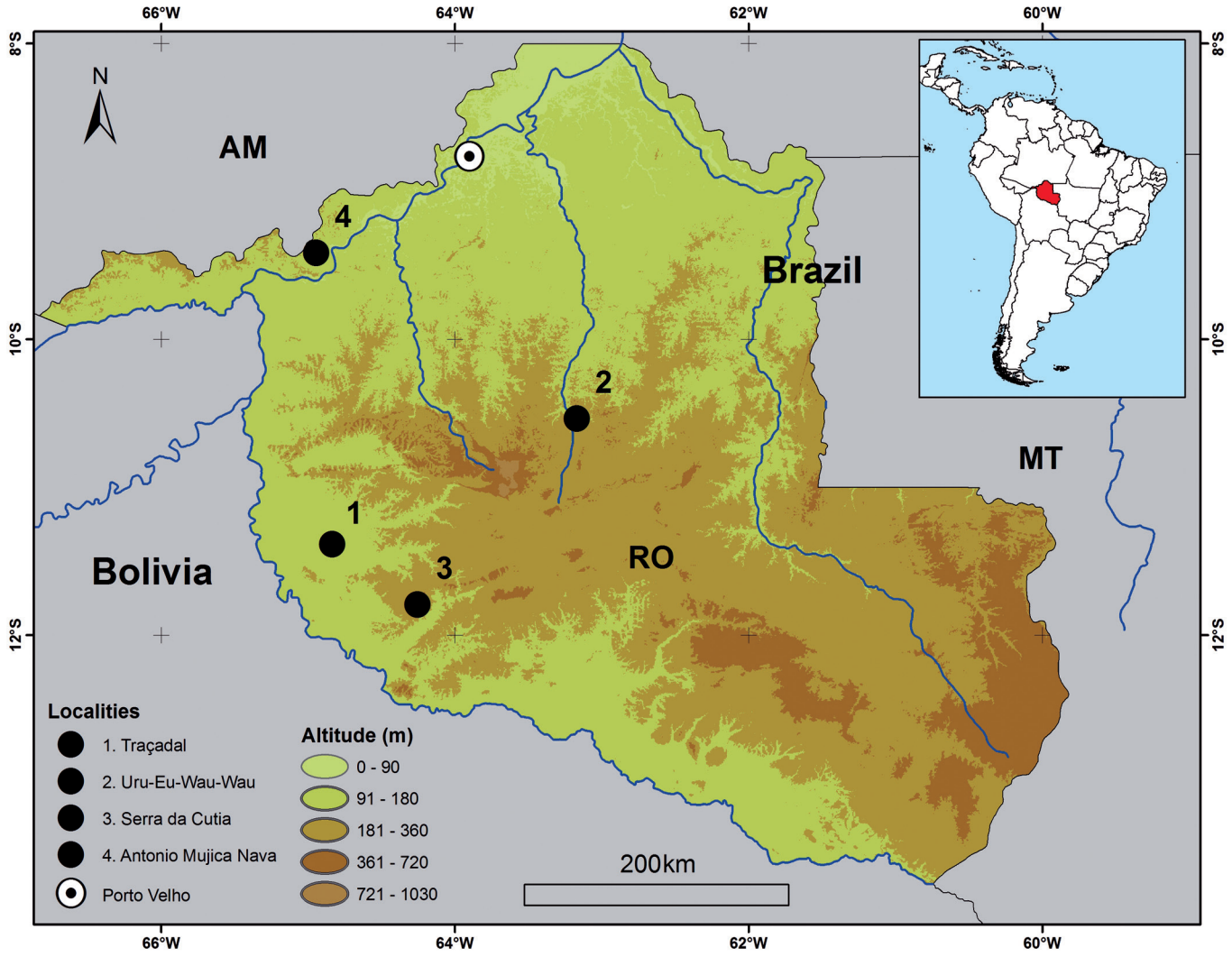

FIGURE 1: Sampled localities in Rondônia State. **1)** Traçadal Biological Reserve; **2)** Uru-Eu-Wau-Wau Indigenous Land; **3)** Serra da Cutia National Park; **4)** Antonio Mujica Nava Ecological Station.

terra firme forest (January 9-18, at 11°23'S, 64°50'W), and a flooded savanna enclave which made a distinctive patch seen in satellite images (January 19-23, at 11°24'32"S, 64°51'20"W). The transitional forest bordering the savanna was also surveyed during the stay at that habitat.

The local *terra firme* forest grows on yellow latosols, while the savannas occur on hydromorphic podzols. *Terra firme* forests at this site are low, with a continuous canopy at 10-15 m and few emergents and epiphytes. Palms such as *Oenocarpus bataua* ("patauá"), *Bactris* sp., *Attalea maripa, Socratea exorrhiza* and *Astrocaryum gynacanthum* are very common, with many patches of the plantain *Phenakospermum guianensis* (*sororoca*). The plantain is associated with unstable soils and other areas of natural disturbance, as well as old cultivation (Politis, 2001). The low-lying areas dominated by palms have a dense, spongy litter where depressions holding water during the rainy season are evident. The most common tree species are *Apeiba membranacea, Aspidosperma verruculosum, Brosimum lactescens, Clarisia ilicifolia, Faramea corymbosa, Guapira venosa, Hirtella triandra, Iryanthera juruensis, Leonia glycycarpa, Miconia ruficalyx, Ocotea* sp., *Prieurella prieurii, Protium decandrum, Protium paraense, Sclerolobium* sp., *Tachigalia* sp., *Virola elongata, Vochysia densiflora* and *Xylopia nitida. Tachigalia* sp. was the most common species in plant transects (Kanindé, 2001).

The savannas occur as isolated patches covering a few hundred hectares each, completely surrounded by forest. These open-vegetation islands are periodically inundated when the water table rises during the rainy season. During our visit this habitat was covered by up to 30 cm of water. The vegetation is made of a mosaic of both bushy and grassy areas. Among the bushes the palm *Mauritiella armata* is very common, together with *Caraipa savannarum, Kielmeyera rubriflora, Emotum nitens, Byrsonima* cf. *intermedia, Eugenia* sp. and *Pouteria* sp. In the grassy areas the soil is exposed. The uneven cover is made of sedges *Xyris* sp., *Macairea* sp. and *Bulbostylis* sp., and other herbaceous plants, such as *Eriocaulon, Paepalanthus,* and *Syngonanthus.*

Signs of fire can be seen among the bushes and the many dead trees surrounding the abrupt savanna-forest edge. Some isolated patches dominated by *Cecropia* spp. amid the *terra firme* forest are a testimony to past fires either entering the forest from the savannas or caused by burnings begun by local residents. This, together with the abundant plantain and palm-dominated areas, show a long history of human impact by local natives.

Bird surveys were made mostly by recording species seen or heard, and by setting mist-net lines. Reference tapes were made for use in play-backs and to check identifications, especially of tinamous and owls. The nets used were mostly 2.5 × 12 m with 36 mm mesh. A total of 1,183 net-hours were spent in the *terra firme* forest, while 164 net-hours were spent in the forest-savanna ecotone, and 230 net-hours in the savanna.

2. Uru-Eu-Wau-Wau Indigenous Land

Fieldwork was carried out by FO and LFS from March 13-25, 2002. The Uru-Eu-Wau-Wau Indigenous Territory covers 1.87 million ha, including most of the Pacaás Novos massif. Human populations are low (around 180 contacted natives, I. Bandeira *in litt.*). A detailed description of the area is available in Kanindé (2002). Three different areas were sampled:

1) Jamari (around 10°32'04"S, 63°10'06"W, 108 m asl), sampled between March 13 and 17. The open ombrophylous forest there has an open understory. By far the dominant species are the *babaçu* palm *Attalea speciosa,* followed by *Peltogyne* sp., *Tetragastris altissima* and *Euterpe precatoria.* The canopy reaches 25 m. No watercourse ran through the sampled area, but additional observations were made at the Jamari River, near the Native village. The abundant *Attalea* palms are an indication of intensive human use, as this species is an aggressive colonizer at former cultivated areas and tends to become dominant where fire commonly occurs, as in pastures nowadays.

2) "Campos" do Urupá (around 11°09'03"S, 62°53'05"W, 236 m asl), sampled between March 17 and 20. The studied area has a riverine forest with an abundance of bamboo bordering a steep-banked creek. There is an abrupt transition between this forest and a large area of arboreal-arbustive savanna with many exposed sandstone ledges. The most common tree species in the savanna are *Macropholis guyanensis, Couroupita* spp. and *Protium tenuifolium.* The Urupá river basin has a long stretch of savanna/forest contact, and harbors many plant species typical of the cerrado, such as *Boudichia nítida, Myrcia fallax, Walteria ferruginea, Meriania urceolata* and *Ouratea* sp.

3) Alto Jamari (10°43'02"S, 63°27'02"W, 260 m asl), sampled between March 20-25. This area consists of lower montane open forest with a denser and diverse understory. The canopy is over 25 m, and many emergents (mainly Brazil-nut trees *Bertholetia excelsa*) towered to over 40 m. Dominant species are *Tetragastris altissima* (a very common species bearing edible fruit sought by many animals), the palm *Attalea speciosa* and *Pseudolmedia faevis.*

Birds were identified with the aid of binoculars and tape-recorded with a Sony TCM 5000 EV recorder fitted with a Sennheiser ME 66 microphone. Copies of the tapes were archived at the Elias Coelho sound archive (ASEC, Universidade Federal do Rio de Janeiro, RJ). Mist-net (10 × 2.5 m, 32 mm mesh size) lines with 20

nets were set in trails cut in all study sites. Additionally, birds were collected with the aid of .22, .28 and .36 shotguns. Specimens were preserved in phenoxyethanol and are now at the Museu de Zoologia da Universidade de São Paulo (MZUSP).

Activities totaled some 120 field-hours. Mist-nets were opened soon after sunrise (6:00) and closed at different times between 14:00 and 19:00. A total of 520 net-hours were spent at Jamari, 590 at Urupá, and 766 at Alto Jamari, totaling 1,876 net-hours.

3. Serra da Cutia National Park

Fieldwork was carried out by FO between March 14-24 and from August 2-13, 2003. The national park covers 466,873 ha between the Cautário and Pacaás Novos River, which are used as access routes to the park. It is surrounded by several extractive reserves (including the Rio Cautário State Extractive Reserve along the southern bank of that river) and by Uru-Eu-Wau-Wau Indigenous land. Human populations in the park are very low, but several hundred people live along the rivers surrounding it. Two different sites were sampled, their description being adapted from IBAMA (2005):

1) Igarapé São João do Branco and nearby savannas, visited in March. The studied areas included: a riverine forest and a former cultivation cleared near Igarapé São João do Branco (11°35'25"S, 63°59'06"W, 146 m asl), savannas and campinaranas on white sand and rock ledges (11°35'20.6"W, 64°00'12.8"W, 193 m asl), and *terra firme* forest dominated by palms and banana-like *sororoca Phenakospermum guianensis* (Strelitziaceae) at 11°35'34,3"S, 63°59'51,8"W.

Palm forest has a canopy reaching 20-25 meters, the dominant species being *Oenocarpus bataua.* This is a species forming oligarchic forests over damp soils with open canopies allowing sunlight to reach the ground (Clay *et al.* 2000). *Phenakospermum guianensis,* a species adapted to soaked soils in clearings, is very common and reflects the high level of natural disturbance (mostly by windfalls) in the forest. Dominant arboreal species are *Eschweilera coriaceae* (Lecythidaceae), *Oenocarpus bataua* (Arecaceae), and *Aspidosperma carapanauba* (Apocynaceae). Low-lying areas closer to the rivers indicate seasonal ponds of standing water, reflecting a high water table. The most common species in this special habitat are *Oenocarpus bataua* (Arecaceae), *Phenakospermum guianensis* and *Qualea paraensis* (Vochysiaceae).

The *campinaranas* at Serra da Cutia consist of thin trees with a canopy at about 10 m. The very open understory is dominated by ferns, especially a species of *Selaginella.* Dominant trees were the same as in the adjoining forest. Local savannas show distinctive habitats, including open areas with a dense cover of grasses and sedges growing on shallow soils with a very high water table similar to the ones at Traçadal. The soaked areas around rock outcrops are dominated by sedges such as *Xyris* (Xyridaceae), *Macairea* (Melastomataceae) and *Bulbostylis* (Cyperaceae), and by herbs including *Eriocaulon* (Eriocaulaceae), *Paepalanthus* (Eriocaulaceae) and *Syngonanthus* (Eriocaulaceae). There are few tree species, the most common being *Antonia* and *Licania* (Chrysobalanaceae).

2) Igarapé Tiradentes (11°47'33.1"S, 64°15'12.9"W), visited in August, is dominated by *terra firme* forest between the camp site and the long trail linking it to the Cautário River, and by palm forest between the camp and a rocky hill called "Serra da Cutiara", an area at which savannas are found. Dominant there are *Mouriri* sp. (Myrmilaceae) and *Qualea acuminata* (Vochysiaceae), differing from site 1. Low-lying areas closer to the water courses are dominated by the palms *Oenocarpus bataua* (Arecaceae), *Pourouma minor* (Cecropiacaee) and *Cedrelinga cataeniformis* (Mimosaceae).

The *terra firme* forest is similar to that at site 1, with many *sororoca* and *patauá* palms, as well as *Mouriri* sp. (Melecylaceae) and *Lueheopsis* sp. (Tiliaceae) and *Qualea paraensis* (Vochysiaceae). Several large clearings in the area seem to have resulted from wind falls caused by strong descending winds, a large-scale disturbance that may favor palms and may account for their dominance (Nelson *et al.* 1994).

Birds were surveyed with the aid of binoculars and mist-nets. In March a line of 19 nets (10 × 2.5 m, 36 mm mesh) was used in savanna and palm forest, while in August a 30-net line was set in *terra firme* forest. A total of 976 net-hours were spent in palm forest (São João do Branco), 1273.3 in *terra firme* forest (Tiradentes) and 606.1 in savanna (São João do Branco).

4. Antonio Mujica Nava Ecological Station

Fieldwork was carried out by FO and LFS from February 6-18, 2002. Base camp was located at Igarapé São Lourenço (09°24'50"S, 64°56'32"W), on the left bank of the Madeira River. The description below is adapted from PNUD/PLANAFLORO (2002). In 2010, Mujica Nava Ecological Station was merged into Mapinguari National Park as part of a deal between the federal and state governments.

The 18,280 ha reserve is located in a flat area (80-90 m asl), with a few hills reaching 120 m. The lower areas have sandy soils topped by a thin (30-40 cm) clay layer. Podzols occur in hilly areas. Igarapé São Lourenço shows significant changes in water level, as water can rise beyond one meter overnight. There is an extensive floodplain along the São Lourenço basin, dominated by permanently flooded forest which is associated with clear-water

rivers, surrounded by *terra firme* forest on higher ground. Restricted patches of *buriti* palms (*Mauritia flexuosa*) are present.

The *igapó* forest shows a uniform canopy reaching 20-22 m. The most common species belong to the genera *Peltogyne* (Fabaceae), *Couratari* (Lecythidaceae), *Bombax* (Bombacaceae), *Eschweilera* (Lecythidaceae), *Naucleopsis* (Moraceae), *Copaifera* (Fabaceae), *Croton* (Euphorbiaceae), *Virola* (Myristicaceae), *Xylopia* (Annonaceae), *Hevea* (Euphorbiaceae), *Guarea* (Meliaceae), *Iryanthera* (Myristicaceae), *Brosimum* (Moraceae), *Chrysophyllum* (Sapotaceae), *Tetragastris* (Burseraceae), *Sclerolobium* (Fabaceae), *Tachigali* (Leguminosae), *Licania* (Chrysobalanaceae), *Hirtella* (Chrysobalanaceae), *Pouteria* (Sapotaceae), *Rinorea* (Violaceae) and *Inga* (Fabaceae). The lower canopy has thin trees some 10-12 m high belonging to the genera *Theobroma* (Sterculiaceae), *Annona* (Annonaceae), *Unonopsis* (Annonaceae), *Rollinia* (Annonaceae), *Duguetia* (Annonaceae), *Miconia* (Melastomataceae), *Casearia* (Salicaceae) and *Coussarea* (Rubiaceae). Palms are conspicuous elements in seasonally flooded areas (*baixios*) at the ecotone between the *igapó* and *terra firme* forests, and along smaller watercourses. The most common species are: *Euterpe precatoria* (Arecaceae), *Socratea exorrhiza* (Arecaceae), *Oenocarpus bataua* (Arecaceae) and *Astrocaryum aculeatum* (Arecaceae); while smaller species (*Bactris* and *Geonoma* spp. – Arecaceae) make up the undergrowth together with *Cordia nodosa* (Boraginaceae), *Heliconia* spp. (Heliconiaceae), *Leandra* sp. (Melastomataceae), *Miconia* spp. (Melastomataceae), *Piper* spp. (Piperaceae), *Tococa* sp. (Melastomataceae) and *Psychotria* spp. (Rubiaceae).Woody lianas (Caesalpinioideae *Bauhinia* spp., Fabaceae *Machaerium* spp., Polygalaceae *Moutabea* spp., Dilleniaceae *Doliocarpus* spp., Dilleniaceae *Tetracera* spp., and Leguminosae *Deguelia* sp.) and epiphytes (Araceae *Philodendron,* Araceae *Anthurium,* Orchidaceae *Catasetum,* Orchidaceae *Epidendrum,* Orchidaceae *Sobralia,* Orchidaceae *Galeandra,* Piperaceae *Peperomia* and Gesneriaceae *Codonanthe*) are most common in the *igapó.*

Terra firme forest grows on soils with lower fertility, away from the floodline. Trees reach a height of about 25 m and species diversity is higher compared to that in *igapó.* There were a few isolated patches of climbing bamboos, sometimes making a dense cover. Emergent species are *Bertholletia excels* (Lecythidaceae), *Caryocar villosum* (Caryocaraceae), *Aspidosperma carapanauba* (Apocynaceae), *Couma* sp. (Apocynaceae), *Couratari* sp. (Lecythidaceae) and *Cariniana* sp. (Lecythidaceae). The lower canopy has many Annonaceae (*Guatteria, Xylopia* and *Rollinia*) and Flacourtiaceae (*Casearia* and *Carpotroche*). Palms are also present but in lower densities compared to the *igapó* and *baixios*.

Birds were identified with the aid of binoculars and from vocalizations. Recordings were made with a Sony TCM 5000 EV recorder with a Sennheiser ME 66 microphone, while birds were collected with mist-nets (meshes 32 and 36 mm) set in the *terra firme* and *igapó* forests, along with shotguns. All collected birds were prepared as skins and fluid-preserved specimens, and were deposited in the Museu de Zoologia da Universidade de São Paulo. A total of 844 net-hours were spent in *terra firme* forest, and 377 in *igapó*.

RESULTS

Traçadal

We recorded 234 bird species in the four sampled habitats (Table 1). *Terra firme* forest had the largest number of exclusive species (112; or 46% of all species). Riverine habitats had the second largest number of exclusive species (50; 20%), followed by transitional forest (13; 5%) and savanna (18; 7.5%). One species (*Crotophaga ani*) was found only around the cleared areas inhabited by the local rubber-tappers.

Mist-nets on *terra firme* made 136 captures of 35 species (Table 2) in two different net lines (0.15 bird/net-hour), while 26 captures of 12 species were made in the savanna (0.11 bird/net-hour), and only nine captures of six species (0.05 captures/net-hour) in transitional forest. The small effort in the transitional forest may account for the low number of birds caught there, but qualitative observations support the opinion that this habitat is poorer compared to *terra firme* forest.

The most abundant species caught in the nets set on *terra firme* were *Willisornis poecilinotus* (an army-ant follower – 11% of the captures), *Geotrygon montana* (a ground-dove; 10%) and *Arremon taciturnus* (a forest-floor granivore-insectivore; 7%). Ten species were represented by single captures.

The isolated savanna at Traçadal is representative of habitats more commonly found in southern Rondônia and associated with the Pacaás Novos Mountains. Several species are characteristic of these enclaves and do not enter the forest. Characteristic birds at Traçadal are *Formicivora grisea, F. rufa, Elaenia cristata, Tachyphonus phoenicius* and *Xenopipo atronitens.* The vegetation of dense ferns (*Pteridium* sp.) and melastome shrubs, marking the border between the forest and the savanna, proved to be the only habitat where *Cantorchilus leucotis* and *Myrmeciza atrothorax* were found.

The transitional forest has many dead trees resulting from regular fires. The availability of nest sites account for the concentration of cavity-nesting macaws, parakeets and parrots found in the area. These include *Amazona* (*ochrocephala*) *nattereri,* a parrot more associated with forest-savanna mosaics such as those along the Guaporé River further west.

TABLE 1: Birds recorded in seven localities in Rondônia State.
Key to habitat: Mata de *Terra Firme* (M); Palm Forest (P); Forest-Savanna Ecotone (T); Savanna (S); and River Edge, including riverine forest, *igapós* and *várzeas* (R).
Key to relative abundance: Common (1 = birds seen or heard every day in their usual habitat); Fairly Common (2 = birds seen or heard in 99-50% of field days); Uncommon (3 = birds seen or heard 25-50% of field-days); Rare (4 = seen or heard only once).
Type of record: s = sight, v = voice, p = photograph, r = tape-recorded, n = mist-netted, c = collected, f = feathers in Native artifacts.

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
TINAMIDAE							
Tinamus tao Temminck, 1815	M, 3, s,v	P, 3, s, v	M, 1, v				M, 3
Tinamus major (Gmelin, 1789)	M, 1, v		M, 3, v	s		s	M, 2
Tinamus guttatus Pelzeln, 1863			M, 3, s, v				
Crypturellus cinereus (Gmelin, 1789)	M, 1, v	P, 1, v	M, 1, v	s	s	s	M, 1
Crypturellus soui (Hermann, 1783)	T, 2, v		M, 1, v	s		s	M, 1
Crypturellus aff. *bartletti* (Sclater and Salvin, 1873)							R, 1, n,c,f
Crypturellus obsoletus (Temminck, 1815)	M, 1, v	P, 4, v		s		s	
Crypturellus undulatus (Temminck, 1815)	M, 3, v	R, 2, v	R, 1, v				
Crypturellus variegatus (Gmelin, 1789)		P, 2, v	M,P, 1, s, v	s			M, 3, v
Crypturellus strigulosus (Temminck, 1815)						s	M, 1, v
Crypturellus tataupa (Temminck, 1815)	S, 2, v		R, 4,v	s		s	
Crypturellus parvirostris (Wagler, 1827)				s		s	
Rhynchotus rufescens (Temminck, 1815)		S, 4, v					
ANHIMIDAE							
Anhima cornuta (Linnaeus, 1766)	R, 1, s		R, 2				
ANATIDAE							
Dendrocygna autumnalis (Linnaeus, 1758)		R, 3, s					
Cairina moschata (Linnaeus, 1758)	R, 2, s	R, 2, s		s			R, 3, s
CRACIDAE							
Ortalis guttata (Spix, 1825)	R, 1, v	R, 1, v	R, 4, s,v				
Penelope jacquacu Spix, 1825	M,T,S, 1, v	P,T,c, 2, v	M,P, 2	s	s	c	M, 1, c
Penelope superciliaris Temminck, 1815		P, 4, v					
Aburria cumanensis (Jacquin, 1784)	M, 3, s,v		M, 3, s,v				M, c
Pauxi tuberosa (Spix, 1825)		P, 4, s	M, 4, s				M, 2, c
ODONTOPHORIDAE							
Odontophorus gujanensis (Gmelin, 1789)		P, 1, s,v	M, 3, v				
Odontophorus stellatus (Gould, 1843)	M, 2, v		M, 3, v			v?	M, 1, v
PHALACROCORACIDAE							
Phalacrocorax brasilianus (Gmelin, 1789)	R, 1, s		R, 4, s	S, s			
ANHINGIDAE							
Anhinga anhinga (Linnaeus, 1766)	R, 1, s						R, 4, s
ARDEIDAE							
Tigrisoma lineatum (Boddaert, 1783)	R, 4, s		R, 1			s	R, 3, s
Agamia agami (Gmelin, 1789)			R, 4,s				
Butorides striata (Linnaeus, 1758)	R, 4, s	R, 2, s					
Bubulcus ibis (Linnaeus, 1758)					s		
Ardea cocoi Linnaeus, 1766	R, 2, s						R, 4, s
Ardea alba Linnaeus, 1758	R, 2, s						
Pilherodius pileatus (Boddaert, 1783)	R, 4, s	R, 2, s	R, 3, s		s		R, 4, s
Egretta thula (Molina, 1782)			R, 1, s				
THRESKIORNITHIDAE							
Mesembrinibis cayennensis (Gmelin, 1789)	R, 1, s	R, 1, s	R, 3, s	s			R, 3, s
Platalea ajaja Linnaeus, 1758					s		
CATHARTIDAE							
Cathartes aura (Linnaeus, 1758)	S, 4, s	S, 4, s			s		
Cathartes burrovianus Cassin, 1845					s	s	
Cathartes melambrotus Wetmore, 1964	M,T,R, 1, s	P,T, 1, s	M,R, 1, s				M, 4, s
Coragyps atratus (Bechstein, 1793)	R,2, s	S,R, 2, s	M,R, 1, s	s	s	s	M, 4, s
Sarcoramphus papa (Linnaeus, 1758)	T,S, 2, s			s	s	s	M, 4, s
ACCIPITRIDAE							
Leptodon cayanensis (Latham, 1790)				s		s	
Elanoides forficatus (Linnaeus, 1758)	R,A, 2, s		R, 4, s		s		M, 4

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
Elanus leucurus (Vieillot, 1818)					s		
Ictinia plumbea (Gmelin, 1788)	T,S, 2, s	S,R, 3, s					
Accipiter poliogaster (Temminck, 1824)	R, 4, s						M, 4, c
Leucopternis albicollis (Latham, 1790)						s	
Buteogallus urubitinga (Gmelin, 1788)			R, 4, s				
Busarellus nigricollis (Latham, 1790)	R, 3, s						
Rupornis magnirostris (Gmelin, 1788)	R, 3, s	S,R, 2, s	S, 2, s		s	s	M, 4
Buteo nitidus (Latham, 1790)				s	s	s	
Morphnus guianensis (Daudin, 1800)		R, 4, s,f	R, 4, s				
Harpia harpyja (Linnaeus, 1758)				s,f			
Spizaetus tyrannus (Wied, 1820)	R, 3, s,v			s			
Spizaetus ornatus (Daudin, 1800)			M, 4, s				M, 4
FALCONIDAE							
Daptrius ater Vieillot, 1816	M, 3, s	P, 3, s	M, 3, s			s	M, 1,
Ibycter americanus (Boddaert, 1783)	M,T, 3, s,v	P,R, 2, s,v	M, 2	c			M, 1, c
Herpetotheres cachinnans (Linnaeus, 1758)					s		M, 3
Micrastur ruficollis (Vieillot, 1817)	M, 1, v		M, 3, v			s	M, 1
Micrastur mintoni Whittaker, 2002			M, 2, s,v,n				
Micrastur gilvicollis (Vieillot, 1817)							M, R, 3, c
Micrastur mirandollei (Schlegel, 1862)			M, 4, s,v			c	
Micrastur semitorquatus (Vieillot, 1817)	M, 1, v	P, S, 1, v	M, 3, v			s	M, 1, v
Falco rufigularis Daudin, 1800	R, 3, s	R, 3, s		s		s	M, 4, s
PSOPHIIDAE							
Psophia leucoptera Spix, 1825							M, 2, s,c
Psophia viridis Spix, 1825	M, 3, s	P, 4, s	M, 4, s			s	
RALLIDAE							
Aramides cajanea (Statius Muller, 1776)	S, 4, v					s	R, 2, v,c
Laterallus viridis (Statius Muller, 1776)				s		s	
Porphyrio martinica (Linnaeus, 1766)	R, 2, s						
HELIORNITHIDAE							
Heliornis fulica (Boddaert, 1783)	R, 3, s						
EURYPYGIDAE							
Eurypyga helias (Pallas, 1781)	R, 3, s		R, 3, s			s	R, 2, s,c
JACANIDAE							
Jacana jacana (Linnaeus, 1766)	R, 1, s						
CHARADRIIDAE							
Vanellus cayanus (Latham, 1790)			R, 1, s,p				
SCOLOPACIDAE							
Actitis macularius (Linnaeus, 1766)				s			
Gallinago paraguaiae (Vieillot, 1816)	S, 2, s						
Tringa melanoleuca (Gmelin, 1789)			R, 2, s				
STERNIDAE							
Sternula superciliaris (Vieillot, 1819)							R, 4, s
Phaetusa simplex (Gmelin, 1789)			R, 4, s				
Rynchops niger Linnaeus, 1758			R, 4, s				
COLUMBIDAE							
Columbina talpacoti (Temminck, 1811)						s	
Claravis pretiosa (Ferrari-Perez, 1886)					s	s	
Patagioenas speciosa (Gmelin, 1789)	M,T,R,S, 1, s,v	R, 2, s,v	M, 3, s,v		s		M, 3, s
Patagioenas cayennensis (Bonnaterre, 1792)	M,T,R, 2, s,v	P,T,R, 2, s,v					
Patagioenas plumbea (Vieillot, 1818)	M, 3, v	P, 1, v			v,c	s	M, 4, v
Patagioenas subvinacea (Lawrence, 1868)	R, 3, s,v		M, 2, v	s	s	s	M, 1, s,v
Leptotila verreauxi Bonaparte, 1855				s	s	s	
Leptotila rufaxilla (Richard and Bernard, 1792)				s			M, 1, n,c
Geotrygon violacea (Temminck, 1809)						n,c	
Geotrygon montana (Linnaeus, 1758)	M,T, 1, s,n	P, 4, s,n	M, 1, s,n	n,c	n,c	n,c	M, 1, n,c
PSITTACIDAE							
Ara ararauna (Linnaeus, 1758)	M,T,R, 2, s	P,R,S, 1, s	M, 3, s				M, 1, s
Ara macao (Linnaeus, 1758)	M,T, 1, s			s		s	M, 1, s
Ara chloropterus Gray, 1859	M,T,R, 2, s	P,R, 2, s			s		M, 1, s

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
Ara severus (Linnaeus, 1758)	M, 3, s	R, 3, s	R, 4, s	s	s	s	M, 1, s
Orthopsittaca manilata (Boddaert, 1783)		R, S, 1, s	M, 1, s				M, 1, s,c
Aratinga leucophthalma (Statius Muller, 1776)	T, 3, s	S, 4, s		s,c	s	s	
Aratinga weddellii (Deville, 1851)	T,S,R,A, 1, s	R, 4, s		s,c	s	s	M, 1, s
Aratinga aurea (Gmelin, 1788)		S,T, 1, s,p					
Pyrrhura perlata (Spix, 1824)	T, 3, s	R, 4, s	M, 1, s	s		c	
Pyrrhura snethlageae Joseph and Bates, 2002	T,S, 2, s		M, 4, s			s	M, 1, s,c
Brotogeris versicolurus (Statius Muller, 1776)	T, 4, s						
Brotogeris chiriri (Vieillot, 1818)		R, 1, s,p	R, 1, s				
Brotogeris chrysoptera (Linnaeus, 1766)				s	s	s	M, 3, s
Brotogeris sanctithomae (Statius Muller, 1776)	R, 4, s	R, 2, s,p					R, 4, s
Pionites leucogaster (Kuhl, 1820)	M,T, 2, s,v					s	M, 1, s,v
Pyrilia barrabandi (Kuhl, 1820)		P, 4, s,v					M, 3, s,v
Pionus menstruus (Linnaeus, 1766)	M,T, 1, s,v	P,T, 1, s,v	M, 2, s,v	s	s	s	M, 1, s,v
Amazona ochrocephala (Gmelin, 1788)	T, 1, s,v	P,T, 1, s,v		s		s	M, 1, s,v
Amazona kawalli Grantsau and Camargo, 1989							R, 3, s,v
Amazona amazonica (Linnaeus, 1766)	R, 4, s,v	R, 4, s,v					
Amazona farinosa (Boddaert, 1783)	M,R, 3, s,v	P, R, 3, s,v	M, 1, s,v	s	c	s	M, 1, s,v
Deroptyus accipitrinus (Linnaeus, 1758)	M,T, 3, s						M, 4, s
OPISTHOCOMIDAE							
Opisthocomus hoazin (Statius Muller, 1776)	R, 1, s	R, 1, s					
CUCULIDAE							
Piaya cayana (Linnaeus, 1766)	R, 3, s,v	P,T, 2, s,v		s	s	s	M, 1, s,v
Piaya melanogaster (Vieillot, 1817)	M, 2, s	R, 4, s	M, 2, s				M, 3, s,v
Coccycua minuta (Vieillot, 1817)	R, 2, s						R, 3, s,v
Crotophaga major Gmelin, 1788	R, 1, s	R, 1, s		s		s	R, 1, s,v
Crotophaga ani Linnaeus, 1758	A, 3, s	R, 3, s		s		s	
Dromococcyx pavoninus Pelzeln, 1870			M, 4, n,p				
STRIGIDAE							
Megascops choliba (Vieillot, 1817)	T,R, 3, v	P, 2, v		s		s	M, 1, v
Megascops usta (Sclater, 1858)	M,T, 1, v	P,T, 1, v	M, 1, v	s		s	M, 1, v
Lophostrix cristata (Daudin, 1800)	M,T, 3, v		M, 2, v,p	s			M, 3, v
Pulsatrix perspicillata (Latham, 1790)		P, 4, v					M, 3, v
Strix virgata (Cassin, 1849)	M, T, 4, v						
Strix huhula Daudin, 1800	T, 4, v						
Glaucidium hardyi Vielliard, 1990	M,T, 2, v			s		s	M, 3, v
Glaucidium brasilianum (Gmelin, 1788)		P, 2, v		s			M, 4, v
Athene cunicularia (Molina, 1782)					s		
NYCTIBIIDAE							
Nyctibius grandis (Gmelin, 1789)			M, 4, v				
Nyctibius aethereus (Wied, 1820)	M, 4, v						
Nyctibius griseus (Gmelin, 1789)	M, 3, v						
CAPRIMULGIDAE							
Lurocalis semitorquatus (Gmelin, 1789)		R, 3, s,v					
Chordeiles rupestris (Spix, 1825)							R, 4, s
Chordeiles acutipennis (Hermann, 1783)							M, 4, v
Chordeiles minor (Forster, 1771)					s	?	
Caprimulgus nigrescens Cabanis, 1848				s	n,c		
Nyctidromus albicollis (Gmelin, 1789)			M, 4, s,v	s,v	s.v	s,v	M, 4, s,v
Nyctiphrynus ocellatus (Tschudi, 1844)	M, 3, v		M, 4, v	s		s	R, 4, v
Hydropsalis climacocerca (Tschudi, 1844)	S, 3, s	R, S, 2, s					
APODIDAE							
Streptoprocne zonaris (Shaw, 1796)		T,C, 4, s					
Chaetura egregia Todd, 1916							R, 4, s
Chaetura cf. *chapmani* Hellmayr, 1907	T,S, 2, s	R, S, 2, s		s	s	s	
Chaetura meridionalis Hellmayr, 1907	R, 3, s						
Chaetura brachyura (Jardine, 1846)	M,S, 3, s						
Tachornis squamata (Cassin, 1853)	T,S, 2, s	T,C, 2, s		s	s		M, 4, s
Panyptila cayennensis (Gmelin, 1789)			R, 4, s				

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
TROCHILIDAE							
Threnetes leucurus (Linnaeus, 1766)		R, 4, v		s		n,c	
Phaethornis ruber (Linnaeus, 1758)	M,T,S, 1, s	P,T, 2, s	M,P, 2, s,n	s	s,c	s	M, 1, s
Phaethornis ochraceiventris Hellmayr, 1907							R, 1, c
Phaethornis philippii (Bourcier, 1847)							M, R, 3, c
Phaethornis malaris insignis Todd, 1937	S, 4, s	P, 4, n	M, 4, n	n,c	s,c		
Campylopterus largipennis (Boddaert, 1783)	S, 3, s	P, 3	P,M, 4, s,n	n,c	n,c	n	
Florisuga mellivora (Linnaeus, 1758)							M, 1, s
Anthracothorax nigricollis (Vieillot, 1817)	M, 4, s					s	
Topaza pella (Linnaeus, 1758)						s	
Thalurania furcata (Gmelin, 1788)	M,T, 3, s,n	S, 2, s	M, 2, s,n				M, 3, s,c
Hylocharis cyanus (Vieillot, 1818)	S, 3, s					s	
Amazilia versicolor (Vieillot, 1818)					s	s	
Heliothryx auritus (Gmelin, 1788)				s	s		M, 4, s
Heliomaster longirostris (Audebert and Vieillot, 1801)	M, 4, s						
Heliomaster furcifer (Shaw, 1812)				s			
TROGONIDAE							
Trogon viridis Linnaeus, 1766	M, 1, s,v	P,T, 1, s,v	M, 1, s,v	s			M, 1
Trogon collaris Vieillot, 1817	M, 4, s,v			s		c	M, 2
Trogon rufus Gmelin, 1788						s	M, 2
Trogon melanurus Swainson, 1838	M, I, 2, s,v	P, 2, s,v	M, 1, s,v	s		s	M, 1
Pharomachrus pavoninus (Spix, 1824)			M, 1			s	R, 4
ALCEDINIDAE							
Megaceryle torquata (Linnaeus, 1766)	R, 1, s	R, 1, s	R, 1, s				R, 4
Chloroceryle amazona (Latham, 1790)	R, 1, s	R, 1, s	R, 1, s	s			R, 4
Chloroceryle americana (Gmelin, 1788)	R, 1, s	R, 1, s	R, 1, s		s		R, 3, s
Chloroceryle inda (Linnaeus, 1766)		R, 2, s					R, 4, n,c
Chloroceryle aenea (Pallas, 1764)						s	R, 3, n,c
MOMOTIDAE							
Electron platyrhynchum (Leadbeater, 1829)	M, 2, s,v	P, 1, v	M, 1, s,v		n,c	s	M, R, 1, s, v, n, c
Baryphthengus martii (Spix, 1824)	M, 2, v,n	P, 2, v	M, 1, v,n	n,c	n,c	n	M, 1, n,c,p
Momotus momota (Linnaeus, 1766)	M, 3, s,v	P, 1, s,v	M, 1, s,v	s		n	M, 1
GALBULIDAE							
Brachygalba lugubris (Swainson, 1838)		R, T, 1, s	R, 4, s,p		s		
Galbula albirostris Latham, 1790							M, 3, n,c,p
Galbula cyanicollis Cassin, 1851	M, 4, s		M, 3, s,n,p			s	
Galbula ruficauda Cuvier, 1816				s		n,c,p	R, 4, s,c
Galbula cyanescens Deville, 1849							M, 4, s,c
Galbula dea (Linnaeus, 1758)		P, R, 2, s,v			s,c		M, 3, s,c
Jacamerops aureus (Statius Muller, 1776)		P, 1, v		c		s	M, 4, s
Notharchus macrorhynchos (Gmelin, 1788)							M, 4, s,c
BUCCONIDAE							
Bucco tamatia Gmelin, 1788		S, 3, s,n.p					
Malacoptila rufa (Spix, 1824)	M, 4, n,p	P, 4, s	M, 3, s,n,p			n,c	M, 4, n,c
Nonnula ruficapilla (Tschudi, 1844)	M, 3, n,p				n,c		
Monasa nigrifrons (Spix, 1824)	R, 1, s,v	R, 1, s,v	R, 1, s,v	s		s	R, 1, s
Monasa morphoeus (Hahn and Küster, 1823)	M, 2, s,v	P, 2, s,v	M, 3, s,v	c	n,c	s	M, 1, s,c
Chelidoptera tenebrosa (Pallas, 1782)	M,T,R,S, 1, s,n	P,T,R, 1, s	R, 1, s	s			M, 4, s
CAPITONIDAE							
Capito dayi Cherrie, 1916	M, 4, s				s	s	
Capito niger (Statius Muller, 1776)							M, 2, s
RAMPHASTIDAE							
Ramphastos toco Statius Muller, 1776		T, 3, s,v					
Ramphastos tucanus Linnaeus, 1758	M,T,R, 1, s,v	P,T,R, 1, s,v	M, 1, s,v	s		s	M, R, 1, s
Ramphastos vitellinus Lichtenstein, 1823	M, 1, s,v	P, 1, s,v	M, 2, s,v	s			M, 4, s
Selenidera reinwardtii (Wagler, 1827)							M, 4, s
Selenidera gouldii (Natterer, 1837)		P,T, 1, n,p	M, 2, s,n,p	s	c	c	
Pteroglossus inscriptus Swainson, 1822	M,T, 4, s			s			

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
Pteroglossus bitorquatus Vigors, 1826	M,R, 2, s						
Pteroglossus azara (Vieillot, 1819)				s			
Pteroglossus mariae Gould, 1854							M, 4, n,p,c
Pteroglossus castanotis Gould, 1834	M,T, 3, s	P,T, 3, s	R, 4, s	s	s		
PICIDAE							
Picumnus aurifrons Pelzeln, 1870	M,S, 2, n,c	S, 3, s,n.p	M, 4, s				
Veniliornis affinis (Swainson, 1821)	M, 4, s	P, 4, s	M, 3, s	n,c		c	
Piculus leucolaemus (Natterer and Malherbe, 1845)						c	
Piculus flavigula (Boddaert, 1783)		P, 3, s,v	M, 2, s,v	s			
Piculus chrysochloros (Vieillot, 1818)	M, 4, s,v			s		s	M, 3, s
Celeus grammicus (Natterer and Malherbe, 1845)	M, 4, s		M, 4, s	s	n,c		
Celeus elegans (Statius Muller, 1776)	M, 4, s		M, 4, s	s		s	
Celeus flavescens (Gmelin, 1788)						s	
Celeus flavus (Statius Muller, 1776)	M,R, 3, s						
Celeus torquatus (Boddaert, 1783)		P, 3, s	M, 3, s				M, 4, c
Dryocopus lineatus (Linnaeus, 1766)			M, 4, s,v				M, 4, s,v
Melanerpes cruentatus (Boddaert, 1783)	M,T,A, 1, s	P,R, 1, s	S, 4, s	s	s	s	
Campephilus melanoleucos (Gmelin, 1788)				s			M, 3, s,v
Campephilus rubricollis (Boddaert, 1783)	M, 1, s,v	P, 1, s,v	M, 1, s,v			s	M, R, 1, c
MELANOPAREIIDAE							
Melanopareia torquata (Wied, 1831)		S, 4, v					
THAMNOPHILIDAE							
Cymbilaimus lineatus (Leach, 1814)	M, 3, s,v	P, 4, s,v			s	s	R, 4, c
Taraba major (Vieillot, 1816)	S,A, 4, s,v	R, 1, s,v			s		
Thamnophilus doliatus (Linnaeus, 1764)		R, 1, s,v					
Thamnophilus aethiops Sclater, 1858	M, 2, s,v	P, 4, v			n,c	n,c	M, 2, c
Thamnophilus schistaceus d'Orbigny, 1835	M, 4, n,p	P, 2, s,v	M, 2, n,p	s		s	
Thamnophilus murinus Sclater and Salvin, 1868				s	c		
Thamnophilus stictocephalus Pelzeln, 1868		S, 2, s,v,n.p	T, 2, s,v		n,c	c	
Megastictus margaritatus (Sclater, 1855)							M, 1, c
Dysithamnus mentalis (Temminck, 1823)				s			
Thamnomanes saturninus (Pelzeln, 1878)	M, 1, s,n,p	P, 1, s,n	M, 1, s,n,p	s		c	
Thamnomanes caesius (Temminck, 1820)	M, 4, n,p		M, 1, s,v		c	c	M, R, s,v,c
Pygiptila stellaris (Spix, 1825)			M, 2, s				
Epinecrophylla leucophthalma (Pelzeln, 1868)	M, 4, s		M,P, 1, s,n,p	n,c,p	c	n,c	
Epinecrophylla haematonota (Sclater, 1857)							M, 1, c
Epinecrophylla ornata (Sclater, 1853)					c	s	M, 4
Myrmotherula brachyura (Hermann, 1783)	M, 3, s		M, 4, s	s		s	
Myrmotherula sclateri Snethlage, 1912	M, 3, s			s		s	
Myrmotherula multostriata Sclater, 1858		P, 4, s					
Myrmotherula hauxwelli (Sclater, 1857)	M, 2, s,n,p	P, 2, s,n,p	M, 3, s,n,p			c	M, 4, c
Myrmotherula axillaris (Vieillot, 1817)		P, 1, s,n,p	M, 1, s,n,p	s	c	c	M, 2, c
Myrmotherula longipennis Pelzeln, 1868	M, 1, s	P, 3, s,n,p	M, 1, s,n,p	n		n,c	M, 4, c
Myrmotherula menetriesii (d'Orbigny, 1837)	M, 2, s						M, 4, s
Herpsilochmus rufimarginatus (Temminck, 1822)			M, 2, s,v		s		
Microrhopias quixensis (Cornalia, 1849)	M, 3, s,v			s	n,c,p	s	M, 1, s,c
Formicivora grisea (Boddaert, 1783)	S, 3, s,n,c	S, 1, s,n,p	S, 1, s				
Formicivora rufa (Wied, 1831)	S, 2, s						
Terenura humeralis Sclater and Salvin, 1880							M, 4, s
Cercomacra cinerascens (Sclater, 1857)	M, 1, v	P, 1, v	M, 4, v			s,v	M, 1, s
Cercomacra nigrescens (Cabanis and Heine, 1859)				s,v	n,c,p		M, 1, s,c
Myrmoborus leucophrys (Tschudi, 1844)					n,c,p		
Myrmoborus myotherinus (Spix, 1825)	M,T, 1	P,T, 1	M, 1	s,v,c		s,v,c	M, 1, s,c
Hypocnemoides melanopogon (Sclater, 1857)							R, 2, s,v,c
Hypocnemis peruviana Taczanowski, 1884							M, R, 1, s,c
Hypocnemis ochrogyna Zimmer, 1932	M, 1, s,v,n	P,T, 1, s,v	M, 1, s,n,p	s	c	c	
Sclateria naevia (Gmelin, 1788)	R, 4, s,v	R, 4, v		s			R, 1, s,v
Schistocichla leucostigma (Pelzeln, 1868)				c		s	R, 4, c
Myrmeciza hemimelaena Sclater, 1857	M, 3, s,v	P, 2, s,v	T, 4, s,v	s		s	

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
Myrmeciza atrothorax (Boddaert, 1783)	T,S, 2, s,v				c	s	M, 4, s,v
Myrmeciza fortis (Sclater and Salvin, 1868)							M, R, 1, s,c
Gymnopithys salvini (Berlepsch, 1901)							M, R, 1, s,c
Rhegmatorhina hoffmannsi (Hellmayr, 1907)	M, 3, n,c,p	P, 4, s,n,p	M, 1, s,n,p			M, 4, s	
Hylophylax naevius (Gmelin, 1789)		P, 4, s,n,p	M, 2, s,n,p			n,c	M, 4, s,c
Hylophylax punctulatus (Des Murs, 1856)							R, 2, s,c
Willisornis poecilinotus (Cabanis, 1847)	M,T, 1, s,n,p	P,T, 1, s,n,p	M, 1, s,n,p	s,n,c		s	M, R, 1, s,c
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye, 1837)		P, 4, s,v	M, 1, s,v,n,p	c		s	
CONOPOPHAGIDAE							
Conopophaga aurita (Gmelin, 1789)	M, 3, s,n,p					s	
GRALLARIIDAE							
Grallaria varia (Boddaert, 1783)							M, 4, v
Myrmothera campanisona (Hermann, 1783)	M, 2, n		M, 2, n,p				M, 1, c
RHINOCRYPTIDAE							
Liosceles thoracicus (Sclater, 1865)	M, T, 1, s		M, 4, s	c	n,c	c	
FORMICARIIDAE							
Formicarius colma Boddaert, 1783	M, 2, v		M, 2, v	s		c	M, R, 1, n,c
Formicarius analis (d'Orbigny and Lafresnaye, 1837)	M, 1, v	P, 4, v	M, 2, v			n,c	
SCLERURIDAE							
Sclerurus mexicanus Sclater, 1857	M, 2					c	
Sclerurus rufigularis Pelzeln, 1868		P, 2, n	M,P, 2, n,p				M,1,c
Sclerurus caudacutus (Vieillot, 1816)				c		c	M, 4, c
DENDROCOLAPTIDAE							
Dendrocincla fuliginosa (Vieillot, 1818)			M, 4, n,p	c		c	M, 3, c
Dendrocincla merula (Lichtenstein, 1829)	M, 2, n,p	P, 4, n,p	M, 1, n,p	c		c	M, R, 3, n,c
Deconychura longicauda (Pelzeln, 1868)		P, 4, n,p		c	c	c	M, 4, c
Deconychura stictolaema (Pelzeln, 1868)	M, 3, n,p		M, 4, n,p	c		c	M, R, 2, c
Sittasomus griseicapillus (Vieillot, 1818)	M, 4, s	P, 2, s	M, 2, s	c	c		M, 1
Glyphorynchus spirurus (Vieillot, 1819)	M, 2, n	P, T, 1, n	P,M, 1, c	c	c	s	M, R, 1, c
Nasica longirostris (Vieillot, 1818)							R, 3
Dendrexetastes rufigula (Lesson, 1844)	R, 4, v					c	
Hylexetastes uniformis Hellmayr, 1909	M, 4, n,p	P, 4, s	M, 3, s,n,p				
Xiphocolaptes promeropirhynchus (Lesson, 1840)		P, 2, s,v				s	R,
Dendrocolaptes certhia (Boddaert, 1783)							M,1,c
Dendrocolaptes [*certhia*] *concolor* Pelzeln, 1868			M, 4, n,p				
Dendrocolaptes picumnus Lichtenstein, 1820						s	
Dendroplex picus (Gmelin, 1788)	T, 4, s,v	T, 2, s,v	M, 2, s,v		c	s	
Xiphorhynchus ocellatus (Spix, 1824)							M,R, 1, c
Xiphorhynchus elegans (Pelzeln, 1868)	M,T, 1, s,v,n	P,T, 1, s,v,n	M, 1, s,v,n	c	s	s	M,1,c
Xiphorhynchus guttatus (Lichtenstein, 1820)	M, 4, s,v						M,3,c
Lepidocolaptes albolineatus (Lafresnaye, 1845)			M, 4, s,v	c			
Campylorhamphus procurvoides (Lafresnaye, 1850)		P, 4, s	M, 4, s				M,3,c
FURNARIIDAE							
Synallaxis hypospodia Sclater, 1874							M, 4
Synallaxis rutilans Temminck, 1823	M, 2, s,v	P, 3, s,v	M, 2, s,v				M, 4, c
Synallaxis gujanensis (Gmelin, 1789)							M, 4
Berlepschia rikeri (Ridgway, 1886)							M, 3
Ancistrops strigilatus (Spix, 1825)			M, 4, n			c	M, 4, c
Hyloctistes subulatus (Spix, 1824)	M, 3, n		M, 2	c			
Philydor ruficaudatum (d'Orbigny and Lafresnaye, 1838)		P, 4					M, 4, c
Philydor erythrocercum (Pelzeln, 1859)	M, 4	P, 4	M, 4			c	M, 4, c
Philydor erythropterum (Sclater, 1856)				s		s	
Philydor pyrrhodes (Cabanis, 1848)		P, 4, s					M, 3, c
Automolus ochrolaemus (Tschudi, 1844)	M, 2, n,c	P, 2, s,n	M, 1, s,n		s	s	M, 1, c
Automolus infuscatus (Sclater, 1856)							M, 1, c
Automolus paraensis Hartert, 1902		P, 2, s		n		c	
Xenops milleri (Chapman, 1914)		P, 3, s	M, 4, s			s	
Xenops minutus (Sparrman, 1788)	M, 2, n	P,T, 2, n	M, 1, n	c	s		M, 2, c
Xenops rutilans Temminck, 1821	M, 2	P, 4		s			

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
TYRANNIDAE							
Mionectes oleagineus (Lichtenstein, 1823)	M, 2, n	P,T,S, 1, n,p	M, 1, n,p	s	c	c	M,1,c
Leptopogon amaurocephalus Tschudi, 1846	M, 3, n,p	P, 2, n,p	M, 1, n,p	s	c	c	M,4,s,v
Corythopis torquatus (Tschudi, 1844)	M,T, 1,n	P,T, 1,n	M, 1, n	n,c		n,c	M,1,s,n,c
Hemitriccus minor (Snethlage, 1907)		T, 3	M,p,1			c	M,4,n,c
Hemitriccus griseipectus (Snethlage, 1907)	M, 2	P, 1					
Hemitriccus striaticollis (Lafresnaye, 1853)		S,T, 2, n,c,p					
Hemitriccus minimus (Todd, 1925)			P, 1, s,v				
Todirostrum maculatum (Desmarest, 1806)							M,4,s,v
Todirostrum chrysocrotaphum Strickland, 1850							M,4,s,v
Tyrannulus elatus (Latham, 1790)	T,S, 2, s	P, 3, s	M, 3, s,v				M,4,v
Myiopagis gaimardii (d'Orbigny, 1839)	M, 3, v						
Elaenia cristata Pelzeln, 1868	S, 1, n,c	S, 1, n,p					
Zimmerius gracilipes (Sclater and Salvin, 1868)	M, 3, s,v	T, 4, s,v					M,3,c
Ornithion inerme Hartlaub, 1853							R,3,v
Camptostoma obsoletum (Temminck, 1824)						s	R,4,v
Phaeomyias murina (Spix, 1825)		S, 2, n,p					
Myiornis ecaudatus (d'Orbigny and Lafresnaye, 1837)				s, G	s	s	M,2,c
Cnipodectes subbrunneus (Sclater, 1860)							M,R,3,c
Rhynchocyclus olivaceus (Temminck, 1820)		P, 3	M, 4				M,3,c
Tolmomyias sulphurescens (Spix, 1825)		S, 2					M,4,s.v
Tolmomyias poliocephalus (Taczanowski, 1884)			M, 3		c	s	M,4,s,v
Tolmomyias flaviventris (Wied, 1831)	S, 4	S, 1					
Platyrinchus coronatus Sclater, 1858							M,2,c
Platyrinchus platyrhynchos (Gmelin, 1788)	M, 2						M,3,c
Onychorhynchus coronatus (Statius Muller, 1776)						c	
Myiobius barbatus (Gmelin, 1789)		P, 4		c			
Terenotriccus erythrurus (Cabanis, 1847)		P, 4, s,n	M, 1, s,n	c			R,4,s,v
Contopus virens (Linnaeus, 1766)				c		s	
Pyrocephalus rubinus (Boddaert, 1783)			R, 4				
Ochthornis littoralis (Pelzeln, 1868)		R, 1, s,p	R, 1, s				R,1,s,v
Legatus leucophaius (Vieillot, 1818)			M, 4	s			
Myiozetetes cayanensis (Linnaeus, 1766)	R, 1, s,v	S,R, 1, s,v					
Myiozetetes similis (Spix, 1825)		R, 1, s,v	R, 1, s,v	s	s	s	
Pitangus sulphuratus (Linnaeus, 1766)						s	
Philohydor lictor (Lichtenstein, 1823)	R, 1, s,v						
Myiodynastes maculatus (Statius Muller, 1776)		P, 2, s,v					M,4,s,v
Megarynchus pitangua (Linnaeus, 1766)			S, 4			s	M,4,s,v
Tyrannopsis sulphurea (Spix, 1825)							R,4,s,v
Conopias trivirgatus (Wied, 1831)				s			
Empidonomus varius (Vieillot, 1818)		S,T, 3, s,v					
Griseotyrannus aurantioatrocristatus (d'Orbigny and Lafresnaye, 1837)		S,T, 2, s					
Tyrannus melancholicus Vieillot, 1819	S, 2, s,v	S,R, 1, s,v		s	s	s	
Tyrannus savana Vieillot, 1808		S,T, 2, s		s		s	R,4,s
Rhytipterna simplex (Lichtenstein, 1823)	M, 2, s,v	P, 1, s,v	M, 1, s,v,n				
Rhytipterna immunda (Sclater and Salvin, 1873)		T, 4, s		s		s	
Sirystes sibilator (Vieillot, 1818)	M, 3, s,v	P, 2, s,v	M, 2, s,v				
Casiornis rufus (Vieillot, 1816)			T, 4,p				
Myiarchus ferox (Gmelin, 1789)			S, 4				
Ramphotrigon ruficauda (Spix, 1825)	M, 3	P, 1	M, 1	c	s	s	M,4,c
Attila bolivianus Lafresnaye, 1848	M,T, 1	P,T, 1	M, 4			s	
Attila spadiceus (Gmelin, 1789)	M, 2	P, 1	M, 1	s	s	s	M,1,v
Attila phoenicurus Pelzeln, 1868						s	
COTINGIDAE							
Cotinga maynana (Linnaeus, 1766)	M,T, 3						
Cotinga cayana (Linnaeus, 1766)	M, 4						M,R,4,s
Gymnoderus foetidus (Linnaeus, 1758)	T, 4	R, 4		s	c	s	R,2,s
Lipaugus vociferans (Wied, 1820)	M, 1	P, 1	M, 1	s	s	s	

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
Querula purpurata (Statius Muller, 1776)		P, 3	M, 3	s		c	M,1,s,v
Cephalopterus ornatus Geoffroy Saint-Hilaire, 1809	M, 4						
PIPRIDAE							
Neopelma pallescens (Lafresnaye, 1853)		S,T, 2					
Tyranneutes stolzmanni (Hellmayr, 1906)	M, 3	P, 1	M, 1	s		s	M,4,s
Piprites chloris (Temminck, 1822)						s	
Machaeropterus pyrocephalus (Sclater, 1852)	M, 2	S,T, 2	M, P, 1		c		
Lepidothrix coronata (Spix, 1825)							M,R,1,c
Lepidothrix nattereri (Sclater, 1865)	M,T, 1	P,T, 1	M,P, 1	c	c		
Manacus manacus (Linnaeus, 1766)	T, 1				c		M,4,s,v
Chiroxiphia pareola (Linnaeus, 1766)	R, 4	P,T, 3	M, 2				
Xenopipo atronitens Cabanis, 1847	S, 4,c	S,T, 2					
Heterocercus linteatus (Strickland, 1850)		P,T, 2	M, 2		c		
Pipra aureola (Linnaeus, 1758)							M,4,c
Pipra fasciicauda Hellmayr, 1906	M, 4			c		c	
Pipra rubrocapilla Temminck, 1821	M,T, 1	P,T, 1	M,P, 1			c	M,2,s,v
TITYRIDAE							
Schiffornis major Des Murs, 1856							R, 2, c
Schiffornis turdina (Wied, 1831)	M,T, 1	P,T, 1	M, 1	c	c		M,1,c
Laniocera hypopyrra (Vieillot, 1817)	M, 2		M, 2			s	
Iodopleura isabellae Parzudaki, 1847		P, 2			s		M,4,s
Tityra inquisitor (Lichtenstein, 1823)	R, 4	T, 4					
Pachyramphus polychopterus (Vieillot, 1818)	M, 4			s		s	
Pachyramphus marginatus (Lichtenstein, 1823)							M,4,s,v
VIREONIDAE							
Cyclarhis gujanensis (Gmelin, 1789)		P, 1	M, 2				M,2,s,v
Vireolanius leucotis (Swainson, 1838)	M, 3					s	
Vireo olivaceus (Linnaeus, 1766)		T, 4	M, 2			s	
Hylophilus semicinereus Sclater and Salvin, 1867							M,4,s,v
Hylophilus hypoxanthus Pelzeln, 1868	M, 4, s						
Hylophilus muscicapinus Sclater and Salvin, 1873		P, 4, s	M, 2, s				
Hylophilus ochraceiceps Sclater, 1860				c		c	
CORVIDAE							
Cyanocorax [*chrysops*] *diesingii* Pelzeln, 1856	T, 4, s	P,T,S, 1, s,n,c,p					
HIRUNDINIDAE							
Atticora tibialis (Cassin, 1853)		P,S, 3					
Tachycineta albiventer (Boddaert, 1783)	R, 1	R, 1	R, 1				
Progne tapera (Vieillot, 1817)				s			
Progne chalybea (Gmelin, 1789)	R, 1	R, 1	R, 1			s	
Atticora fasciata (Gmelin, 1789)	R, 1	R, 1	R, 1	s	s	s	
Stelgidopteryx ruficollis (Vieillot, 1817)	R,S, 1, n,c	R, 3, s	R, 1, s,v		s	s	
TROGLODYTIDAE							
Campylorhynchus turdinus (Wied, 1831)	R, 4, s,v		R, 1, s,v	s		s	
Pheugopedius genibarbis (Swainson, 1838)	R, 4, s,v	R, 1, s,v		s	c	c	R,3,s,v
Cantorchilus leucotis (Lafresnaye, 1845)	S, 3, n,c						M,R,1,s,v
Troglodytes musculus Naumann, 1823				s	s	s	
Microcerculus marginatus (Sclater, 1855)	M, 1, s,n,p	P, 1, s,v	M, 2, s,n,p	c		c	M,1,c
Cyphorhinus arada (Hermann, 1783)						n,c,p	M,1,s,v
DONACOBIIDAE							
Donacobius atricapilla (Linnaeus, 1766)	R, 1, s,v	R, 1, s,v					
POLIOPTILIDAE							
Ramphocaenus melanurus Vieillot, 1819						s,v	
TURDIDAE							
Catharus ustulatus (Nuttall, 1840)						n,c,p	
Turdus leucomelas Vieillot, 1818			M, 4, n,p		s		M,R, 1, c
Turdus amaurochalinus Cabanis, 1850							M,4,c
Turdus lawrencii Coues, 1880			M, 4				M,3,c
Turdus fumigatus Lichtenstein, 1823				s			
Turdus albicollis Vieillot, 1818	M, 1	P,T, 1	M, P, 1			c	M,4,c

Taxa	Traçadal	Serra Cutia March	Serra Cutia August	Uru-Eu Jamari	Uru-Eu Urupá	Uru-Eu Alto Jamari	Mujica Nava
COEREBIDAE							
Coereba flaveola (Linnaeus, 1758)				s	c		M,2,s,v
CARDINALIDAE							
Habia rubica (Vieillot, 1817)	M, 3	P, 3		c		s	
Cyanoloxia cyanoides (Lafresnaye, 1847)					s,v	s,v	R, 4, c
THRAUPIDAE							
Saltator grossus (Linnaeus, 1766)	M,4,s,v	P,4,s,v				s,v	M,R,1,s,c
Saltator maximus (Statius Muller, 1776)	S,4,s				s,v	s,v	M,1,s,v
Parkerthraustes humeralis (Lawrence, 1867)				s			
Cissopis leverianus (Gmelin, 1788)	R, 3			s		s	M,4,s
Eucometis penicillata (Spix, 1825)							M,3,s
Tachyphonus cristatus (Linnaeus, 1766)	M, 3	P, 3	M, 2	s		s	M,4,s
Tachyphonus luctuosus d'Orbigny and Lafresnaye, 1837				c		s	M,4,s
Tachyphonus phoenicius Swainson, 1838	S, 2	S, 1					
Lanio versicolor (d'Orbigny and Lafresnaye, 1837)	M, 3		M, 2	n,c,p		n,c	M,3,s
Ramphocelus carbo (Pallas, 1764)	R, A, 1	R, 1		s	c	s	R,4,s
Thraupis episcopus (Linnaeus, 1766)	R,A, 3	R, 1		s	s	s	M,4,s
Thraupis palmarum (Wied, 1823)		P, 3		s	s	s	M,3,s
Tangara mexicana (Linnaeus, 1766)							M,4,s
Tangara chilensis (Vigors, 1832)	M,T, 1	P,T, 1	M, 3	s		s	M,1,s
Tangara gyrola (Linnaeus, 1758)		P,T, 1	M, 3			s	
Tangara nigrocincta (Bonaparte, 1838)		P, 3					
Tangara velia (Linnaeus, 1758)	M, 1	P,T, 1	M, 2	s			
Tangara callophrys (Cabanis, 1849)		P, 3					
Tersina viridis (Illiger, 1811)		T, 1	R, 3	s		s	
Dacnis lineata (Gmelin, 1789)						s	M,4,s
Dacnis cayana (Linnaeus, 1766)	M,S, 1	P,S, 1	M, 2				M,4,s
Cyanerpes nitidus (Hartlaub, 1847)		P,T,S, 1					
Cyanerpes caeruleus (Linnaeus, 1758)	M, 1	S,T, 1	M, 2			s	
Cyanerpes cyaneus (Linnaeus, 1766)	S, 4	P, 4	M, 3				
Chlorophanes spiza (Linnaeus, 1758)	M, 2	P, 2	M, 2	s	s	s	
Hemithraupis flavicollis (Vieillot, 1818)	M,T,1,s	P,T,1,s	M,1,s	s,v		s,v	M,4,s,v
EMBERIZIDAE							
Zonotrichia capensis (Statius Muller, 1776)					s,v		
Ammodramus aurifrons (Spix, 1825)				s		s	R,4,s,v
Volatinia jacarina (Linnaeus, 1766)				s			R,4,s,v
Sporophila plumbea (Wied, 1830)		S,4,s					
Sporophila caerulescens (Vieillot, 1823)					s		
Sporophila castaneiventris Cabanis, 1849						s	
Arremon taciturnus (Hermann, 1783)	M,T,1,s,n		M,3,s				
Paroaria gularis (Linnaeus, 1766)	R,2,s	R,1,s		s		s	R,4,s,v
PARULIDAE							
Parula pitiayumi (Vieillot, 1817)							M,4,s,v
Phaeothlypis fulvicauda (Spix, 1825)						n,c,p	
ICTERIDAE							
Psarocolius angustifrons (Spix, 1824)							M,2,s
Psarocolius viridis (Statius Muller, 1776)			M, 3	s		s	M,3,s
Psarocolius decumanus (Pallas, 1769)	M, 1, s	R, 1, s	M,R, 3	s		s	
Psarocolius bifasciatus yuracares (Lafresnaye and d'Orbigny, 1838)	M,4,s		M,3,s				
Cacicus cela (Linnaeus, 1758)		R,1,s	R,1,s	s		s	R,1,s
Icterus cayanensis (Linnaeus, 1766)		T,4,s	M,3,s	s			R,1,c
Molothrus bonariensis (Gmelin, 1789)						s	
Molothrus oryzivorus (Gmelin, 1788)			R,4,s	s			R,4,s
FRINGILLIDAE							
Euphonia chlorotica (Linnaeus, 1766)		S,R,1,s		s,v			
Euphonia laniirostris d'Orbigny and Lafresnaye, 1837		P,4,s					
Euphonia rufiventris (Vieillot, 1819)	M,3,s	P,T,3,s	M,3,s	s			

TABLE 2: Birds mist-netted in four localities in Rondônia, Brazil. Numbers in parenthesis show the percentage of all captures in a given site, the other number represents the actual number of captures.

Taxon	Traçadal			Serra da Cutia			Uru-Eu-Wau-Wau			Mujica Nava	
	Terra Firme	Transition	Savanna	Savanna	Palm Forest	Terra Firme	Jamari	Urupá	Alto Jamari	Varzea	Terra Firme
TINAMIDAE											
Crypturellus aff. *bartletii* (Sclater and Salvin, 1873)										1 (2.3)	
ACCIPITRIDAE											
Accipiter poliogaster (Temminck, 1824)											1 (0.9)
FALCONIDAE											
Micrastur mintoni Whittaker, 2002						1 (0.6)				1 (2.3)	1 (0.9)
COLUMBIDAE											
Leptotila rufaxilla (Richard and Bernard, 1792)										1 (2.3)	
Geotrygon violacea (Temminck, 1809)									6 (4.5)		
Geotrygon montana (Linnaeus, 1758)	14 (11.1)	2 (22.2)			1 (1.2)	5 (2.8)	2 (2.6)	1 (1.2)	5 (3.8)	1 (2.3)	2 (1.7)
CUCULIDAE											
Dromococcyx pavoninus Pelzeln, 1870						1 (0.6)					
CAPRIMULGIDAE											
Caprimulgus nigrescens Cabanis, 1848								1 (1.2)			
TROCHILIDAE											
Threnetes leucurus (Linnaeus, 1766)									2 (1.5)		
Phaethornis ruber (Linnaeus, 1758)					1 (1.2)			1 (1.2)			
Phaethornis ochraceiventris Hellmayr, 1907							1 (1.3)	1 (1.2)		4 (9.3)	
Phaethornis philippii (Bourcier, 1847)	2 (1.6)									1 (2.3)	2 (1.7)
Phaethornis malaris insignis Todd, 1937					1 (1.2)		2 (2.6)	1 (1.2)			
Campylopterus largipennis (Boddaert, 1783)						1 (0.6)	1 (1.3)	2 (2.4)	1 (0.8)		
Thalurania furcata (Gmelin, 1788)	2 (1.6)			1 (1.9)		4 (2.3)					1 (0.9)
ALCEDINIDAE											
Chloroceryle inda (Linnaeus, 1766)										1 (2.3)	
Chloroceryle aenea (Pallas, 1764)										1 (2.3)	
MOMOTIDAE											
Electron platyrhynchum (Leadbeater, 1829)							1 (1.3)			1 (2.3)	
Baryphthengus ruficapillus (Vieillot, 1818)	1 (0.8)					1 (0.6)	1 (1.3)	1 (1.2)			1 (0.9)
Momotus momota (Linnaeus, 1766)									1 (0.8)		
GALBULIDAE											
Galbula albirostris Latham, 1790											1 (0.9)
Galbula cyanicollis Cassin, 1851						2 (1.1)				1 (2.3)	
Galbula ruficauda Cuvier, 1816									3 (2.3)		

Taxon	Traçadal			Serra da Cutia			Uru-Eu-Wau-Wau			Mujica Nava	
	Terra Firme	Transition	Savanna	Savanna	Palm Forest	Terra Firme	Jamari	Urupá	Alto Jamari	Varzea	Terra Firme
BUCCONIDAE											
Bucco tamatia Gmelin, 1788				2 (3.8)							
Malacoptila rufa (Spix, 1824)	1 (0.8)					2 (1.1)			2 (1.5)		1 (0.9)
Nonnula ruficapilla (Tschudi, 1844)	4 (3.2)							1 (1.2)			
Monasa morphoeus (Hahn and Küster, 1823)							1 (1.3)	1 (1.2)			1 (0.9)
Chelidoptera tenebrosa (Pallas, 1782)			5 (18.5)								
RAMPHASTIDAE											
Selenidera gouldii (Natterer, 1837)					3 (3.6)	1 (0.6)	1 (1.3)	1 (1.2)			
Pteroglossus mariae Gould, 1854											6 (5.1)
PICIDAE											
Picumnus aurifrons Pelzeln, 1870			1 (3.7)	1 (1.9)							
Veniliornis affinis (Swainson, 1821)									1 (0.8)		
Celeus grammicus (Natterer and Malherbe, 1845)							1 (1.3)				
THAMNOPHILIDAE											
Cymbilaimus lineatus (Leach, 1814)										1 (2.3)	
Thamnophilus aethiops Sclater, 1858								2 (2.4)	1 (0.8)		3 (2.6)
Thamnophilus schistaceus d'Orbigny, 1835	2 (1.6)					1 (0.6)					
Thamnophilus stictocephalus Pelzeln, 1868								2 (2.4)			
Megastictus margaritatus (Sclater, 1855)											3 (2.6)
Thamnomanes saturninus (Pelzeln, 1878)	6 (4.8)				4 (4.8)	9 (5.1)	2 (2.6)		6 (4.5)		
Thamnomanes caesius (Temminck, 1820)	1 (0.8)								1 (0.8)	1 (2.3)	2 (1.7)
Pygiptila stellaris (Spix, 1825)										2 (4.7)	
Epinecrophylla leucophthalma (Pelzeln, 1868)						4 (2.3)	1 (1.3)		4 (3.0)		
Epinecrophylla haematonota (Sclater, 1857)								2 (2.4)			3 (2.6)
Myrmotherula hauxwelli (Sclater, 1857)	4 (3.2)				3 (3.6)		6 (7.9)		4 (3.0)		1 (0.9)
Myrmotherula longipennis Pelzeln, 1868						2 (1.1)	2 (2.6)		11 (8.3)		2 (1.7)
Myrmotherula axillaris (Vieillot, 1817)					2 (2.4)	5 (2.8)		4 (4.7)			2 (1.7)
Microrhopias quixensis (Cornalia, 1849)							1 (1.3)	1 (1.2)			2 (1.7)
Formicivora grisea (Boddaert, 1783)			1 (3.7)	3 (5.7)							
Cercomacra nigrescens (Cabanis and Heine, 1859)								2 (2.4)			1 (0.9)
Myrmoborus leucophrys (Tschudi, 1844)								3 (3.5)			
Myrmoborus myotherinus (Spix, 1825)	2 (1.6)				8 (9.5)	5 (2.8)	1 (1.3)		2 (1.5)		2 (1.7)

Taxon	Traçadal			Serra da Cutia			Uru-Eu-Wau-Wau			Mujica Nava	
	Terra Firme	Transition	Savanna	Savanna	Palm Forest	Terra Firme	Jamari	Urupá	Alto Jamari	Varzea	Terra Firme
Hypocnemis peruviana Taczanowski, 1884										2 (4.7)	1 (0.9)
Hypocnemis ochrogyna Zimmer, 1932	4 (3.2)					12 (6.8)		2 (2.4)	2 (1.5)		
Hypocnemoides melanopogon (Sclater, 1857)										1 (2.3)	
Schistocichla leucostigma (Pelzeln, 1868)							1 (1.3)				
Myrmeciza fortis (Sclater and Salvin, 1868)										1 (2.3)	2 (1.7)
Myrmeciza atrothorax (Boddaert, 1783)								2 (2.4)			
Gymnopithys salvini (Berlepsch, 1901)										4 (9.3)	3 (2.6)
Rhegmatorhina hoffmannsi (Hellmayr, 1907)	4 (3.2)				1 (1.2)	15 (8.5)			3		
Hylophylax naevius (Gmelin, 1789)					1 (1.2)	11 (6.2)			3 (2.3)		1 (0.9)
Hylophylax punctulatus (Des Murs, 1856)										3 (7.0)	
Willisornis poecilinotus (Cabanis, 1847)	15 (12)	2 (22.2)			11 (13.1)	16 (9.0)	7 (9.2)			3 (7.0)	9 (7.7)
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye, 1837)						5 (2.8)	8 (10.5)		1 (0.8)		
CONOPOPHAGIDAE											
Conopophaga aurita (Gmelin, 1789)	4 (3.2)										
GRALLARIIDAE											
Myrmothera campanisona (Hermann, 1783)						1 (0.6)					1 (0.9)
RHINOCRYPTIDAE											
Liosceles thoracicus (Sclater, 1865)								1 (1.2)			
FORMICARIIDAE											
Formicarius colma Boddaert, 1783									2 (1.5)		2 (1.7)
Formicarius analis (d'Orbigny and Lafresnaye, 1837)									2 (1.5)		
SCLERURIDAE											
Sclerurus mexicanus Sclater, 1857	2 (1.6)								1 (0.8)		
Sclerurus rufigularis Pelzeln, 1868					1 (1.2)	2 (1.1)					
Sclerurus caudacutus (Vieillot, 1816)							2 (2.6)		1 (0.8)		1 (0.9)
DENDROCOLAPTIDAE											
Dendrocincla fuliginosa (Vieillot, 1818)						1 (0.6)	1 (1.3)		1 (0.8)		2 (1.7)
Dendrocincla merula (Lichtenstein, 1829)	7 (5.6)				1 (1.2)		5 (6.6)		2 (1.5)	1 (2.3)	1 (0.9)
Deconychura longicauda (Pelzeln, 1868)							2 (2.6)	1 (1.2)	1 (0.8)		2 (1.7)
Deconychura stictolaema (Pelzeln, 1868)	4 (3.2)					3 (1.7)	1 (1.3)		3 (2.3)	1 (2.3)	1 (0.9)
Sittasomus griseicapillus (Vieillot, 1818)								1 (1.2)			
Glyphorynchus spirurus (Vieillot, 1819)	3 (2.4)				8 (9.5)	11 (6.2)	2 (2.6)	2 (2.4)	5 (3.8)		8 (6.8)
Hylexetastes uniformis Hellmayr, 1909	1 (0.8)					3 (1.7)					

Taxon	Traçadal			Serra da Cutia			Uru-Eu-Wau-Wau			Mujica Nava	
	Terra Firme	Transition	Savanna	Savanna	Palm Forest	Terra Firme	Jamari	Urupá	Alto Jamari	Varzea	Terra Firme
Dendroplex picus (Gmelin, 1788)								1 (1.2)			
Xiphorhynchus ocellatus (Spix, 1824)										1 (2.3)	3 (2.6)
Xiphorhynchus elegans (Pelzeln, 1868)	7 (6.6)				3 (3.6)		6 (7.9)		7 (5.3)		1 (0.9)
Xiphorhynchus guttatus (Lichtenstein, 1820)										1 (2.3)	1 (0.9)
Dendrocolaptes certhia (Boddaert, 1783)											1 (0.9)
Dendrocolaptes concolor (Boddaert, 1783)						1 (0.6)					
Lepidocolaptes albolineatus (Lafresnaye, 1845)							1 (1.3)				
Campylorhamphus procurvoides (Lafresnaye, 1850)											1 (0.9)
FURNARIIDAE											
Synallaxis rutilans Temminck, 1823											1 (0.9)
Ancistrops strigilatus (Spix, 1825)						3 (1.7)			1 (0.8)		1 (0.9)
Hyloctistes subulatus (Spix, 1824)							2 (2.6)				
Philydor erythrocercum (Pelzeln, 1859)						1 ((0.6)			1? (0.8)		
Philydor pyrrhodes (Cabanis, 1848)									1 (0.8)		2 (1.7)
Automolus ochrolaemus (Tschudi, 1844)	6 (4.8)				1 (1.2)			1 (1.2)		2 (4.7)	3 (2.6)
Automolus infuscatus (Sclater, 1856)											3 (2.6)
Automolus paraensis Hartert, 1902									2 (1.5)		
Xenops minutus (Sparrman, 1788)	4 (3.2)				1 (1.2)	1 (0.6)		1 (1.2)	3 (2.3)		2 (1.7)
TYRANNIDAE											
Mionectes oleagineus (Lichtenstein, 1823)		1 (11.1)		2 (3.8)	1 (1.2)	2 (1.1)			4 (3.0)		4 (3.4)
Leptopogon amaurocephalus Tschudi, 1846	1 (0.8)				1 (1.2)	4 (2.3)		1 (1.2)	3 (2.3)		
Corythopis torquatus (Tschudi, 1844)	3 (2.4)			1 (1.9)	11 (13.1)				1 (0.8)		2 (1.7)
Hemitriccus minor (Snethlage, 1907)						1 (0.6)					1 (0.9)
Hemitriccus striaticollis (Lafresnaye, 1853)				4 (7.5)							
Hemitriccus griseiceps (Todd, 1925)	1 (0.8)										
Tyrannulus elatus (Latham, 1790)			2 (7.4)								
Elaenia cristata Pelzeln, 1868			3 (11.1)	3 (5.7)							
Phaeomyias murina (Spix, 1825)				1 (1.9)							
Cnipodectes subbrunneus (Sclater, 1860)											2 (1.7)
Tolmomyias poliocephalus (Taczanowski, 1884)								2 (2.4)			
Tolmomyias flaviventris (Wied, 1831)			3 (11.1)	11 (20.8)							

Taxon	Traçadal			Serra da Cutia			Uru-Eu-Wau-Wau			Mujica Nava	
	Terra Firme	Transition	Savanna	Savanna	Palm Forest	Terra Firme	Jamari	Urupá	Alto Jamari	Varzea	Terra Firme
Platyrinchus coronatus Sclater, 1858											2 (1.7)
Platyrinchus platyrhynchos (Gmelin, 1788)											1 (0.9)
Onychorhynchus coronatus (Statius Muller, 1776)									1 (0.8)		
Myiobius barbatus (Gmelin, 1789)							1 (1.3)				
Terenotriccus erythrurus (Cabanis, 1847)						4 (2.3)					
Ramphotrigon ruficauda (Spix, 1825)	1 (0.8)				1 (1.2)	1 (0.6)	1 (1.3)				1 (0.9)
COTINGIDAE											
Lipaugus vociferans (Wied, 1820)						1 (0.6)					
PIPRIDAE											
Tyranneutes stolzmanni (Hellmayr, 1906)	1 (0.8)		1 (3.7)			1 (0.6)					
Machaeropterus pyrocephalus (Sclater, 1852)	1 (0.8)			1 (1.9)	1 (1.2)			9 (10.6)			
Lepidothrix coronata (Spix, 1825)										1 (2.3)	7 (6.0)
Lepidothrix nattereri (Sclater, 1865)	5 (4.0)	1 (11.1)			3 (3.6)	15 (8.5)		4 (4.7)	5 (3.8)		
Manacus manacus (Linnaeus, 1766)		2 (22.2)						11 (12.9)			
Chiroxiphia pareola (Linnaeus, 1766)					1 (1.2)						
Xenopipo atronitens Cabanis, 1847			2 (7.4)	7 (13.2)							
Heterocercus linteatus (Strickland, 1850)								1 (1.2)			
Pipra aureola (Linnaeus, 1758)											1 (0.9)
Pipra fasciicauda Hellmayr, 1906	1 (0.8)						3 (3.9)		3 (2.3)		
Pipra rubrocapilla Temminck, 1821	3 (2.4)	1 (11.1)		1 (1.9)	8 (9.5)	3 (1.7)			1 (0.8)		
TITYRIDAE											
Schiffornis major Des Murs, 1856										1 (2.3)	
Schiffornis turdina (Wied, 1831)	5 (4.0)				4 (4.8)	3 (1.7)	2 (2.6)	1 (1.2)	5 (3.80		2 (1.7)
Laniocera hypopyrra (Vieillot, 1817)						2 (1.1)					
VIREONIDAE											
Hylophilus ochraceiceps Sclater, 1860							1 (1.3)		2 (1.5)		
CORVIDAE											
Cyanocorax chrysops (Vieillot, 1818)				1 (1.9)							
HIRUNDINIDAE											
Stelgidopteryx ruficollis (Vieillot, 1817)			5 (18.5)								
TROGLODYTIDAE											
Pheugopedius genibarbis (Swainson, 1838)								8 (9.4)			
Cantorchilus leucotis (Lafresnaye, 1845)			1 (3.7)								

Taxon	Traçadal			Serra da Cutia			Uru-Eu-Wau-Wau			Mujica Nava	
	Terra Firme	Transition	Savanna	Savanna	Palm Forest	Terra Firme	Jamari	Urupá	Alto Jamari	Varzea	Terra Firme
Microcerculus marginatus (Sclater, 1855)	2 (1.6)					4 (2.3)			1(0.8)		1 (0.9)
Cyphorhinus arada (Hermann, 1783)									1 (0.8)		
TURDIDAE											
Catharus ustulatus (Nuttall, 1840)									1 (0.8)		
Turdus leucomelas Vieillot, 1818						1 (0.6)		1 (1.2)		1 (2.3)	2 (1.7)
Turdus lawrencii Coues, 1880										1 (2.3)	
Turdus fumigatus Lichtenstein, 1823									6 (4.5)		
Turdus albicollis Vieillot, 1818	2 (1.6)				2 (2.4)	4 (2.3)					
COEREBIDAE											
Coereba flaveola (Linnaeus, 1758)								2 (2.4)			
THRAUPIDAE											
Saltator grossus (Linnaeus, 1766)										1 (2.3)	
Saltator maximus (Statius Muller, 1776)			1 (3.7)					2 (2.4)			
Tachyphonus luctuosus d'Orbigny and Lafresnaye, 1837							1 (1.3)				
Tachyphonus phoenicius Swainson, 1838			2 (7.4)	12 (22.6)							
Lanio versicolor (d'Orbigny and Lafresnaye, 1837)							2 (2.6)		1 (0.8)		
Ramphocelus carbo (Pallas, 1764)								2 (2.4)			
EMBERIZIDAE											
Volatinia jacarina (Linnaeus, 1766)				1 (1.9)							
Sporophila plumbea (Wied, 1830)				1 (1.9)							
Arremon taciturnus (Hermann, 1783)						1 (0.6)		2 (2.4)	2 (1.5)		
CARDINALIDAE											
Habia rubica (Vieillot, 1817)							3 (3.9)		4 (3.0)		
PARULIDAE											
Phaeothlypis fulvicauda (Spix, 1825)									1 (0.8)		

Uru-Eu-Wau-Wau

The number of bird species found in the three sampled areas is 280 (168 at Jamari, 104 at Campos do Urupá and 200 at Alto Jamari), 97 taxa being documented by 226 specimens. Table 1 summarizes the total numbers of detected and collected species.

Alto Jamari had the largest species richness, probably owing to the good condition of the forests there. The sampled site at Jamari shows signs of past disturbance, as indicated by abundant young *Attalea speciosa* palms dominating the understory. It is not far from the border with indigenous territory, now completely cleared for pastures, many of which are now abandoned.

The open habitats of Urupá had few species, as expected in an Amazonian savanna enclave completely surrounded by pastures and young secondary growth. It is interesting that we did not find species common in other Amazonian savannas such as *Formicivora grisea, F. rufa, Elaenia cristata* and *Tachyphonus phoeniceus,* as most

species are edge or tree-fall generalists (*see* Wunderle *et al.* 2004 on tree-fall birds).

We made 77 captures of 35 species in mist-nets set at Jamari (0.15 captures/net-hour). The most common species, *Phlegopsis nigromaculata, Willisornis poecilinotus* and *Myrmotherula hauxwelli,* each made up 8-10% of all captures, while 25 species had only one capture, showing a large number of rare species (Table 2). *Phlegopsis nigromaculata* and *Willisornis poecilinotus* are army-ant followers ranging widely over large home-ranges (Zimmer and Isler, 2003).

At Urupá 39 species accounted for a total of 93 captures (0.16 captures/net-hour). The dominant species (*Manacus manacus, Machaeropterus pyrocephalus* and *Pheugopedius genibarbis*) each made up 8-12% of all captures. Twenty species had only one capture (Table 2). The three dominant species are typical forest-edge or secondary growth species.

At Alto Jamari we had 134 captures of 51 species (0.175 captures/net-hour) in *terra firme* forest. The most common species were *Myrmotherula longipennis, Xiphorhynchus elegans, Turdus leucomelas, Thamnomanes saturninus* and *Geotrygon violacea,* each with 8-4% of all captures. Another 20 species had only one capture each (Table 2).

Serra da Cutia

We found 218 species in March and 196 in August, with a total of 281 species in the national park and its immediate vicinity (*see* Table 1). Thirty species were found only outside the park, mostly along the Cautário River during the trips to the study sites.

The *terra firme* forests of Igarapé Tiradentes, more diverse and with a more complex vegetation structure, had 147 bird species, (52% of all species), with 41 exclusive species. On the other hand, the palm forests had 132 species (47%), with 30 exclusive ones.

Many species shared by both forests (especially Furnariidae and Thamnophilidae) were, in the palm forest, associated to the environs of small rivers (*igarapés*), where a more diverse plant community occurs in comparison with the monotonous association of palms and *sororocas* dominating other areas. Thus, those species seem to use a different microhabitat from the palm forest proper.

Water-created habitats had 79 species (28%), with 44 being exclusive. Besides several water birds (such as ducks and herons, but also passerines such as *Ochthornis littoralis*), these habitats also included some species nesting on seasonal sandbanks (*Vanellus cayanus, Rynchops niger, Phaetusa simplex*), and several land birds associated with flooded forests (*Sclateria naevia, Monasa nigrifrons, Brotogeris* spp.) or secondary growth created by bank erosion/sedimentation (*Taraba major, Thamnophilus doliatus, Pheugopedius genibarbis, Cacicus cela* etc.).

Savanna had 39 species (14%), with 16 exclusive ones (Table 1). Palm forest and its transition to savanna had very similar bird species, with 57 in the latter (7%), but only eight exclusive ones. It can be considered as a typical *campinarana* with several typical species such as *Xenopipo atronitens, Rhytipterna immunda* etc. Interestingly, *Hemitriccus minimus,* a *campinarana* specialist, was found only in palm forest at Igarapé Tiradentes (*see below*).

Mist-netting in March yielded 81 captures of 27 species in two net lines set in palm forest (0.08 captures/net-hour) and 46 captures of 17 species in savanna (0.076 captures/net-hour). By comparison, in August there were 215 captures of 45 species (0.168 captures/net-hour) in *terra firme* (Table 2). All caught birds were heavily molting both flight and contour feathers.

The most common species in mist-nets set in palm-forest were *Willisornis poecilinotus, Corythopis torquatus, Glyphorhynchus spirurus* and *Pipra rubrocapilla* (Table 2). The latter seems to benefit from the abundance of Melastomataceae in the open forests. In *terra firme* in the southern sector of the park the most common species were *Willisornis poecilinotus, Lepidothryx nattereri* and *Rhegmatorhina hoffmansi* (Table 2). Army-ant followers (*W. poecilinotus, R. hoffmansi, Dendrocolaptes concolor, Phlegopsis nigromaculata,* and *Dendrocincla merula*) accounted for a significant share of mist-net captures in both sampled forest types (16% in *terra firme* and 15% in palm forest). Those species represent the whole of that guild in the Madeira – Tapajós interfluvium (Sick, 1997).

A patch of bamboo-dominated forest in the northern sector of the park was briefly visited by the botanical team and documented by video. The site, called "Chupador" by the locals, is a salt lick associated to springs of salt-laden water. Besides larger mammals such as *Tapirus terrestris* (Linnaeus, 1758), the lick is used by large flocks of *Pyrrhura snethlageae* and *P. perlata,* and many cracids such as *Penelope jacquacu, Pauxi tuberosa* and *Aburria nattereri.* The association between tapirs and *Molothrus oryzivorus* was also documented. The bird climbs the tapirs while it is foraging for ticks.

Mujica Nava

We found 238 bird species in two sampled habitats (Table 1), 88 being documented by museum specimens. *Terra Firme* forest had the greatest richness, with 193 species, 173 (*c.* 71.5% of the total) being exclusive. *Várzea* had fewer species (70), with 50 (*c.* 21% of the total) exclusive ones. Twenty species were found in both habitats.

A total of 117 captures of 56 species (Table 2) were made in two net lines set in *terra firme* (0.14 captures/net-hour). The most common species, *Willisornis poecilinotus,*

made only 8% of all captures, while 26 species had only one capture, showing a diverse community with many rare species. *Várzea* forest had 46 captures of 30 species (0.12 captures/net-hour). Sixteen were not found in the *terra firme* sample. The most common species were *Phaethornis ochraceiventris* and *Gymnopithys salvini,* and 23 species were captured only once (Table 2).

Summing both habitats, mist-netting was responsible for 0.44 new species per capture (72 species in 163 captures) with rare species (those with only one capture) still making up almost 70% of the sampled birds and the sampling curve was far from stabilized.

Qualitative observations and mist-netting support the view that *várzea* forest has fewer species compared to *terra firme.* Although large flocks of toucans, cotingas and psittacids were commonplace in the *várzea,* and probably account for a higher avian biomass, *várzea* lacked the large and diverse mixed-species flocks of canopy and understory insectivores found in *terra firme.*

Seven army-ant followers were present at Mujica Nava (*Gymnopithys salvini, Myrmeciza fortis, Willisornis poecilinotus, Dendrocolaptes certhia, Dendrocolaptes picumnus, Xiphocolaptes promeropirhynchus* and *Dendrocincla merula*), about 75% of the guild in the Madeira – Solimões interfluvium (Ridgely and Tudor, 1994; Sick, 1997). The missing species (*Phlegopsis erythoptera, P. nigromaculata* and *Rhegmatorhina melanosticta*) were not located in several army-ant swarms that we found, although *Phlegopsis erythroptera* does occur in the adjoining Serra dos Três Irmãos Ecological Station (Antas *et al.,* 1995).

Noteworthy Records

Crypturellus aff. *bartletti*

One female (MZUSP 76565) was mist-netted in flooded forest by the Igarapé São Lourenço at Antonio Mujica Nava Ecological Station, where this ground-dwelling bird was living in narrow stretches of dry land dispersed over the flooded area. Stomach contents had remains of insects, other arthropods and fruit. This specimen agrees with another one (male, MZUSP 22821) from Rio Eiru, right margin of Juruá River, Amazonas. Both differ considerably from a typical *C. bartletti* from Taumaturgo (*e.g.* MZUSP 42176). These specimens found between the right margin of Juruá and left margin of Madeira present a reddish-brown neck and breast (vs. olive in *C. bartletti*) and reddish sides of the head (vs. dark gray in *C. bartletti*). Examination of a series of specimens housed at several museums (*e.g.* Museu Paraense Emílio Goeldi, British Museum of Natural History, American Museum of Natural History, Museum of Natural Science Louisiana State University, Muséum National d'Histoire Naturelle, Field Museum of Natural History) shows that the characters of *C. bartletti* are quite uniform and are consistently different from those of our specimens. The status of this taxon is considered uncertain and this specimen may represent a new, undescribed species. These specimens are presently under study by FO and LFS and more specimens and voice samples are needed to clarify the taxonomic status of birds from the Juruá-Madeira interfluvium.

Crypturellus obsoletus ssp.

The distinctive calls of this species were heard at Uru-Eu-Wau-Wau around Alto Jamari and Jamari, and at Serra da Cutia in riverine forest by Igarapé São João do Branco. In Brazil there are three subspecies: the nominate subspecies in the Atlantic forest of southeastern Brazil, *C. o. griseiventris* (Salvadori, 1895) in the Tapajós River area, and *C. o. hypochraceus* (Miranda-Ribeiro, 1938) known from the upper Madeira and Ji-Paraná and Jamari Rivers. The latter is known from very few specimens and, although the records refer to it, the diagnosis of this taxon is uncertain (Pinto, 1978; Peters, 1979; del Hoyo *et al.* 1992). Miranda-Ribeiro (1938) states that it is "exactly the same as *griseiventris*", the main differences being the overall size and length of the toes. More specimens are needed to assess the taxonomic status of the Amazonian subspecies.

Rynchotus rufescens

At least two individuals were heard during the morning and afternoon of March 19, 2003 in open savanna at the eastern sector of Serra da Cutia. Broadly distributed in open habitats throughout South America, including Amazonian savannas (Humaitá, Serra do Cachimbo, Marajó; Blake, 1977, Sick, 1997), this record seems to be the first for central Rondônia. Birds in the savanna enclave of Humaitá (Amazonas) are considered to be *R. r. catingae* (the same taxon present in northeastern Brazil and Marajó island) while the nominate form occurs in Mato Grosso. The taxonomic status of birds in the Pacaás Novos savannas needs to be assessed.

Chauna torquata

Individual birds were seen by the Guaporé River while traveling upriver by speedboat on December 19, 1998 at 12°29'17"S, 63°56'04"W, 12°35'26"S, 63°25'48"W, 1238'23"S, 6310'22"W and 12°41'04"S, 63°04'32"W, and one pair at 12°37'34"S, 63°24'45"W. Apparently unrecorded in Rondônia, it is likely to be common in the Guaporé "pantanal" centered in Guaporé Biological Reserve, where large numbers of water birds, including nesting colonies of *Mycteria americana,* can be found.

Ortalis guttata

This chachalaca was previously recorded in riverine forests around Forte Príncipe da Beira, a XVIII-century Portuguese fortress by the Guaporé River north of the town of Costa Marques (Naumburg, 1930) and along the Ouro Preto and Pacaás Novos Rivers and some tributaries (Oren and Aleixo, 1999). We found it to be fairly common in this habitat along the Pacaás Novos and Cautário Rivers, and it was recorded feeding on cultivated guavas by the Igarapé São João do Branco (Serra da Cutia National Park). All observations suggest a close association to riverine habitats, and an absence from *terra firme* forest.

Accipiter poliogaster

This is a widely distributed, but poorly known sparrow hawk (Sick, 1997, Whittaker and Oren, 1999). The very few Amazonian records (Whittaker and Oren, 1999) have been hypothesized to represent winter migrants coming from the dwindling Atlantic forests of southern Brazil, neighboring Argentina and Paraguay (Fergusson-Lees and Christie, 2001). However, our recent records in the states of Roraima, Amazonas, Pará and Mato Grosso throughout the year suggest that this species is a resident. One unsexed specimen (MZUSP 76569) was mist-netted at Mujica Nava in *terra firme* forest on February 10, 2002, while one bird was seen soaring and calling over *igapó* at Traçadal on July 8, 2001, showing the species is present in the area both in summer and winter.

Morphnus guianensis

One apparent light morph male was observed soaring over riverine forest along the Cautário River near Canindé Village, inside the extractive reserve, on March 14, 2003. Another record of a light morph bird was made almost at the same spot on August 2, 2003. This large raptor is scarce in Rondônia and was previously recorded only at Cachoeira Nazaré (Stotz *et al.* 1997).

Harpia harpyja

One male was observed on March 13, 2002 while soaring over *terra firme* forest far above the canopy at Jamari. This species is killed by the natives in order to use the feathers to make arrows and headdresses. The Uru-Eu-Wau-Wau bury their dead using a special headdress made of Harpy Eagle feathers to assist in the "trip to the next world", a tradition that puts pressure on the species.

Micrastur mirandollei

Among the rarest of forest falcons, this species is known from few recent records. One pair was tape-recorded and collected on March 22, 2002 at Alto Jamari, the first records for Rondônia and a new southwestern limit for the species (Stotz *et al.* 1997; Sick, 1997).

Micrastur mintoni

This recently described species (Whittaker, 2002) was observed and mist-netted in *terra firme* forest at Igarapé Tiradentes, Serra da Cutia National Park, in August 2003. The mist-netted bird was trying to capture a trapped *Phlegopsis nigromaculata* but managed to escape before being held. Nevertheless, the whitish iris, orange cere and eyebrow, and one-banded tail could be clearly seen.

Chordeiles rupestris

Hundreds of birds were observed roosting on the floors of the buildings at the army garrison near Forte Príncipe da Beira, in July 1998 and February 2003, suggesting year-round residence. Groups of birds chasing each other were conspicuous over the river during sunset. Groups of tens of birds were also noticed roosting on boulders along the Guaporé River near Pedras Negras Extractive Reserve in July 1998.

Brotogeris versicolorus

Four birds showing the white and green speculum were seen at length flying over the wet savanna enclave of Traçadal on January 22, 2001. *Brotogeris* calls were constantly heard in the nearby forest. Although unrecorded in the lower Ji-Paraná (Stotz *et al.* 1997), *B. versicolorus* has been found at Guajará-Mirim State Park, north of Traçadal (PNUD, 1995). *Brotogeris versicolorus* has not been recorded from the Guaporé-Mamoré basin. Its range follows the course of the Solimões-Amazonas from northeastern Peru to Pará (Collar, 1997), and the Rondônia records extend the range to the southwest. The related *Brotogeris chiriri* is a very abundant species in parts of the Guaporé Valley, groups of hundreds being a common sight in the town of Costa Marques.

Aratinga aurea

Widely distributed in the Cerrado and other open habitats throughout Brazil, including savanna enclaves on Marajó Island. Small groups of four to six birds were seen and photographed on March 14-15, 2003 feeding on guavas by Igarapé São João do Branco, Serra da Cutia. This seems to be the first record from Rondônia, and another instance of a Cerrado bird present in the Pacaás Novos savanna.

Pyrrhura snethlageae

A recently described endemism of the Madeira Basin, it was formerly mistaken for *Pyrrhura lucianii* of the Purus area (Joseph, 2002). Birds were recorded in transitional forest by the savanna enclave of Traçadal, feeding on the fruit of small *Mauritia* palms. The species was also present in *terra firme* forest at Uru-Eu-Wau-Wau, and two specimens (MZUSP 76569 and 7660) were collected at Mujica Nava, showing a broad distribution from the Madeira Valley, across the Pacaás Novos Mountains to central Rondônia. To the north and east of Rondônia it is replaced by *P. amazonum* (Hellmayr, 1910, Naumburg, 1930).

Deroptyus accipitrinus

Collar (1997) suggests *D. a. fuscifrons* from the right bank of the Solimões-Amazonas may be best considered as a full species and points to the lack of records in protected areas. Nevertheless, *D. a. fuscifrons* was seen at Guajará Mirim State Park (PNUD, 1995, F. Olmos pers. obs. in July 1998), Rio Ouro Preto Biological Reserve (Oren and Aleixo, 1999) and Traçadal (this work), and didn't seem especially rare. It probably occurs in Pacaás Novos National Park and neighboring areas such as Uru-Eu-Wau-Wau and Serra da Cutia. Joseph (1988) recorded it at Jaciparaná, not far from Porto Velho, the former southwestern edge of its range.

Amazona kawalli

Groups of this poorly known, recently described parrot (Martuscelli and Yamashita, 1997) were seen several times in flooded forest at Mujica Nava. It seems restricted to that habitat, with a wide but scattered distribution across the Amazon basin.

Ramphastos toco

One bird was observed at length while perched on a tree by the savanna of Serra da Cutia during the afternoon of March 19, 2003. It had a short bill compared to birds from further south (Pantanal, Mato Grosso). This seems to be the first record from Rondônia, although it is likely to occur in the Cerrado of the southern part of the state.

Threnetes leucurus

Widely distributed in the Amazon basin, records from south of the Madeirai came only from Cachoeira Nazaré (Stotz *et al.* 1997). Sight records were made at Igarapé São João do Branco (Serra da Cutia), Jamari and Alto Jamari (Uru-Eu-Wau-Wau), two birds being collected in the latter, belonging to the nominate form.

Phaethornis ochraceiventris

Some specimens were mist-netted in Mujica Nava in *várzea* (MZUSP 76594-96).

Phaethornis philippii

This small hermit was mist-netted in Mujica Nava both in *terra firme* forest and in *várzea.*

Topaza pella

A female was recorded several times feeding on flowers along a creek at Alto Jamari. South of the Amazon River, this hummingbird was formerly known only from the east bank of the Tapajós and from Belém until recorded at Cachoeira Nazaré, east Rondônia (Stotz *et al.* 1997). The record at Alto Jamari marks the new southwestern limit of the Brazilian range of the species.

Brachygalba lugubris

Observed in riverine forest at Campos do Urupá, Uru-Eu-Wau-Wau, in the habitat along Igarapé São João do Branco and forest-savanna ecotones in the eastern part of Serra da Cutia, and along the Cautário River. In Rondônia it had been recorded only at Cachoeira Nazaré (Stotz *et al.* 1997). Formerly it was known only up to northern Mato Grosso (Naumburg, 1930).

Melanopareia torquata

One pair was observed at length in savanna near Igarapé São João do Branco, Serra da Cutia, on March 23, 2003. This seems to be the first record in Rondônia, although it is known from the cerrados of Mato Grosso and Santa Cruz, east Bolivia (Cox, 2003). The population at Serra da Cutia inhabits an isolated habitat enclave, and the observed birds sounded a bit different from ones in central Brazil, so their taxonomic status deserves further research.

Thamnophilus aethiops

Birds agreeing with *T. a. punctuliger* were found to be common in edge habitats (including cultivation areas) at Jamari and Alto Jamari, Uru-Eu-Wau-Wau. Nevertheless, one bird similar to *T. a. injunctus,* from the north bank of the Madeira River, was found in the forest at Alto Jamari (specimen at MZUSP). The occurrence of both taxa in the region implies not only a significant range extension for *T. a. injunctus,* but suggests that *T. a. punctuliger* and *T. a. injunctus* may be considered as different species.

Thamnophilus stictocephalus

Found in several sites, including Campos do Urupá and Alto Jamari, Uru-Eu-Wau-Wau. At Serra da Cutia one male was mist-netted and photographed in the savanna in March 2003, while in August 2003 two pairs were observed further west in *campinarana* and another one in the dense tangle of an extensive wind fall. These are the first records for Rondônia and they form a significant range extension, which fills a large gap in the distribution of the *Thamnophilus* of the *T. punctatus* species-group (Isler *et al.* 1997).

Formicivora grisea

Associated with savannas at Traçadal (specimen at MZUSP with no accession number) and at Serra da Cutia, where it is locally common. *Formicivora grisea* seems unreported from Rondônia, although it is known from northern Mato Grosso (Naumburg, 1930).

Formicivora rufa

Much more scarce compared to *F. grisea* in the studied savanna enclaves, with only one sight record of a female in the savanna at Traçadal. It seems unreported from Rondônia, although it occurs in the cerrados of northern Mato Grosso (Naumburg, 1930). The type-locality of *F. rufa rufatra* is at the llanos de Mojos, eastern Bolivia (Naumburg, 1930), so it is likely to occur in savannas along the Guaporé/Itenez Valley.

Conopophaga aurita

Formerly known only from northernmost Rondônia (Madeira River and lower Ji-Paraná; Ridgley and Tudor, 1994; Stotz *et al.* 1997). Four birds were mist-netted and photographed in *terra firme* forest at Traçadal. It was also collected in nearby Rio Ouro Preto Biological Reserve (Oren and Aleixo, 1999), documenting its presence in the Guaporé-Mamoré basin. Traçadal forms the new southwestern limit of the species range.

Sclerurus mexicanus

The only *Sclerurus* found at Traçadal, with two mist-netted birds in *terra firme* forest. Also present at Rio Ouro Preto Biological Reserve (Oren and Aleixo, 1999). In Rondônia it was known only from the lower Ji-Paraná, the nearest records coming from Alta Floresta, Mato Grosso, and San Borja, Bolivia (Stotz *et al.* 1997).

Symoxenops ucayalae

One bird was sighted by FO in forest rich in bamboo clumps at Guajará Mirim State Park on July 22, 1998 during a trip with A. Aleixo and M. A. Pizo. The upturned bill was clearly visible when the bird briefly perched on a large bamboo stalk. Apparently this is the first state record. The forests of the park harbor other bamboo specialists, such as *Ramphotrygon fusciicauda* and *Drymophila devillei.*

Xenops milleri

East of the Madeira this bird was known only from the Cururu River (Pará), and Cachoeira Nazaré (Rondônia; Stotz *et al.* 1997). It was recorded at Alto Jamari. One bird was seen forming part of a mixed species flock in a palm-rich forest near Igarapé São João do Branco, Serra da Cutia National Park, on March 18, 2003, while several similar records of lone birds were made in *terra firme* forest near Igarapé Tiradentes in August 2003.

Deconychura stictolaema

Considered rare or locally uncommon in the undergrowth of *terra firme* forests (Ridgely and Tudor, 1994), four were caught in mist-nets set at Traçadal, three at Serra da Cutia, one at Jamari, three at Alto Jamari and two at Mujica Nava. Except for one bird at Mujica Nava caught in *várzea,* all were captured in *terra firme.* In Rondônia it was known from the lower Ji-Paraná, Guajará-Mirim State Park and Rio Ouro Preto Biological Reserve (Stotz *et al.* 1997; PNUD/PANAFLORO, 1995; Oren and Aleixo, 1999). Igarapé Tiradentes marks the new southern limit of the range of the species.

Elaenia cristata

A savanna bird found to be fairly common in that habitat at Traçadal and Serra da Cutia, being captured with mist-nets in both localities. The sole former Rondônian locality was Vilhena, in the southern part of the state (Naumburg, 1930). The present records suggest it is widespread in savanna enclaves. In neighboring Bolivia it was found only in 1992 at Serrania de Huanchaca (Bates *et al.* 1992). Birds from Traçadal are deposited at the MZUSP.

Leptopogon amaurocephalus

Formerly recorded in Rondônia only at Cachoeira Nazaré (Stotz *et al.* 1997), it has also been found at Rio Ouro Preto Biological Reserve (Oren and Aleixo, 1999) and in all sampled forest areas except Mujica Nava. Birds from Rondônia seem to belong to *L. a. peruvianus,* described from the Juruá basin (Stotz *et al.* 1997). The records show it to be widely distributed in Rondônia.

Hemitriccus striaticollis griseiceps

Considered to be restricted to the east bank of the Tapajós (the type-locality is Santarém), this form is characterized by weakly defined streaks on the throat and chest, and a more greenish plumage. Birds mist-netted in savanna at Serra da Cutia (one specimen at MZUSP, with no accession number) agree with *H. s. griseiceps* from Mato Grosso housed in the MZUSP, displaying a broader range for that form. Poletto and Aleixo (2005) recently found an isolated population of *H. striaticollis* in Campinas at the Acre-Amazonas border, suggesting a broader, albeit spotty, distribution in the western Amazon.

Hemitriccus minimus

Spottily distributed in the Amazon basin from Pará to Acre (Poletto and Aleixo, 2005) and eastern Peru (Ridgely and Tudor, 1994; Sick, 1997), it is associated with *campinaranas* on white-sand soils. Its distinctive call was heard frequently in palm forest (but not *terra firme* forest) along the trail from Igarapé Tiradentes to Serra da Cutiara, Serra da Cutia National Park. The birds answered to play-backs of calls recorded elsewhere but remained high on the trees. Whittaker (2004) found this bird in *campinaranas* at Taquaras, northwestern Rondônia on the east bank of the Beni River, some 200 km to the northwest.

Rhytipterna immunda

A *campinarana* and *campina* specialist, on March 23, 2003 one silent bird was observed at length in the *campinarana* forming the ecotone between palm forest and savanna near Igarapé São João do Branco, Serra da Cutia. It could be distinguished from a *Myiarchus* flycatcher by its horizontal stance and larger, light bluish eyes. Whittaker (2004) found the species at Taquaras, north of Serra da Cutia. Elsewhere, the nearest localities are Borba (Amazonas), Alto Xingu and Serra do Roncador, northern Mato Grosso (Sick, 1997).

Casiornis rufa

An austral migrant with records in Rondônia from Cachoeira Nazaré (Stotz *et al.* 1997), Taquaras, Guajará Mirim and Nova Colônia (Whittaker, 2004). One bird was photographed in forest-savanna ecotone on August 12, 2003.

Cotinga maynana

Formerly recorded only north of the Madeira River (Snow, 2004), males in full adult plumage were observed in *terra firme* forest and at the ecotone with savanna at Traçadal on January 13th, 16th and 21st, 2001. The lighter hue of their blue color, lack of contrasting darker wings and light iris of one bird seen under favorable conditions, made identification straightforward.

Xenopipo atronitens

Another sandy soil specialist, in the southwestern Amazon it has been recorded from Borba (Amazonas) and Taquaras (Rondônia; Hellmayr, 1910, Whittaker, 2004). Two birds collected at Serrania de Huanchaca, Bolivia, are the first records for that country (Bates *et al.* 1992). One male and one female were mist-netted in savanna at Traçadal on January 23, 2000 (specimens at MZUSP). At Serra da Cutia seven captures were made in savanna, where birds were commonly seen feeding on the fruits of *Clusia* sp. together with *Cyanerpes* spp. The records suggest a wide distribution in proper habitat in Rondônia, although the lack of records from the structurally distinctive savanna at Campos do Urupá is noteworthy. Recent work (Poletto and Aleixo, 2005) shows this species has a much broader distribution across southern Amazonia than first assumed.

Neochelidon tibialis

Six birds were flying low catching insects above savanna at Serra da Cutia on March 15, 2003, moving into nearby forest to forage above a small river. The color pattern agreed with *N. tibialis*. This seems to be the first record for Rondônia. In western Amazonian Brazil it was known only from Acre, although there are records from northern Bolivia (Parker and Remsen, 1987; Turner and Rose, 1989).

Cyanocorax chrysops

The nominate form is widespread from northern Argentina, Uruguay, Paraguay, east Bolivia (Chiquitos, Santa Cruz), to Brazil, ranging from Rio Grande do Sul to Mato Grosso do Sul. It is replaced in the savanna enclaves of the lower Madeira and Tapajós by the quite distinctive *C. c. diesingii* (Hellmayr, 1910; Pinto, 1944). A group of three birds was seen in transitional forest near savanna at Traçadal on January 21, and was quite common in savanna and nearby palm forest in the Igarapé São José do Branco area of Serra da Cutia National Park. One bird mist-netted in the savanna (MZUSP, with no accession number) attracted another seven birds and parties of 8-12 were regularly foraging high in the trees by the *igarapé*. This record seems to be the first documented one for Rondônia. Additionally, on December 17, 1998, a group of jays was recorded by FO associated with a *Cacicus cela* flock in *várzea* forest at Curralinho Extractive Reserve, near Costa Marques (12°20'S, 64°25'W).

Tachyphonus phoenicius

With a wide but discontinuous range in Amazonian savannas, this species was observed and two individuals collected in savanna at Traçadal (MZUSP, with no accession number). At Serra da Cutia this species proved to be common and several individuals were mist-netted in March 2003. The sole previously published records for Rondônia come from Vilhena (Naumburg, 1930).

Tangara callophrys

In Brazil this species is known only from west and north of the Madeira in Acre and Amazonas (Isler and Isler, 1999). On March 20, 2003 one bird was part of a tanager flock including *T. chilensis, T. nigrocincta, T. gyrola, Hemithraupis flavicollis* and *Cyanerpes* spp. in palm forest near Igarapé São João do Branco, Serra da Cutia National Park. This unexpected record seems to be the first for Rondônia.

Cyanerpes nitidus

In Rondônia it was known only from Cachoeira Nazaré (Stotz *et al.* 1997). It was quite common around Igarapé São João do Branco (Serra da Cutia). It is a member of tanager flocks feeding in savanna-forest ecotones, where it was seen eating mistletoe (Loranthaceae) fruit, and in the savanna, where they attended fruiting *Clusia* sp. bushes.

Psarocolius angustifrons

Recorded in Brazil only from Amazonas and Acre (Ridgely and Tudor, 1989; Jaramillo and Burke, 1999), it was not uncommon in *terra firme* forest at Mujica Nava together with *Psarocolius viridis,* in fruit trees where parrots and toucans also gathered. This seems to be the first state record.

DISCUSSION

A total of 458 species were recorded in the sampled areas, perhaps two-thirds of the total number of bird species expected in the whole of Rondônia. The studied sites include two of the main endemism centers in the Brazilian Amazon, the Madeira – Tapajós interfluvium and the Madeira – Solimões (Haffer, 1974, 1997; Cracraft, 1985). Endemic taxa of the former are *Celeus torquatus augustus, Xiphorhynchus elegans elegans, Dendrocolaptes concolor, Hylexetastes uniformis, Myrmotherula longipennis ochrogyna, Myrmotherula leucophthalma phaeonota, Rhegmatorhina hoffmannsi* and *Lepidothrix nattereri gracilis.* All were found during fieldwork, Serra da Cutia being a highlight for endemic taxa, with all expected species (Table 1). Two taxa formerly considered endemic to the Madeira-Tapajós, *Phyrrura perlata* and *Capito dayi,* but actually with a broad range east of the Tapajós (Zimmer *et al.* 1997; Pacheco and Olmos, 2005) were also found in a number of sites.

Mujica-Nava had a significant share of Madeira – Solimões endemics, including *Psophia leucoptera, Phaethornis philippii, Galbula cyanescens, Pteroglossus mariae, Selenidera reiwardtii langsdorfii, Celeus torquatus occidentalis, Gymnopithys salvini, Pipra coronata exquisita, Mionectes oleagineus maynana, Cyphorhinus aradus modulator* and *Hylophilus semicinereus juruanus* (Haffer, 1974, 1997; Cracraft, 1985). As sampling was limited by accessibility and only a limited area was explored, the reserve is likely to harbor more endemic taxa, especially in *terra firme* forest away from the main collecting site where we worked.

Stotz *et al.* (1997) found 459 bird species at Cachoeira Nazaré, northeastern Rondônia, during three months of fieldwork over a period of two years that included a far greater effort compared to ours. For example, they used seven mist-net lines with 10 to 40 nets each, and a seven-person team. Comparing results, short-term samplings similar to the ones conducted by us are able to sample 50-70% of the species present in a given site, showing the limitations of rapid evaluations in areas with high species diversity and many rare species. Also, studies carried out during periods of lower vocal activity in the dry season, such as the ones conducted at Traçadal and Serra da Cutia, will also show much fewer species compared to ones at the onset of the rains.

Mist-net capture rates in *terra firme* at Traçadal, Uru-Eu-Wau-Wau and Mujica Nava were quite similar (*c.* 0.15 captures/net-hour). About 0.47 new species were found per capture at Jamari, against 0.37 at Alto Jamari. Clearly, collecting curves were far from reaching a plateau, reflecting the high diversity and patchy distribution of understory birds. The rate of new species recorded per sampling effort was quite low in *palm forest* at Serra da Cutia (27 species during 976 net-hours, 0.027 new species/net-hour) and Traçadal (37 species during 1.183 net-hours; 0.031 new species/net-hour), and about half the rate found at Jamari, Uru-Eu-Wau-Wau (36 species during 520 net-hours; 0.069 new species/net-hour). On the other hand, *terra firme* forest at Serra da Cutia had 56 species during 1,273 net-hours (0,043 new species/net hour).

Mist-netting studies at other sites in Amazonia allow some comparisons. While 54 species were recorded in 134 captures at Alto Jamari, in Manaus the 60 species barrier was reached only after about 400 captures and, in Manu, after 220 captures (Karr *et al.* 1990). These data show the presence of a rich community of understory birds at Uru-Eu-Wau-Wau, also hinted at by the dominance of rare

species (24 with only one capture, or 44.4% of the mist-netted sample).

Palm-forests, dominated by *Attalea speciosa* at Jamari (Uru-Eu-Wau-Wau) and *Oenocarpus bataua* at Serra da Cutia (where the plantain *Phenakospermum guianense* is an abundant associate) were clearly species-poor compared to other *terra firme* forests, probably because of reduced plant diversity and, especially, simpler tri-dimensional habitat structure. This result is not unexpected given that bird diversity tends to be low in any monoculture or simplified habitat. Yet it is interesting since palm-dominated forests are a common result of disturbance (Salm, 2005), especially from human activities which include gathering and slash-and-burn agriculture (Politis, 2001).

Armacost (2006) found significantly lower structural complexity and bird richness in palm forests in Amazonian Peru, suggesting a general pattern. Insectivore/frugivore and insectivores were depauperate in the palm forest, a situation similar to the one in Rondônia. Although the small sampling effort precludes robust conclusions, Armacost (2006) found that overlap in bird species between *terra firme* and palm forest was low, with only 9% of 54 recorded bird species shared by both forests. Some of those species were common in mist-net samples made in palm forests at Serra da Cutia and Uru-Eu-Wau-Wau, such as *Dendrocincla merula, Deconychura stictolaema* and *Mionectes oleagineus.*

The presence of large stands of "oligarchic" forests all over Amazonia is commonly taken as evidence of widespread and long-term anthropogenic influence on the structure and shape of Amazonian forests. If that is really the case (as seems likely), those simpler habitats, although productive for humans and able to sustain higher human populations in a forest setting compared to other, more diverse, forests, are less than optimal for most birds and other animals. Consequently, biodiversity may be reduced over extensive areas where the ratio of palm-forest to more diverse formations is too high.

Another habitat associated to human disturbances was made of grassy patches around rubber-tapper homes and villages, commonly quite isolated in the deep forest. Despite this isolation these habitat islands became colonized by birds such as *Volatinia jacarina* and *Crotophaga ani,* while the scrub of later successional stages was home to birds usually found in riverine tangles (*Taraba major, Thamnophilus doliatus*), tree-falls and forest edge (*Cantorchilus genibarbis, Thamnophilus aethiops, Ramphocelus carbo, Thraupis episcopus*). The overall result is that the avifauna in those areas comes to resemble the one in the mosaic of pastures and *capoeiras* of any part of Amazonia (or even Central Brazil), with very little spatial heterogeneity, this actually depending on the forest patches left in the area (Pacheco and Olmos, 2005).

The addition of those species to former forest has been misinterpreted by some as an "increase in biodiversity" (or rather, local species richness, *see* Diegues, [1996] for the concept). However, others who take a broader view recognize the addition of widespread generalists ("trash species") at the expense of habitat specialists and endemics obviously represents a net regional loss of species and a homogenization of biotic communities (McKinney and Lockwood, 1999). This process has been properly described by Willis and Oniki (2002) as trading unique Picassos for mass-produced Coca Cola bottles.

Large game birds were uncommon in every site except Mujica Nava. The last site had not been hunted for a long time, as shown by the fearless behavior of curassows that even walked into the camp. Also, primates generally targeted by hunters, like *Lagothrix cana* (E. Geoffroy, 1812), were also common and fearless, this area providing a remarkable contrast against others we have visited in Rondônia. Razor-billed Curassows were detected in only one other site, Serra da Cutia, and in our experience have become generally uncommon throughout the state. On the other hand, *Tinamus* spp. and, to a lesser extent, *Psophia* spp. had a broader distribution and seemed more resilient to human exploitation.

None of the sites we explored had extensive bamboo patches as found further west in Acre. Those are more restricted in Rondônia and are known to occur in a few protected areas including Serra dos Três Irmãos Ecological Station, adjoining Mujica Nava, and Guajará Mirim State Park, north of Serra da Cutia and Traçadal (one of the sites mentioned by Whittaker, 2004). During a brief visit to the latter by FO together with A. Aleixo and M. A. Pizo in July 1998, we found bamboo specialist such as *Drymophilla devillei, Ramphotrygon fuscicauda* and *Simoxenops ucayalae,* suggesting they may occur elsewhere in the Pacaás Novos foothills. Other bamboo specialists like *Synallaxis cabanisi, Anabazenops dorsalis, Cymbilaimus sanctamariae, Ramphotrygon megacephala* and *Poecilotriccus capitalis* (Parker *et al.* 1997) have already been found at Cachoeira Nazaré.

The savannas studied at Serra da Cutia and Traçadal (the latter being much more isolated from the large savanna enclave atop the Serra dos Pacaás Novos) have several open-habitat species, including *Rynchotus rufescens, Aratinga aurea, Ramphastos toco, Formicivora grisea, Melanopareia torquata, Elaenia cristata, Neopelma pallescens, Tachyphonus phoenicius* and *Xenopipo atronitens.*

Many records are significant range extensions and show that the Pacaás Novos Massif harbors isolated populations of *cerrado* birds in the same way as Serrania de Huanchaca, in Bolivia (Bates *et al.* 1992). Pacaás Novas harbors both inter-tropical migrants and resident species isolated for at least 3,000 years since the forest spread over a former larger savanna connected to the ones of Central Brazil (Absy and Van der Hammen, 1976; Van der Hammen and Absy, 1994; Van der Hammen, 1974; Freitas *et al.* 2001; Gainsbury and Colli, 2003).

Further research in the large savanna in the centre of Pacaás Novos National Park, especially in the higher areas around 1,000 m, like Pico do Tracoá, will likely show more cerrado birds and important range extensions, if not endemic taxa. Those isolated enclaves are one of the remaining frontiers of Amazonian ornithology.

Rondônia has suffered huge deforestation rates and the existing reserves, especially the state-run ones, are poorly enforced and have been targeted by loggers and land-grabbers, commonly with the support of local politicians (Ribeiro *et al.* 2005). Following the historical Brazilian pattern, such destruction proceeds at a faster rate than the efforts to know what is being lost, and actual conservation actions.

ACKNOWLEDGEMENTS

This work could never have been written without the invitation and support from the staff of Kanindé – Associação Etnoambiental to work at all areas except Mujica Nava. Our special thanks to Ivaneide Bandeira, Ivanete Bandeira, Rogério Motta and Evandro. Leandro Ferreira provided information on the flora of Serra da Cutia. Work at Mujica Nava was part of a rapid ecological assessment carried out by the technical cooperation of UNEP to the PLANAFLORO, under supervision of the Secretaria de Desenvolvimento Ambiental – SEDAM. Érika Machado Costa Lima and Gláucia del Rio helped in the final version of the manuscript. Marco Antonio Rego did the map. UPS Brasil (Bruno Ehlers) provided field and laboratory equipment. LFS receives a grant from CNPq.

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Revista Brasileira de Ornitologia, 19(2), 230-243
Junho de 2011

ARTIGO

Birds of the Igarapé Lourdes Indigenous Territory, Jí-Paraná, Rondônia, Brazil

Marcos Pérsio Dantas Santos[1], Glauko Correa da Silva[2] and Aldimar Lima dos Reis[3]

[1.] Universidade Federal do Pará. Instituto de Ciências Biológicas. Laboratório de Ecologia e Zoologia de Vertebrados – Ornitologia. CEP 66075-110, Belém, PA, Brasil. E-mail: marcospersio@uol.com.br
[2.] Associação de Defesa Etnoambiental – Kanindé. Monitoramento de Projetos Sustentáveis. Porto Velho, CEP 78900-000, Nossa Senhora das Graças, RO, Brasil. E-mail: glaukorrea@yahoo.com.br
[3.] Escola Est. Marcelo Cândia. Rua Petrolina, 10.804, Marcos Freire, CEP 76814-046, Porto Velho, RO, Brasil. E-mail: aldimarreis@yahoo.com.br

Recebido em 21/02/2011. Aceito em 05/05/2011.

RESUMO: Avifauna da Terra Indígena Igarapé Lourdes, Jí-Paraná, Rondônia, Brasil. O estado de Rondônia é certamente uma das regiões brasileiras de maior complexidade ambiental e uma das mais importantes áreas de endemismos de aves da América do Sul. Entretanto, essa região é uma das mais impactadas pelo desmatamento na Amazônia o que implica em uma forte preocupação sobre a conservação de toda a biota do estado. Diante desse cenário, as Unidades de Conservação e Terras Indígenas têm um papel importante na manutenção dessa biodiversidade. Nesse sentido, fizemos no período de 04 a 13 de setembro de 2004 um inventário da avifauna na Terra Indígena Igarapé Lourdes na região de Ji-Paraná. Nesse levantamento registramos um total de 288 espécies de aves, distribuídas em 59 famílias. Ressalta-se o registro de algumas espécies importantes do ponto de vista biogeográfico e de conservação como: *Neochen jubata, Ortalis guttata, Aratinga weddellii, Pyrilia barrabandi, Phaethornis philippii, Sclerurus mexicanus, Cercomacra nigrescens, Grallaria varia, Phlegopsis nigromaculata, Rhegmatorhina hoffmannsi, Lepidothrix nattereri.*

PALAVRAS-CHAVE: Rondônia; Terra Indígena Igarapé Lourdes; Levantamento.

ASBTRACT: Birds of the Igarapé Lourdes Indigenous Territory, Jí-Paraná, Rondônia, Brazil. The Brazilian state of Rondônia is one of the most environmentally complex regions of Brazil, and an important area of endemism for South American birds. However, this region is also one of the most extensively deforested sectors of the Amazon basin, which implies a pressing need for the conservation of the state's biota. In this context, its conservation units and indigenous reservations have an important role to play in the preservation of this biodiversity. Given the need for the inventory of this biota, the avifauna of the Igarapé Lourdes Indigenous Territory, in the region of Ji-Paraná, was surveyed between September 4th and 13th, 2004. A total of 288 species belonging to 59 families were recorded during the study. A number of these species are especially important from either a biogeographic or conservation viewpoint, including *Neochen jubata, Ortalis guttata, Aratinga weddellii, Pyrilia barrabandi, Phaethornis philippii, Sclerurus mexicanus, Cercomacra nigrescens, Grallaria varia, Phlegopsis nigromaculata, Rhegmatorhina hoffmannsi, Lepidothrix nattereri.*

KEY-WORDS: Rondônia; Igarapé Lourdes Indigenous Territory; Survey.

The Brazilian state of Rondônia is one of the environmentally most complex regions of the Amazon basin, reflected in the richness of its biota, which is among the most diverse of any Brazilian state (Fearnside 1986). The region is characterized by a mosaic of vegetation types, ranging from open areas typical of the Cerrado, grasslands (campinas) and swamps, to extensive areas of *terra firme* forest (Ab'Saber 2002, Veloso *et al.* 1991). This varied landscape biogeographic ally is important for the region's avifauna. In fact, in addition to straddling the transition between the Cerrado and the Amazon basin, Rondônia is part of one of the most important areas of endemism for South American birds (Cracraft 1985, Haffer 1974, 1985), which consists of the entire Madeira-Tapajós interfluvium.

Rondônia has suffered some of the highest rates of deforestation and habitat disturbance of any part of Brazilian Amazonia (Fearnside 1987, Pedlowski *et al.* 2005). In particular, the region of Ji-Paraná, where the present study site – the Igarapé Lourdes Indigenous Territory – is located, has undergone extensive impacts, and almost all of its forest cover has been removed for the implantation of cattle pastures and plantations (Pedlowski *et al.* 1997). The combination of high biodiversity and rampant deforestation has led to the identification of a number of sites within the state of Rondônia as areas of extreme priority for the conservation of the Amazonian biota (Capobianco 2001).

The ongoing deforestation in this part of the Brazilian Amazon basin is especially worrying, considering that, of all the region's states, Rondônia is one of the least well-known from an ornithological viewpoint. The region's first major ornithological survey was conducted by J. Natterer sometime around 1829, along the Rio

Madeira and Rio Guaporé (Pelzeln 1868-1870). Subsequently, W. Hoffmanns collected birds in the region of the lower Rio Ji-Paraná ("Paraizo") and the Madeira (Humaitá and Borba), between July and September, 1906, and made a collection of 500 specimens, which was sent to the Tring Museum (the Natural History Museum) in London (Hellmayr 1907, 1910). Some years later, the Collins-Day Expedition, which was led by Alfred Collins and Lee Garnett Day, and included the ornithologist George K. Cherrie, passed through present-day Rondônia coming from Bolivia. An important collection of both bird and mammal specimens was assembled during this expedition, and subsequently deposited at the American Museum of Natural History (AMNH) and Chicago's Field Museum of Natural History – FMNH (Cherrie 1916, Osgood 1916).

Alípio de Miranda-Ribeiro participated in the Rondon Commission between 1908 and 1910, when a number of localities were surveyed in the region between Vilhena, at the southern border of Rondônia with Mato Grosso, and Ji-Paraná. During this period, Miranda-Ribeiro accumulated specimen collections of a number of different animal groups, which are housed in the National Museum in Rio de Janeiro (Miranda-Ribeiro and Soares 1920). Between 1913 and 1914, the American ornithologist George K. Cherrie participated in the Rondon-Roosevelt Expedition together with a number of specimen collectors from the National Museum. This team made an important collection of birds in Mato Grosso and Rondônia, which is now deposited at the AMNH and the National Museum in Rio de Janeiro (Cherrie 1916, Naumburg 1930).

In more recent years, the Brazilian collector J. Hidasi visited the Rio Mamoré in Guajará-Mirim in August, 1962, and deposited a collection of approximately 160 bird specimens in the Museu Paraense Emílio Goeldi (MPEG) in Belém. In 1986 and 1988, a team of researchers from the FMNH and the Museu deZoologia of the University of São Paulo (MZUSP) conducted an extensive survey of birds in the region of Ji-Paraná, at the

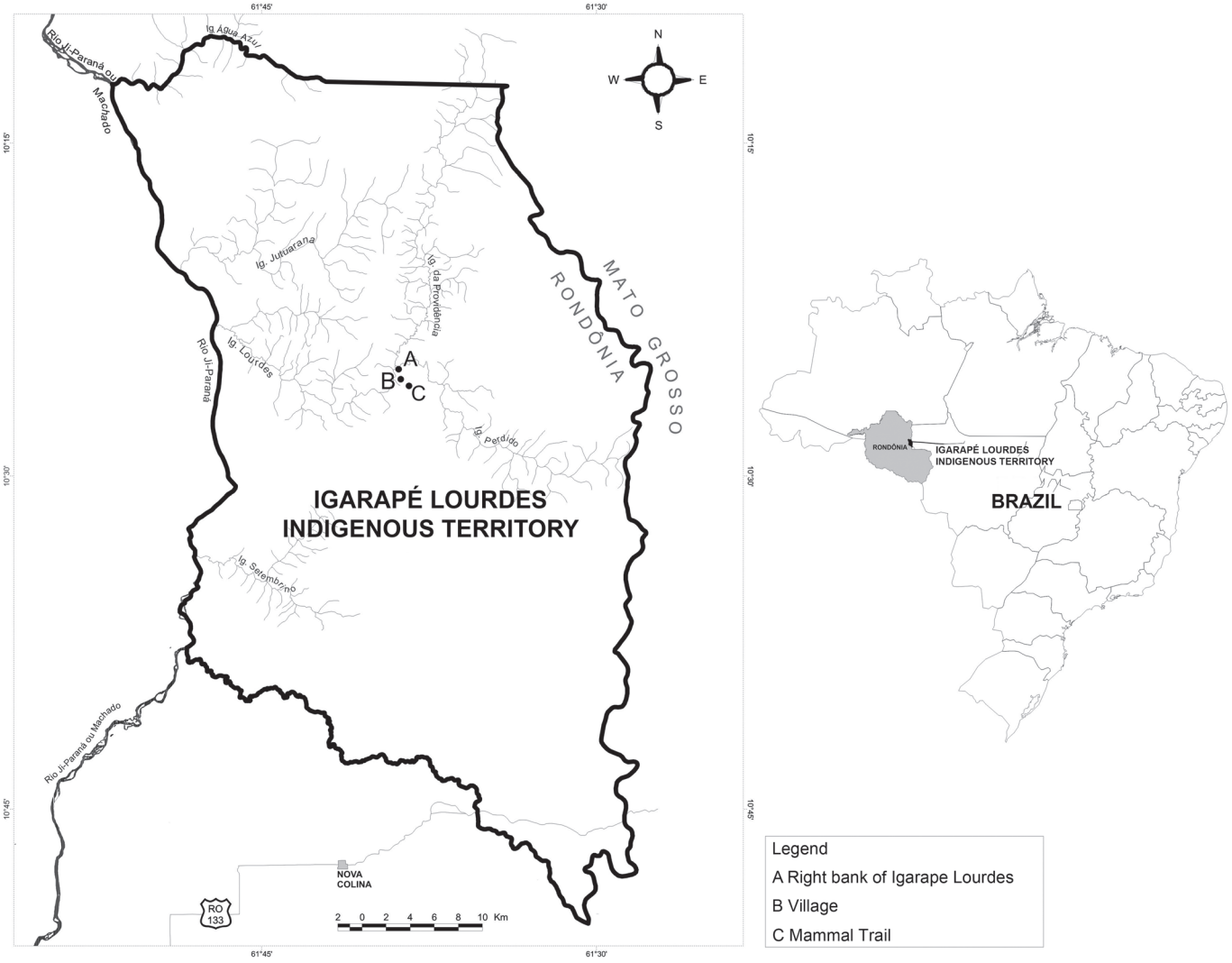

FIGURE 1: Geographic location of the Igarapé Lourdes Indigenous Territory, showing the sampling sites: **(A)** Right bank of the Igarapé Lourdes; **(B)** Gavião village; **(C)** Mammal trail.

Cachoeira Nazaré on the Rio Ji-Paraná/Machado, which resulted in a collection of around 1100 skins, which were deposited in MPEG, FMNH, and MZUSP (Stotz *et al.* 1997). Following the implementation of the Rondônia State Agriculture and Forestry Plan (PLANAFLORO) in 2002, a series of bird surveys were conducted at a variety of locations, including conservation units such as the Guajará-Mirim State Park (PNUD 1995), the Rio Ouro Preto Biological Reserve (Aleixo and Oren, 1999), Serra da Cutia National Park (Olmos 2003), and the Traçadal Biological Reserve (Olmos 2001). However, the state's indigenous reservations received little attention, and the avifauna was surveyed in only one of the state's 23 units, the Uru-Eu-Wau-Wau Indigenous Territory (Olmos 2002).

As mentioned above, the state of Rondônia has a rich and complex biota, which has suffered profound pressures over the past few decades due to widespread deforestation. This situation demands urgent action, in particular the establishment of a detailed database on the composition of its threatened biota, in order to support the development of environmental policies that will guarantee the conservation of these species in the state. In particular, the state's conservation units, indigenous territories and major tracts of forest on private land should be the main priority for the inventory of biological resources. In this light, the present study aims to provide a diagnosis of the bird communities of the area of the Igarapé Lourdes Indigenous Territory, and contribute to the body of data on the fauna of Rondônia, which will be so necessary for the development of effective conservation methods.

MATERIAL AND METHODS

Study Area

The Igarapé Lourdes Indigenous Territory (10°25'24"S, 61°39'17"W) is located in the central-eastern region of the Brazilian state of Rondônia, within the municipality of Ji-Paraná (Figure 1). The territory is limited to the west by the Rio Machado/Ji-Paraná, and by the Rondônia-Mato Grosso border to the north and east, with a total area of 185,533 hectares and a perimeter of 270.6 km. The reservation is populated by two indigenous groups, the Gavião (*Ikolen*) and the Arara (*Karo Rap*), with a total population of 731 individuals (208 Arara and 523 Gavião) distributed in eight villages, six of which are inhabited by Gavião (Kanindé 2006). The vegetation is composed of two distinct types of habitat: open rainforest, which predominates, and less extensive areas of dense rainforest (Brasil 1978, Veloso *et al.* 1991).

The climate is of Köppen's Am type, hot and humid throughout most of the year, with a dry season that lasts approximately three months' (SUDAM 1984). Mean annual temperatures range from 24°C to 26°C, with highs of up to 33°C, and lows of 16°C. Mean annual precipitation varies between 1800 and 2400 mm (SUDAM 1984, Ferreria da Costa *et al.* 1998).

The Territory can be characterized as an island of forest located within an intensively deforested matrix. Large tracts of well-preserved forest can be found within the Igarapé Lourdes Indigenous Territory, emphasizing the potential importance of the area for the conservation of the biota of central-eastern Rondônia.

Data Collection

Fieldwork was conducted in the Igarapé Lourdes Indigenous Territory, in the vicinity of the area's headquarters, in a Gavião village on the left bank of the Igarapé Lourdes (10°26'00"S, 61°39'11"W), in the municipality of Jí-Paraná, Rondônia. The study took place between September 4th and 13th, 2004, which was during the dry season at the site. A total of 80 hours of fieldwork were conducted.

Sample Sites

Right bank of the Igarapé Lourdes (10°25'24"S, 61°39'17"W) – Approximately 2 km from the Gavião village, this site consists of a trail approximately 3 km long, the first 300 m of which are dominated by fluvial *igapó* forest, that has been extensively disturbed due to logging. The rest of the trail consists of *terra firme* rainforest with palms, although the first kilometer is highly degraded due to logging, whereas the rest of the trail is relatively undisturbed. This area was sampled between September 4th and 8th, 2004.

Gavião village (10°26'00"S, 61°39'11"W) – Area around the village, characterized by regenerating secondary vegetation, cultivated plots, pastures, and a small seasonal lake formed by the flooding of the Igarapé Lourdes, which was totally covered in grass at the time of the study.

Mammal trail (10°26'37"S, 61°38'40"W) – This area is located some 3 km from the Gavião village, and consists of a 5 km-long trail dominated by *terra firme* rainforest with palms. In general, the area of this second trail was much better preserved than the first. This area was surveyed between September 9th and 13th, 2004.

In order to differentiate the characteristics of the various habitat types, as well as the specific habits of certain species, the following four procedures were employed for the collection of data:

Visual – observations were conducted systematically during two main periods, in the morning, between 05:00 h and 11:00 h, and in the late afternoon, between 16:00 h and 18:00 h, in order to obtain data on both diurnal and nocturnal species. During these sessions, the two trails described above were walked by the observers.

Auditory – during the observation sessions, all species heard vocalizing were identified with the assistance of recordings and a playback system (which attracts the individual by repeating its vocalization). All recordings were made using a Sony TCM 5000EV cassette recorder and a Senheiser ME66 unidirectional shotgun microphone. Whenever it was not possible to identify the taxon in the field, the recordings were compared with those available in private collections or at specialized audio libraries.

In addition to the procedures outlined above, both types of records (auditory and visual) were collected continually during all fieldwork activities, in order to maximize the data set.

Trapping – birds were captured in 36 mm-mesh mist-nets (12 m long and 2.5 m in height), which were set in the forest understory in a linear sequence, in order to avoid interference among nets. The nets were set prior to the beginning of each observation period (see above), and taken down at the end of at period. A total of 16 nets were used, in two sets of eight.

Specimen collection – specimens were collected using mist-nets. Most of the specimens were taxidermized, but some were fixed in formaldehyde and then conserved in ethanol. In addition, the carcass of each taxidermized specimen was conserved in ethanol. Samples of tissue (muscle, liver, and blood, when possible) were collected from all specimens, in addition to biometric data (body length and weight), and information on the colouration of naked skin. These data were noted on the labels attached to the specimens, prior to being deposited in the Ornithological Collection of the MPEG.

The taxonomic arrangement adopted in this study is that of the CBRO (2011).

RESULTS AND DISCUSSION

A total of 288 bird species was recorded in the Igarapé Lourdes Indigenous Territory. These species belong to 59 families (Appendix 1), of which the richest are the Thamnophilidae (32 species), Tyrannidae (27), Thraupidae (15), Psittacidae (14), and Dendrocolaptidae (13). Sixty-three representing 38 species were collected, and have been deposited in the Ornithological Collection of the MPEG.

The vast majority of species (213) were observed in the *terra firme* rainforest, followed by the *igapó* (106 species), secondary forest (94), and anthropogenic vegetation (60). Just over a third of the species were found in two or more habitat types, 130 were exclusive to *terra firme* forest, 24 to the *igapó,* and eight to anthropogenic habitats (Appendix 1).

The number of species recorded at the present site is well below the four hundred or so bird species expected for this biogeographic region. Stotz *et al.* (1997) conducted an extensive survey in the region of Ji-Paraná, specifically at the Cachoeira Nazaré on the Rio Machado, which resulted in a list of 459 bird species, including the new taxon *Clytoctantes atrogularis* Lanyon, Stotz and Willard, 1991. Whittaker (2009) surveyed the region around the Pousada Rio Roosevelt in southern Amazonas state, close to its borders with Rondônia and Mato Grosso, and recorded 481 species. In the region of Alta Floresta in Mato Grosso, Zimmer *et al.* (1997) recorded 474 bird species. However, all these surveys involved relatively large teams of ornithologists and long periods of fieldwork.

When the results of the present study are compared with those of surveys conducted on a similar scale in the same region, a more consistent pattern emerges. A total of only 147 species were observed at the Guajará-Mirim State Park, for example (PNUD 1995), while Aleixo and Oren (1999) mentioned 247 species further south in the Ouro Preto Biological Reserve. Olmos (2001) listed 241 species at the Traçadal Biological Reserve, also in the region of Guajará-Mirim. Olmos (2003) found 280 bird species in the Serra da Cutia National Park, and 281 species (Olmos 2002) in Uru-Eu-Wau-Wau Indigenous Territory. These values indicate that the number of species recorded in a survey is directly related to sampling effort, and that further fieldwork at Igarapé Lourdes would increase the number of species recorded at this site by at least one hundred.

The bird fauna recorded in the present study presents a number of different levels of endemism (Haffer 1985, 1990). To begin with, 86 of the 288 species recorded – approximately one third – are endemic to the Amazon basin (Appendix 1), of which four (*Pyrrhura perlata, Capito dayi, Rhegmatorhina hoffmannsi* and *Lepidothrix nattereri*) are restricted to the Madeira-Tapajós zoogeographic subregion (Stotz *et al.* 1996).

An additional biogeographic factor is related to the areas of endemism that have been identified for South American birds. Haffer (1974) recognized the Madeira-Tapajós interfluvium as one of the largest and most important of these areas, which is referred to as the Rondônia centre, and is defined by fifteen basic diagnostic taxa. Subsequently, Cracraft (1985) also recognized this Rondônia area of endemism, but included a larger number of taxa (21), only eight of which coincide with those identified by Haffer (1974). Either way, both classifications of this area

include practically the whole of the territory of the state of Rondônia, which implies that all of these taxa are likely to be present at Igarapé Lourdes, which is located towards the southern limit of the distribution of this set of species, towards the Tapajós area of endemism (Silva *et al.* 2002).

Considering Haffer's (1974) classification of 15 endemic taxa for the Rondônia centre, the presence of four species was confirmed at Igarapé Lourdes: *Capito dayi, Pyrrhura perlata, Rhegmatorhina hoffmannsi,* and *Lepidothrix nattereri.* The three latter species (*i.e.,* excluding *Capito dayi*) are also included in Cracraft's (1985) list of 21, together with three others that we observed: *Celeus torquatus occidentalis, Hylexetastes perrotii uniformis* and *Myrmotherula leucophthalma phaeonota.* These findings further reinforce the conclusion that the region of the Rio Jí-Paraná/Machado is the approximate limit of the distribution of a group of bird species, which is related geographically to the Madeira-Tapajós interfluvium.

Based on the results of the mist-netting, *Glyphorynchus spirurus* was the most abundant understory species in the study area, followed by *Lepidothrix nattereri* and *Automolus ochrolaemus.* Together, these three species accounted for 21% of all the specimens captured during fieldwork at Igarapé Lourdes. Obviously, the relative abundance of these species refers only to that of the understory birds typically captured in mist-nets, rather than the local community as a whole. Other species were also relatively numerous. One example is *Tyrannus savana,* which is known to migrate between the Amazon forest and the Cerrado, and was observed in large flocks flying from south to north, presumably on the annual migration to the Amazon basin. Three psittacids – *Ara ararauna, Ara severus* and *Aratinga weddellii* – were also relatively abundant within the study area. *Ara ararauna* was observed on a daily basis in bands of up to 11 individuals, in the crowns of palms in the vicinity of the Gavião village. *Ara severus* was undoubtedly the most abundant species in the study area, assembling in groups of hundreds of individuals in an area of pasture adjacent to the village, dominated by young babaçu palms. The third species, *Aratinga weddellii,* which has a restricted distrbution in southwestern Amazonia (Rondônia, Acre, and southwestern Amazonas) was observed frequently in an abandoned rice paddy.

A number of bird species known to forage in association with army ant swarms (Willis and Oniki, 1992) were observed within the study area, such as *Dendrocincla fuliginosa, Dendrocincla merula, Willisornis poecilinotus, Rhegmatorhina hoffmannsi* and *Phlegopsis nigromaculata,* of which, the latter three are particularly adapted for this type of foraging behavior. With the exception of *Dendrocincla fuliginosa,* all these species were captured frequently in the mist-nets, and were also sighted or heard frequently during the observation sessions. The presence and apparent abundance of these species within the study area indicates that it supports a large enough population of army ants to guarantee the survival of the bird populations throughout the year.

Mixed bands of understory birds were observed frequently along Mammal trail, especially in the better-preserved portions. The nuclear species in these bands was *Thamnomanes caesius,* which was observed in association with *Thamnomanes saturninus, Epinecrophylla haematonota, Myrmotherula hauxwelli, Myrmotherula axillaris, Glyphorynchus spirurus, Xiphorhynchus guttatus, Xiphorhynchus obsoletus, Automolus ochrolaemus* and *Habia rubica,* among others. Mixed bands of insectivores were also observed in the middle and upper strata of the forest. These bands included species such as *Piaya cayana, Capito dayi, Sittasomus griseicapillus, Xenops minutus* and *Myrmotherula brachyura,* but not *Thamnomanes caesius.*

In the canopy, mixed bands formed primarily by tanagers (*Tangara* spp.) were encountered constantly, and appeared to be more common than those of the understory. Other species, such as *Piprites chloris, Vireo olivaceus, Tachyphonus cristatus, Tangara chilensis, Tangara mexicana, Dacnis cayana* and *Cyanerpes caeruleus* also participated in these bands. As these species are typical of the forest edge, they are more tolerant of the pioneer vegetation (*e.g., Cecropia* spp.) that has grown up in many areas in response to the effects of selective logging. Such vegetation does in fact constitute an abundant source of the fruit that forms the basis of the diet of these species.

Species Accounts

Neochen jubata

Despite being widely distributed in South America, this anatid is found at relatively low densities throughout the Brazilian Amazon basin, and always in the vicinity of the region's major rivers (Carboneras 1992). The species is currently considered to be "near threatened" by the IUCN (International Union for Conservation of Nature and Natural Resources), due to overhunting. Two individuals were observed in the study area, on the afternoon of September 8th, on a beach in the Igarapé Lourdes. The species appears to be rare locally.

Ortalis guttata

Species with a disjunct distribution in the Amazon and Atlantic Forests. The Amazonian population is concentrated in the southwestern extreme of the region (Hoyo 1994). Groups of *Ortalis guttata* were heard on two occasions (September 4th and 10th) soon after dawn in the area of secondary forest adjacent to the Gavião village. This species appears to be the study area's most abundant cracid.

Aratinga weddellii

The geographic distribution of this psittacid is restricted to southwestern Amazonia (Rowley and Collar 1997). It is one of the most common psittacids at the study site. A large number of individuals were observed every day during fieldwork, invariably in areas of anthropogenic vegetation (plantations, pastures, etc.). This species is known to be associated with areas of open vegetation, which are only available within the study area as a result of the residents' agricultural activities.

Pyrilia barrabandi

This species is widely distributed south of the Rio Amazonas, west of the Rio Madeira, but is much rarer on the right (east) bank of this river (Rowley and Collar 1997). Most of the few records available from the right bank of the Madeira are from Rondônia, such as the Serra da Cutia National Park (Olmos 2003), Ouro Preto Biological Reserve (Aleixo and Oren 1999), and Cachoeira Nazaré (Stotz *et al.* 1997). At Igarapé Lourdes, this species was recorded on a number of occasions, always in the *terra firme* rainforest, where it appeared to be relatively common.

Phaethornis philippii

A humming-bird distributed south of the Amazon as far east as the Rio Tapajós, and as far south as northern Rondônia (Schuchmann 1999). The species is associated with the *terra firme* forest in the study area, and is one of its most common trochilids. Two males and a female (MPEG 58176-78) were captured in the mist-nets. The study period coincided with the peak of this species' breeding season, and the males were often observed vocalizing loudly and defending their territories vigorously against other each other.

Sclerurus rufigularis

This species is distributed throughout the Amazon basin, where it is represented by four recognized taxa. The subspecies found in northern Rondônia is *Sclerurus rufigularis rufigularis,* which is found in the southern Amazon basin as far west as northern Peru and Bolivia (Ridgley and Tudor 1994, Remsem 2003). Only a few records of the species were collected in the present study, although a pair of specimens (MPEG 58195-96) was captured in the mist-nets set in the *terra firme* rainforest on September 7th, 2004.

Cercomacra nigrescens

A widely-distributed species, principally south of the Rio Amazonas, where it is often found in bamboo forest (Ridgley and Tudor 1994, Zimmer and Isler 2003), although this type of habitat is not found in the study area at Igarapé Lourdes. The absence of this habitat may explain the apparently low density of *Cercomacra nigrescens* (Cabanis and Heine 1859) in the study area, which was recorded through a single specimen, a female (MPEG 58204) mist-netted on September 9th, 2004, in *terra firme* rainforest.

Grallaria varia

This species is widely distributed in the Amazon basin, and also has a disjunct population in the Atlantic Forest. However, the form recorded in Rondônia, *Grallaria varia distincta,* has a more restricted range, which coincides with the Madeira-Tapajós interfluvium (Krabbe and Schulenberg 2003). The species was recorded on only once during trail observations, and then only by way of its vocalization, which may mean that the study period did not coincide with the species' breeding season, and that its population was thus relatively difficult to detect, due to reduced activity. However, a second (female) specimen (MPEG 58219) was captured in *terra firme* rainforest on September 6th, 2004.

Phlegopsis nigromaculata

This ant-following species is widely distributed in the southern Amazon basin (Ridgley and Tudor 1994, Zimmer and Isler 2003). The species is quite common at Igarapé Lourdes, where it was recorded a number of times during observation sessions, and a male specimen (MPEG 58218) was collected on September 7th, 2004. The species was invariably encountered in *terra firme* rainforest.

Rhegmatorhina hoffmannsi

This species is endemic to the Rondônia area of endemism (Cracraft 1985, Zimmer and Isler 2003), and is also an ant-follower. It appears to be rare in the study area, and was recorded on only two occasions, on September 5th, close to the *igapó* on the Igarapé Lourdes, and on September 10th, in *terra firme* rainforest.

Lepidothrix nattereri

Also endemic to the Rondônia area of endemism (Cracraft 1985, Snow 2004), this species was relatively common in the study area. Three specimens were collected – a male on September 5th, and a male and female (MPEG 58231-32) on September 6th, 2004.

ACKNOWLEDGMENTS

We are grateful to the Gavião (*Ikolen*) and Arara (*Karo Rap*) indigenous groups for their hospitality and participation in fieldwork.

We also thank USAID (the United States Agency for International Development), the Amazoniar Consortium (WWF-Brasil, SOS Amazônia, Kanindé, CTA, and FSC Brasil, supported by USAID), and Kanindé (Association for Ethno-environmental Defense and Friends of the Earth), Sweden.

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APPENDIX: List of birds from the Igarapé Lourdes Indigenous Territory.
Legend: (EnAM) species endemic to Amazonia.
Habitat: Fo = rainforest; Ig = *igapó;* Fs = secondary forest; At = anthropogenic habitat (pasture and plantations).
Type of record: Ob = direct observation; Vc = vocal record; Gr = vocalization recorded; MPEG = specimen deposited at the Goeldi Museum.

TAXON	ENGLISH NAME	TYPE OF RECORD	HABITAT
Tinamidae Gray, 1840			
Tinamus tao Temminck, 1815	Gray Tinamou	**Ob;Vc**	**Fo**
Tinamus major (Gmelin, 1789)	Great Tinamou	**Ob;Vc**	**Fo**
Crypturellus cinereus (Gmelin, 1789) – **EnAM**	Cinereous Tinamou	**Ob;Vc;Gr**	**Fo**
Crypturellus soui (Hermann, 1783)	Little Tinamou	**Ob;Vc;Gr**	**Fo**
Crypturellus strigulosus (Temminck, 1815) – **EnAM**	Brazilian Tinamou	**Ob;Vc;Gr**	**Fo**
Crypturellus parvirostris (Wagler, 1827)	Small-billed Tinamou	**Ob;Vc;Gr**	**Fs;At**
Anatidae Leach, 1820			
Neochen jubata (Spix, 1825)	Orinoco Goose	**Ob**	**Ig**
Cracidae Rafinesque, 1815			
Ortalis guttata (Spix, 1825) – **EnAM**	Speckled Chachalaca	**Ob;Vc**	**Fo;Fs**
Penelope jacquacu Spix, 1825 – **EnAM**	Spix's Guan	**Ob**	**Fo**
Aburria cujubi (Pelzeln, 1858) – **EnAM**	Red-throated Piping-Guan	**Ob;Vc**	**Fo;Fs;Ig**
Pauxi tuberosa (Spix, 1825) – **EnAM**	Razor-billed Curassow	**Ob;Vc;Gr**	**Fo**
Odontophoridae Gould, 1844			
Odontophorus gujanensis (Gmelin, 1789)	Marbled Wood-Quail	**Vc;Gr**	**Fo**
Anhingidae Reichenbach, 1849			
Anhinga anhinga (Linnaeus, 1766)	Anhinga	**Ob**	**Ig**
Ardeidae Leach, 1820			
Tigrisoma lineatum (Boddaert, 1783)	Rufescent Tiger-Heron	**Ob**	**Ig**
Butorides striata (Linnaeus, 1758)	Striated Heron	**Ob**	**Ig**
Ardea alba Linnaeus, 1758	Great Egret	**Ob**	**Ig;At**
Pilherodius pileatus (Boddaert, 1783)	Capped Heron	**Ob**	**Ig**
Egretta thula (Molina, 1782)	Snowy Egret	**Ob**	**Ig;At**
Threskiornithidae Poche, 1904			
Mesembrinibis cayennensis (Gmelin, 1789)	Green Ibis	**Ob;Vc**	**Ig**
Cathartidae Lafresnaye, 1839			
Cathartes melambrotus Wetmore, 1964 – **EnAM**	Greater Yellow-headed Vulture	**Ob**	**Fo;Fs;Ig**
Coragyps atratus (Bechstein, 1793)	Black Vulture	**Ob**	**Fo;Fs;At**
Sarcoramphus papa (Linnaeus, 1758)	King Vulture	**Ob**	**Fo**
Accipitridae Vigors, 1824			
Leptodon cayanensis (Latham, 1790)	Gray-headed Kite	**Ob**	**Fo**
Elanoides forficatus (Linnaeus, 1758)	Swallow-tailed Kite	**Ob**	**Fo;Fs;At**
Gampsonyx Swainson*ii* Vigors, 1825	Pearl Kite	**Ob**	**Fs;At**
Harpagus bidentatus (Latham, 1790)	Double-toothed Kite	**Ob;Vc**	**Fo**
Accipiter bicolor (Vieillot, 1817)	Bicolored Hawk	**Ob**	**Fo**
Ictinia plumbea (Gmelin, 1788)	Plumbeous Kite	**Ob**	**Fo;Fs;At**
Urubitinga urubitinga (Gmelin, 1788)	Great Black-Hawk	**Ob;Vc;Gr**	**Ig**
Rupornis magnirostris (Gmelin, 1788)	Roadside Hawk	**Ob;Vc;Gr**	**Fs;At**
Pseudastur albicollis (Latham, 1790)	White Hawk	**Ob**	**Fo;Fs;Ig**
Buteo nitidus (Latham, 1790)	Gray Hawk	**Ob**	**Fo;Fs;At**
Harpia harpyja (Linnaeus, 1758)	Harpy Eagle	**Ob**	**Fo**
Spizaetus ornatus (Daudin, 1800)	Ornate Hawk-Eagle	**Ob;Vc**	**Fo**
Falconidae Leach, 1820			
Daptrius ater Vieillot, 1816 – **EnAM**	Black Caracara	**Ob;Vc;Gr**	**Fo;Ig**
Ibycter americanus (Boddaert, 1783)	Red-throated Caracara	**Ob;Vc;Gr**	**Fo;Ig**
Caracara plancus (Miller, 1777)	Southern Caracara	**Ob**	**Fs;At**
Milvago chimachima (Vieillot, 1816)	Yellow-headed Caracara	**Ob;Vc**	**Fs;At**
Herpetotheres cachinnans (Linnaeus, 1758)	Laughing Falcon	**Ob;Vc;Gr**	**Fo;Fs;At**
Micrastur ruficollis (Vieillot, 1817)	Barred Forest-Falcon	**Ob;Vc;Gr**	**Fo**
Micrastur mintoni Whittaker, 2002	Cryptic Forest-Falcon	**Ob;Vc;Gr**	**Fo;Fs**
Falco rufigularis Daudin, 1800	Bat Falcon	**Ob**	**Fo;Fs;Ig**
Eurypygidae Selby, 1840			
Eurypyga helias (Pallas, 1781)	Sunbittern	**Ob;Vc;Gr**	**Ig**
Psophiidae Bonaparte, 1831			
Psophia viridis Spix, 1825 – **EnAM**	Green-winged Trumpeter	**Ob;Vc;Gr**	**Fo**

TAXON	ENGLISH NAME	TYPE OF RECORD	HABITAT
Rallidae Rafinesque, 1815			
Aramides cajanea (Statius Muller, 1776)	Gray-necked Wood-Rail	**Ob**	**Ig;At**
Laterallus melanophaius (Vieillot, 1819)	Rufous-sided Crake	**Ob;Vc;Gr**	**At**
Heliornithidae Gray, 1840			
Heliornis fulica (Boddaert, 1783)	Sungrebe	**Ob**	**Ig**
Charadriidae Leach, 1820			
Vanellus chilensis (Molina, 1782)	Southern Lapwing	**Ob;Vc**	**At**
Scolopacidae Rafinesque, 1815			
Tringa solitaria Wilson, 1813	Solitary Sandpiper	**Ob**	**At**
Jacanidae Chenu and Des Murs, 1854			
Jacana jacana (Linnaeus, 1766)	Wattled Jacana	**Ob;Vc**	**Ig;At**
Columbidae Leach, 1820			
Columbina talpacoti (Temminck, 1811)	Ruddy Ground-Dove	**Ob;Vc**	**Fs;At**
Claravis pretiosa (Ferrari-Perez, 1886)	Blue Ground-Dove	**Ob;Vc**	**Fs;At**
Patagioenas plumbea (Vieillot, 1818)	Plumbeous Pigeon	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Patagioenas subvinacea (Lawrence, 1868)	Ruddy Pigeon	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Leptotila verreauxi Bonaparte, 1855	White-tipped Dove	**Ob;Vc;Gr**	**Fs;At**
Geotrygon montana (Linnaeus, 1758)	Ruddy Quail-Dove	**MPEG 58175**	**Fo;Fs**
Psittacidae Rafinesque, 1815			
Ara ararauna (Linnaeus, 1758)	Blue-and-yellow Macaw	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Ara macao (Linnaeus, 1758)	Scarlet Macaw	**Ob;Vc;Gr**	**Fo**
Ara chloropterus Gray, 1859	Red-and-green Macaw	**Ob;Vc;Gr**	**Fo**
Ara severus (Linnaeus, 1758)	Chestnut-fronted Macaw	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Orthopsittaca manilata (Boddaert, 1783)	Red-bellied Macaw	**Ob;Vc;Gr**	**Fo;Fs;At**
Aratinga weddellii (Deville, 1851) – **EnAM**	Dusky-headed Parakeet	**Ob;Vc;Gr**	**Fs;At**
Pyrrhura perlata (Spix, 1824) – **EnAM**	Crimson-bellied Parakeet	**Ob;Vc**	**Fo**
Brotogeris chrysoptera (Linnaeus, 1766)	Golden-winged Parakeet	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Pionites leucogaster (Kuhl, 1820) – **EnAM**	White-bellied Parrot	**Ob;Vc;Gr**	**Fo**
Pyrilia barrabandi (Kuhl, 1820) – **EnAM**	Orange-cheeked Parrot	**Ob;Vc;Gr**	**Fo**
Pionus menstruus (Linnaeus, 1766)	Blue-headed Parrot	**Ob;Vc;Gr**	**Fo;Fs;At**
Amazona farinosa (Boddaert, 1783)	Mealy Parrot	**Ob;Vc;Gr**	**Fo**
Amazona ochrocephala (Gmelin, 1788)	Yellow-crowned Parrot	**Ob;Vc;Gr**	**Fo**
Deroptyus accipitrinus (Linnaeus, 1758) – **EnAM**	Red-fan Parrot	**Ob;Vc;Gr**	**Fo;Fs**
Opisthocomidae Swainson, 1837			
Opisthocomus hoazin (Statius Muller, 1776)	Hoatzin	**Ob**	**Ig**
Cuculidae Leach, 1820			
Piaya cayana (Linnaeus, 1766)	Squirrel Cuckoo	**Ob;Vc;Gr**	**Fo;Ig;Fs;At**
Piaya melanogaster (Vieillot, 1817) – **EnAM**	Black-bellied Cuckoo	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Coccyzus americanus (Linnaeus, 1758)	Yellow-billed Cuckoo	**Ob**	**Fs;At**
Crotophaga major Gmelin, 1788	Greater Ani	**Ob;Vc**	**Ig**
Crotophaga ani Linnaeus, 1758	Smooth-billed Ani	**Ob;Vc**	**Fs;At**
Tapera naevia (Linnaeus, 1766)	Striped Cuckoo	**Ob;Vc;Gr**	**Fs;At**
Dromococcyx phasianellus (Spix, 1824)	Pheasant Cuckoo	**Ob;Vc;Gr**	**Fo;Fs**
Tytonidae Mathews, 1912			
Tyto alba (Scopoli, 1769)	Barn Owl	**Vc**	**Fs;At**
Strigidae Leach, 1820			
Megascops watsonii (Cassin, 1849) – **EnAM**	Tawny-bellied Screech-Owl	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Lophostrix cristata (Daudin, 1800)	Crested Owl	**Vc;Gr**	**Fo**
Pulsatrix perspicillata (Latham, 1790)	Spectacled Owl	**Vc;Gr**	**Fo**
Glaucidium brasilianum (Gmelin, 1788)	Ferruginous Pygmy-Owl	**Vc;Gr**	**Fs;At**
Nyctibiidae Chenu and Des Murs, 1851			
Nyctibius griseus (Gmelin, 1789)	Common Potoo	**Vc;Gr**	**Fo;Fs;At**
Caprimulgidae Vigors, 1825			
Nyctiphrynus ocellatus (Tschudi, 1844)	Ocellated Poorwill	**Vc;Gr**	**Fs;Ig;At**
Lurocalis semitorquatus (Gmelin, 1789)	Short-tailed Nighthawk	**Ob;Vc;Gr**	**Fo;Fs**
Hydropsalis nigrescens (Cabanis, 1848)	Blackish Nightjar	**Vc;Gr**	**Fo;Fs;At**
Hydropsalis albicollis (Gmelin, 1789)	Pauraque	**Ob;Vc;Gr**	**Fs;At**
Hydropsalis climacocerca (Tschudi, 1844) – **EnAM**	Ladder-tailed Nightjar	**Ob;Vc;Gr**	**Ig;At**
Apodidae Olphe-Galliard, 1887			
Chaetura brachyura (Jardine, 1846)	Short-tailed Swift	**Ob**	**Fs;At**

TAXON	ENGLISH NAME	TYPE OF RECORD	HABITAT
Tachornis squamata (Cassin, 1853)	Fork-tailed Palm-Swift	**Ob**	**Fs;Ig;At**
Trochilidae Vigors, 1825			
Glaucis hirsutus (Gmelin, 1788)	Rufous-breasted Hermit	**Ob**	**Fo;Fs**
Threnetes leucurus (Linnaeus, 1766) – **EnAM**	Pale-tailed Barbthroat	**Ob**	**Fo;Fs**
Phaethornis ruber (Linnaeus, 1758)	Reddish Hermit	**Ob**	**Fo**
Phaethornis philippii (Bourcier, 1847) – **EnAM**	Needle-billed Hermit	**MPEG (58176; 58177; 58178)**	**Fo**
Phaethornis superciliosus (Linnaeus, 1766)	Long-tailed Hermit	**Ob**	**Fo**
Campylopterus largipennis (Boddaert, 1783)	Gray-breasted Sabrewing	**Ob**	**Fo**
Thalurania furcata (Gmelin, 1788)	Fork-tailed Woodnymph	**Ob**	**Fo;Fs;Ig**
Amazilia fimbriata (Gmelin, 1788)	Glittering-throated Emerald	**Ob**	**Fo;Fs;Ig**
Trogonidae Lesson, 1828			
Trogon melanurus Swainson, 1838	Black-tailed Trogon	**Ob;Vc;Gr**	**Fo**
Trogon viridis Linnaeus, 1766	White-tailed Trogon	**Ob;Vc;Gr**	**Fo**
Trogon curucui Linnaeus, 1766	Blue-crowned Trogon	**Ob;Vc;Gr**	**Fs;Ig**
Trogon rufus Gmelin, 1788	Black-throated Trogon	**Ob;Vc;Gr**	**Fo**
Trogon collaris Vieillot, 1817	Collared Trogon	**Ob;Vc;Gr**	**Fo**
Pharomachrus pavoninus (Spix, 1824) – **EnAM**	Pavonine Quetzal	**Vc**	**Fo**
Alcedinidae Rafinesque, 1815			
Megaceryle torquata (Linnaeus, 1766)	Ringed Kingfisher	**Ob;Vc**	**Ig**
Chloroceryle americana (Gmelin, 1788)	Green Kingfisher	**Ob**	**Ig**
Chloroceryle inda (Linnaeus, 1766)	Green-and-rufous Kingfisher	**Ob**	**Ig**
Momotidae Gray, 1840			
Electron platyrhynchum (Leadbeater, 1829)	Broad-billed Motmot	**Vc**	**Fo**
Momotus momota (Linnaeus, 1766)	Amazonian Motmot	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Galbulidae Vigors, 1825			
Brachygalba lugubris (Swainson, 1838)	Brown Jacamar	**Ob**	**Ig**
Galbula cyanicollis Cassin, 1851 – **EnAM**	Blue-cheeked Jacamar	**Ob;Vc;Gr**	**Fo;Ig**
Galbula ruficauda Cuvier, 1816	Rufous-tailed Jacamar	**Ob;Vc;Gr**	**Ig**
Galbula dea (Linnaeus, 1758) – **EnAM**	Paradise Jacamar	**Ob**	**Fo;Ig**
Jacamerops aureus (Statius Muller, 1776)	Great Jacamar	**Ob;Vc;Gr**	**Fo**
Bucconidae Horsfield, 1821			
Notharchus hyperrhynchus (Sclater, 1856)	White-necked Puffbird	**Ob**	**Fo**
Notharchus tectus (Boddaert, 1783)	Pied Puffbird	**Ob;Vc**	**Fo**
Nystalus striolatus (Pelzeln, 1856) – **EnAM**	Striolated Puffbird	**Vc**	**Fo;Fs**
Malacoptila rufa (Spix, 1824) – **EnAM**	Rufous-necked Puffbird	**MPEG (58179)**	**Fo**
Nonnula rubecula (Spix, 1824)	Rusty-breasted Nunlet	**Vc**	**Fo;Ig**
Monasa nigrifrons (Spix, 1824)	Black-fronted Nunbird	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Monasa morphoeus (Hahn and Küster, 1823)	White-fronted Nunbird	**Ob;Vc;Gr**	**Fo**
Chelidoptera tenebrosa (Pallas, 1782)	Swallow-winged Puffbird	**Ob;Vc;Gr**	**Fs;Ig;At**
Capitonidae Bonaparte, 1838			
Capito dayi Cherrie, 1916 – **EnAM**	Black-girdled Barbet	**Ob;Vc;Gr**	**Fo**
Ramphastidae Vigors, 1825			
Ramphastos tucanus Linnaeus, 1758	White-throated Toucan	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Ramphastos vitellinus Lichtenstein, 1823	Channel-billed Toucan	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Selenidera gouldii (Natterer, 1837) – **EnAM**	Gould's Toucanet	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Pteroglossus inscriptus Swainson, 1822 – **EnAM**	Lettered Aracari	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Pteroglossus bitorquatus Vigors, 1826 – **EnAM**	Red-necked Aracari	**Ob;Vc;Gr**	**Fo**
Picidae Leach, 1820			
Picumnus aurifrons Pelzeln, 1870 – **EnAM**	Bar-breasted Piculet	**Ob;Vc**	**Ig**
Melanerpes cruentatus (Boddaert, 1783)	Yellow-tufted Woodpecker	**Ob;Vc;Gr**	**Fo;Fs**
Piculus flavigula (Boddaert, 1783)	Yellow-throated Woodpecker	**Ob;Vc;Gr**	**Fo;Ig**
Celeus grammicus (Natterer and Malherbe, 1845) – **EnAM**	Scaly-breasted Woodpecker	**Ob;Vc;Gr**	**Fo;Ig**
Celeus elegans (Statius Muller, 1776)	Chestnut Woodpecker	**Ob;Vc;Gr**	**Fo**
Celeus torquatus (Boddaert, 1783)	Ringed Woodpecker	**Vc;Gr**	**Fo**
Dryocopus lineatus (Linnaeus, 1766)	Lineated Woodpecker	**Ob;Vc;Gr**	**Fo**
Campephilus rubricollis (Boddaert, 1783)	Red-necked Woodpecker	**Ob;Vc;Gr**	**Fo**
Thamnophilidae Swainson, 1824			
Pygiptila stellaris (Spix, 1825)	Spot-winged Antshrike	**Vc;Gr**	**Fo**
Microrhopias quixensis (Cornalia, 1849)	Dot-winged Antwren	**Ob**	**Fo;Ig**

TAXON	ENGLISH NAME	TYPE OF RECORD	HABITAT
Myrmeciza atrothorax (Boddaert, 1783) – **EnAM**	Black-throated Antbird	**Ob;Vc;Gr**	**Fo;Ig**
Epinecrophylla leucophthalma (Pelzeln, 1868) – **EnAM**	White-eyed Antwren	**MPEG (58210)**	**Fo**
Epinecrophylla haematonota (Sclater, 1857)	Stipple-throated Antwren	**MPEG (58205; 58206)**	**Fo**
Myrmotherula brachyura (Hermann, 1783) – **EnAM**	Pygmy Antwren	**Ob;Vc;Gr**	**Fo**
Myrmotherula hauxwelli (Sclater, 1857) – **EnAM**	Plain-throated Antwren	**MPEG (58207)**	**Fo**
Myrmotherula axillaris (Vieillot, 1817)	White-flanked Antwren	**Ob;Vc;Gr**	**Fo;Ig**
Myrmotherula longipennis Pelzeln, 1868 – **EnAM**	Long-winged Antwren	**MPEG (58208; 58209)**	**Fo**
Thamnomanes saturninus (Pelzeln, 1878)	Saturnine Antshrike	**MPEG (58197; 58198; 58199; 58200)**	**Fo**
Thamnomanes caesius (Temminck, 1820)	Cinereous Antshrike	**MPEG (58201; 58202; 58203)**	**Fo**
Dichrozona cincta (Pelzeln, 1868) – **EnAM**	Banded Antbird	**Vc;Gr**	**Fo**
Herpsilochmus rufimarginatus (Temminck, 1822)	Rufous-winged Antwren	**Ob;Vc;Gr**	**Fo**
Sakesphorus luctuosus (Lichtenstein, 1823) – **EnAM**	Glossy Antshrike	**Ob;Vc;Gr**	**Ig**
Thamnophilus doliatus (Linnaeus, 1764)	Barred Antshrike	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Thamnophilus schistaceus d'Orbigny, 1835 – **EnAM**	Plain-winged Antshrike	**Ob;Vc;Gr**	**Fo**
Thamnophilus aethiops Sclater, 1858	White-shouldered Antshrike	**Ob;Vc;Gr**	**Fo**
Thamnophilus amazonicus Sclater, 1858 – **EnAM**	Amazonian Antshrike	**Ob;Vc;Gr**	**Fo;Ig**
Cymbilaimus lineatus (Leach, 1814)	Fasciated Antshrike	**Vc;Gr**	**Fo;Ig**
Sclateria naevia (Gmelin, 1788)	Silvered Antbird	**Vc;Gr**	**Fo**
Schistocichla rufifacies (Hellmayr, 1929) – **EnAM**	Rufous-faced Antbird	**Vc;Gr**	**Fo;Ig**
Hypocnemoides maculicauda (Pelzeln, 1868) – **EnAM**	Band-tailed Antbird	**Ob;Vc;Gr**	**Ig**
Hylophylax naevius (Gmelin, 1789) – **EnAM**	Spot-backed Antbird	**MPEG (58213; 58214)**	**Fo**
Hylophylax punctulatus (Des Murs, 1856) – **EnAM**	Dot-backed Antbird	**Ob;Vc;Gr**	**Fo**
Myrmoborus leucophrys (Tschudi, 1844) – **EnAM**	White-browed Antbird	**Ob;Vc;Gr**	**Fo**
Myrmoborus myotherinus (Spix, 1825)	Black-faced Antbird	**MPEG (58211; 58212)**	**Fo**
Cercomacra cinerascens (Sclater, 1857) – **EnAM**	Gray Antbird	**Ob;Vc;Gr**	**Fo**
Cercomacra nigrescens (Cabanis and Heine, 1859)	Blackish Antbird	**MPEG (58204)**	**Fo**
Hypocnemis subflava Cabanis, 1873	Yellow-breasted Warbling-Antbird	**Ob;Vc;Gr**	**Fo**
Willisornis poecilinotus (Cabanis, 1847) – **EnAM**	Scale-backed Antbird	**MPEG (58215; 58216; 58217)**	**Fo**
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye, 1837) – **EnAM**	Black-spotted Bare-eye	**MPEG (58218)**	**Fo**
Rhegmatorhina hoffmannsi (Hellmayr, 1907) – **EnAM**	White-breasted Antbird	**Ob;Vc;Gr**	**Fo**
Conopophagidae Sclater and Salvin, 1873			
Conopophaga aurita (Gmelin, 1789)	Chestnut-belted Gnateater	**Ob;Vc**	**Fo**
Grallariidae Sclater and Salvin, 1873			
Grallaria varia (Boddaert, 1783)	Variegated Antpitta	**MPEG (58219)**	**Fo**
Myrmothera campanisona (Hermann, 1783) – **EnAM**	Thrush-like Antpitta	**Vc;Gr**	**Fo**
Rhinocryptidae Wetmore, 1930 (1837)			
Liosceles thoracicus (Sclater, 1865) – **EnAM**	Rusty-belted Tapaculo	**Vc;Gr**	**Fo**
Formicariidae Gray, 1840			
Formicarius colma Boddaert, 1783	Rufous-capped Antthrush	**Ob;Vc;Gr**	**Fo**
Formicarius analis (d'Orbigny and Lafresnaye, 1837)	Black-faced Antthrush	**Vc;Gr**	**Fo**
Scleruridae Swainson, 1827			
Sclerurus mexicanus Sclater, 1857	Tawny-throated Leaftosser	**Vc**	**Fo**
Sclerurus rufigularis Pelzeln, 1868 – **EnAM**	Short-billed Leaftosser	**MPEG (58195; 58196)**	**Fo**
Sclerurus caudacutus (Vieillot, 1816)	Black-tailed Leaftosser	**MPEG (58194)**	**Fo**
Dendrocolaptidae Gray, 1840			
Dendrocincla fuliginosa (Vieillot, 1818)	Plain-brown Woodcreeper	**MPEG (58180)**	**Fo**
Dendrocincla merula (Lichtenstein, 1829) – **EnAM**	White-chinned Woodcreeper	**MPEG (58181; 58182)**	**Fo**
Deconychura longicauda (Pelzeln, 1868)	Long-tailed Woodcreeper	**Vc;Gr**	**Fo**
Sittasomus griseicapillus (Vieillot, 1818)	Olivaceous Woodcreeper	**Ob;Vc**	**Fo**
Glyphorynchus spirurus (Vieillot, 1819)	Wedge-billed Woodcreeper	**MPEG (58183; 58184)**	**Fo**
Xiphorhynchus elegans (Pelzeln, 1868) – **EnAM**	Elegant Woodcreeper	**MPEG (58185; 58186; 58187; 58188; 58189)**	**Fo**
Xiphorhynchus obsoletus (Lichtenstein, 1820) – **EnAM**	Striped Woodcreeper	**Ob;Vc;Gr**	**Fo;Ig**
Xiphorhynchus guttatus (Lichtenstein, 1820) – **EnAM**	Buff-throated Woodcreeper	**Ob;Vc;Gr**	**Fo**
Campylorhamphus procurvoides (Lafresnaye, 1850) – **EnAM**	Curve-billed Scythebill	**Vc**	**Fo**
Dendroplex picus (Gmelin, 1788)	Straight-billed Woodcreeper	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Nasica longirostris (Vieillot, 1818) – **EnAM**	Long-billed Woodcreeper	**Vc;Gr**	**Ig**
Dendrexetastes rufigula (Lesson, 1844) – **EnAM**	Cinnamon-throated Woodcreeper	**Vc**	**Fo**

TAXON	ENGLISH NAME	TYPE OF RECORD	HABITAT
Hylexetastes perrotii (Lafresnaye, 1844) – **EnAM**	Red-billed Woodcreeper	**Vc**	**Fo**
Furnariidae Gray, 1840			
Xenops minutus (Sparrman, 1788)	Plain Xenops	**Ob;Vc;Gr**	**Fo**
Automolus ochrolaemus (Tschudi, 1844)	Buff-throated Foliage-gleaner	**MPEG (58190; 58191; 58192; 58193)**	**Fo;Ig**
Automolus infuscatus (Sclater, 1856) – **EnAM**	Olive-backed Foliage-gleaner	**Vc**	**Fo**
Philydor erythrocercum (Pelzeln, 1859) – **EnAM**	Rufous-rumped Foliage-gleaner	**Vc**	**Fo**
Synallaxis rutilans Temminck, 1823 – **EnAM**	Ruddy Spinetail	**Ob;Vc;Gr**	**Fo**
Synallaxis gujanensis (Gmelin, 1789) – **EnAM**	Plain-crowned Spinetail	**Ob;Vc;Gr**	**Fo;Ig**
Pipridae Rafinesque, 1815			
Tyranneutes stolzmanni (Hellmayr, 1906) – **EnAM**	Dwarf Tyrant-Manakin	**Vc;Gr**	**Fo**
Pipra rubrocapilla Temminck, 1821	Red-headed Manakin	**MPEG (58233)**	**Fo**
Lepidothrix nattereri (Sclater, 1865) – **EnAM**	Snow-capped Manakin	**MPEG (58230; 58231; 58232)**	**Fo**
Chiroxiphia pareola (Linnaeus, 1766)	Blue-backed Manakin	**Vc**	**Fo**
Tityridae Gray, 1840			
Onychorhynchus coronatus (Statius Muller, 1776) – **EnAM**	Royal Flycatcher	**Ob;Vc;Gr**	**Fo**
Terenotriccus erythrurus (Cabanis, 1847)	Ruddy-tailed Flycatcher	**MPEG (58225)**	**Fo**
Myiobius barbatus (Gmelin, 1789)	Whiskered Flycatcher	**MPEG (58226)**	**Fo**
Schiffornis amazona (Sclater, 1860)	Amazonian Schiffornis	**MPEG (58228; 58229)**	**Fo;Ig**
Laniocera hypopyrra (Vieillot, 1817)	Cinereous Mourner	**Vc**	**Fo**
Tityra cayana (Linnaeus, 1766)	Black-tailed Tityra	**Ob;Vc**	**Fo;Fs;Ig**
Pachyramphus polychopterus (Vieillot, 1818)	White-winged Becard	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Pachyramphus minor (Lesson, 1830) – **EnAM**	Pink-throated Becard	**Ob;Vc;Gr**	**Fo**
Cotingidae Bonaparte, 1849			
Lipaugus vociferans (Wied, 1820)	Screaming Piha	**Ob;Vc;Gr**	**Fo**
Xipholena punicea (Pallas, 1764) – **EnAM**	Pompadour Cotinga	**Ob;Vc**	**Fo**
Cotinga cayana (Linnaeus, 1766) – **EnAM**	Spangled Cotinga	**Ob**	**Fo;Ig**
Querula purpurata (Statius Muller, 1776)	Purple-throated Fruitcrow	**Ob;Vc;Gr**	**Fo**
Phoenicircus nigricollis Swainson, 1832 – **EnAM**	Black-necked Red-Cotinga	**Vc**	**Fo**
Incertae sedis			
Platyrinchus coronatus Sclater, 1858 – **EnAM**	Golden-crowned Spadebill	**Ob;Vc;Gr**	**Fo**
Platyrinchus platyrhynchos (Gmelin, 1788) – **EnAM**	White-crested Spadebill	**Ob;Vc;Gr**	**Fo**
Piprites chloris (Temminck, 1822)	Wing-barred Piprites	**Ob;Vc;Gr**	**Fo**
Rhynchocyclidae Berlepsch, 1907			
Mionectes oleagineus (Lichtenstein, 1823)	Ochre-bellied Flycatcher	**MPEG (58220; 58221)**	**Fo**
Leptopogon amaurocephalus Tschudi, 1846	Sepia-capped Flycatcher	**MPEG (58222; 58223; 58224)**	**Fo;Fs**
Corythopis torquatus (Tschudi, 1844) – **EnAM**	Ringed Antpipit	**Ob;Vc;Gr**	**Fo**
Tolmomyias assimilis (Pelzeln, 1868)	Yellow-margined Flycatcher	**Vc**	**Fo;Ig**
Tolmomyias poliocephalus (Taczanowski, 1884)	Gray-crowned Flycatcher	**Vc;Gr**	**Fo**
Todirostrum maculatum (Desmarest, 1806) – **EnAM**	Spotted Tody-Flycatcher	**Vc;Gr**	**Ig**
Hemitriccus minor (Snethlage, 1907) – **EnAM**	Snethlage's Tody-Tyrant	**Vc;Gr**	**Fo**
Tyrannidae Vigors, 1825			
Zimmerius gracilipes (Sclater and Salvin, 1868)	Slender-footed Tyrannulet	**Vc**	**Fo;Ig**
Camptostoma obsoletum (Temminck, 1824)	Southern Beardless-Tyrannulet	**Ob;Vc;Gr**	**Ig;Fs;At**
Elaenia spectabilis Pelzeln, 1868	Large Elaenia	**Ob;Vc**	**Fs;At**
Myiopagis gaimardii (d'Orbigny, 1839)	Forest Elaenia	**Vc**	**Fo;Fs;Ig**
Attila spadiceus (Gmelin, 1789)	Bright-rumped Attila	**Ob;Vc;Gr**	**Fo**
Myiarchus swainsoni Cabanis and Heine, 1859	Swainson's Flycatcher	**Ob;Vc;Gr**	**Fs;At**
Myiarchus ferox (Gmelin, 1789)	Short-crested Flycatcher	**Ob;Vc;Gr**	**Fs;At**
Rhytipterna simplex (Lichtenstein, 1823)	Grayish Mourner	**Vc**	**Fo;Ig**
Pitangus sulphuratus (Linnaeus, 1766)	Great Kiskadee	**Ob;Vc;Gr**	**Fo;Ig;Fs;Ig**
Megarynchus pitangua (Linnaeus, 1766)	Boat-billed Flycatcher	**Ob;Vc;Gr**	**Fo;Ig;Fs;Ig**
Myiozetetes cayanensis (Linnaeus, 1766)	Rusty-margined Flycatcher	**Ob;Vc;Gr**	**Fo;Ig;Fs;Ig**
Tyrannus melancholicus Vieillot, 1819	Tropical Kingbird	**Ob;Vc;Gr**	**Ig;Fs;At**
Tyrannus savana Vieillot, 1808	Fork-tailed Flycatcher	**MPEG (58227)**	**Fs;At**
Empidonomus varius (Vieillot, 1818)	Variegated Flycatcher	**Ob;Vc;Gr**	**Fo;Ig;Fs;Ig**
Cnemotriccus fuscatus (Wied, 1831)	Fuscous Flycatcher	**Vc**	**Fo**
Vireonidae Swainson, 1837			
Cyclarhis gujanensis (Gmelin, 1789)	Rufous-browed Peppershrike	**Ob;Vc;Gr**	**Ig;Fs;At**

TAXON	ENGLISH NAME	TYPE OF RECORD	HABITAT
Vireo olivaceus (Linnaeus, 1766)	Red-eyed Vireo	**Ob;Vc;Gr**	**Ig;Fs;At**
Hylophilus ochraceiceps Sclater, 1860	Tawny-crowned Greenlet	**Ob;Vc;Gr**	**Fo;Fs**
Hirundinidae Rafinesque, 1815			
Atticora fasciata (Gmelin, 1789) – **EnAM**	White-banded Swallow	**Ob**	**Ig**
Stelgidopteryx ruficollis (Vieillot, 1817)	Southern Rough-winged Swallow	**Ob**	**Ig;At**
Progne chalybea (Gmelin, 1789)	Gray-breasted Martin	**Ob;Vc**	**Ig;Fs;At**
Tachycineta albiventer (Boddaert, 1783)	White-winged Swallow	**Ob**	**Ig**
Troglodytidae Swainson, 1831			
Microcerculus marginatus (Sclater, 1855)	Scaly-breasted Wren	**Ob;Vc;Gr**	**Fo**
Troglodytes musculus Naumann, 1823	Southern House Wren	**Ob;Vc;Gr**	**Fs;At**
Campylorhynchus turdinus (Wied, 1831)	Thrush-like Wren	**Ob;Vc;Gr**	**Fo**
Pheugopedius genibarbis (Swainson, 1838)	Moustached Wren	**Ob;Vc;Gr**	**Ig;Fs**
Cyphorhinus arada (Hermann, 1783) – **EnAM**	Musician Wren	**Vc;Gr**	**Fo**
Polioptilidae Baird, 1858			
Ramphocaenus melanurus Vieillot, 1819	Long-billed Gnatwren	**Ob;Vc;Gr**	**Fo**
Turdidae Rafinesque, 1815			
Turdus fumigatus Lichtenstein, 1823	Cocoa Thrush	**Ob;Vc;Gr**	**Fo**
Turdus lawrencii Coues, 1880 – **EnAM**	Lawrence's Thrush	**MPEG (58234)**	**Fo;Ig**
Turdus albicollis Vieillot, 1818	White-necked Thrush	**MPEG (58235)**	**Fo;Fs;Ig**
Coerebidae d'Orbigny and Lafresnaye, 1838			
Coereba flaveola (Linnaeus, 1758)	Bananaquit	**Ob;Vc;Gr**	**Fo;Ig;Fs;At**
Thraupidae Cabanis, 1847			
Saltator maximus (Statius Muller, 1776)	Buff-throated Saltator	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Saltator coerulescens Vieillot, 1817	Grayish Saltator	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Lamprospiza melanoleuca (Vieillot, 1817) – EnAM	Red-billed Pied Tanager	**Ob;Vc;Gr**	**Fo**
Ramphocelus carbo (Pallas, 1764)	Silver-beaked Tanager	**Ob;Vc;Gr**	**Ig;Fs;At**
Lanio cristatus (Linnaeus, 1766) – **EnAM**	Flame-crested Tanager	**Ob;Vc**	**Fo**
Lanio surinamus (Linnaeus, 1766) – **EnAM**	Fulvous-crested Tanager	**Ob;Vc**	**Fo**
Tangara mexicana (Linnaeus, 1766) – **EnAM**	Turquoise Tanager	**Ob;Vc**	**Fo**
Tangara chilensis (Vigors, 1832) – **EnAM**	Paradise Tanager	**Ob**	**Fo;Ig**
Tangara episcopus (Linnaeus, 1766)	Blue-gray Tanager	**Ob;Vc;Gr**	**Ig;Fs;At**
Tangara palmarum (Wied, 1823)	Palm Tanager	**Ob;Vc;Gr**	**Ig;Fs;At**
Tangara cayana (Linnaeus, 1766)	Burnished-buff Tanager	**Ob;Vc**	**Fo;Fs**
Paroaria gularis (Linnaeus, 1766)	Red-capped Cardinal	**Ob**	**Ig**
Tersina viridis (Illiger, 1811)	Swallow Tanager	**Ob**	**Fo**
Dacnis cayana (Linnaeus, 1766)	Blue Dacnis	**Ob**	**Fo;Fs**
Cyanerpes caeruleus (Linnaeus, 1758)	Purple Honeycreeper	**Ob**	**Fo**
Hemithraupis guira (Linnaeus, 1766)	Guira Tanager	**Ob;Vc**	**Fo;Ig;Fs;At**
Emberizidae Vigors, 1825			
Ammodramus aurifrons (Spix, 1825)	Yellow-browed Sparrow	**Ob;Vc**	**At**
Volatinia jacarina (Linnaeus, 1766)	Blue-black Grassquit	**Ob**	**At**
Sporophila nigricollis (Vieillot, 1823)	Yellow-bellied Seedeater	**MPEG (58237)**	**At**
Sporophila caerulescens (Vieillot, 1823)	Double-collared Seedeater	**Ob;Vc**	**At;Ig**
Sporophila angolensis (Linnaeus, 1766)	Chestnut-bellied Seed-Finch	**Ob;Vc;Gr**	**At;Ig**
Arremon taciturnus (Hermann, 1783)	Pectoral Sparrow	**Ob;Vc;Gr**	**At**
Cardinalidae Ridgway, 1901			
Habia rubica (Vieillot, 1817)	Red-crowned Ant-Tanager	**Ob;Vc;Gr**	**Fo**
Cyanoloxia cyanoides (Lafresnaye, 1847)	Blue-black Grosbeak	**MPEG (58236)**	**Fo**
Parulidae Wetmore, Friedmann, Lincoln, Miller, Peters, van Rossem, Van Tyne and Zimmer 1947			
Phaeothlypis fulvicauda (Spix, 1825)	Buff-rumped Warbler	**Ob;Vc;Gr**	**Fo**
Icteridae Vigors, 1825			
Psarocolius viridis (Statius Muller, 1776) – **EnAM**	Green Oropendola	**Ob;Vc;Gr**	**Fo;Ig**
Psarocolius decumanus (Pallas, 1769)	Crested Oropendola	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Cacicus cela (Linnaeus, 1758)	Yellow-rumped Cacique	**Ob;Vc;Gr**	**Fo;Fs;Ig**
Icterus cayanensis (Linnaeus, 1766)	Epaulet Oriole	**Ob**	**Ig;Fs**
Molothrus oryzivorus (Gmelin, 1788)	Giant Cowbird	**Ob;Vc;Gr**	**At**
Fringillidae Leach, 1820			
Euphonia laniirostris d'Orbigny and Lafresnaye, 1837	Thick-billed Euphonia	**Ob;Vc;Gr**	**Fo**
Euphonia xanthogaster Sundevall, 1834	Orange-bellied Euphonia	**Ob;Vc;Gr**	**Fo**

Revista Brasileira de Ornitologia, 19(2), 244-259
Junho de 2011

ARTIGO

Birds of Serra do Cachimbo, Pará State, Brazil

Marcos Pérsio Dantas Santos[1], Luís Fábio Silveira[2] and José Maria Cardoso da Silva[3]

[1.] Universidade Federal do Pará. Instituto de Ciências Biológicas. Laboratório de Ecologia e Zoologia de Vertebrados, Ornitologia. CEP 66075-110, Belém, PA, Brasil. E-mail: marcospersio@uol.com.br
[2.] Museu de Zoologia da Universidade de São Paulo. Avenida Nazeré, 481, Ipiranga, CEP 04263-000, São Paulo, SP, Brasil. E-mail: lfsilvei@usp.br
[3.] Conservation International, Executive Vice President, Field Programs, CI Headquarters, 2011 Crystal Drive, Suite 500, Arlington, Virginia 22202, EUA. E-mail: j.silva@conservacao.org

Recebido em 24/02/2011. Aceito em 15/04/2011.

RESUMO: As aves da Serra do Cachimbo, Estado do Pará, Brasil. A área que compreende a Serra do Cachimbo, no sul do estado do Pará, divisa com o estado do Mato Grosso, é certamente uma das regiões brasileiras de maior interesse do ponto de vista biológico. Nessa área de paisagem complexa, fruto da transição entre a Floresta Amazônia e o Cerrado do planalto Central brasileiro, podem ser encontrados mosaicos de vegetação que vão desde florestas ombrófilas densas, passando por fisionomias de Cerrado até áreas de Campinas. Durante o período de 14 de agosto a 3 de setembro de 2003, e de 15 a 25 de março de 2004 foi possível registrar um total de 310 espécies de aves para a área do Campo de Provas Brigadeiro Veloso na Serra do Cachimbo. Quando se acrescenta todos os registros de aves já obtidos por outros pesquisadores que passaram pela mesma área temos um total geral de 381 espécies registradas. Ressalta-se o registro de algumas espécies importantes do ponto de vista biogeográfico e de conservação como: *Anodorhynchus hyacinthinus, Chordeiles pusillus, Melanopareia torquata, Herpsilochmus* aff. *sellowi, Elaenia ruficeps, Xenopipo atronitens, Cyanocorax cristatellus* e *Cyanocorax chrysops.*

PALAVRAS-CHAVE: Amazônia; Inventário; Serra do Cachimbo.

ABSTRACT: Birds of Serra do Cachimbo, Pará State, Brazil. The region comprising Serra do Cachimbo in southern Pará on the border with Mato Grosso is one of Brazil's most interesting regions from a biological standpoint. This complex landscape is an area of transition from the Amazonian Rainforest to the Cerrado of the Brazilian Central Plateau. Mosaics of vegetation can be found, which include dense rainforest savannas (Cerrado) and white sand campinas. Between August 14 and September 3, 2003, and between March 15 and 25, 2004, 310 bird species were registered in the Serra do Cachimbo at Campo de Provas Brigadeiro Veloso. When added to the records obtained by previous researchers, a total of 381 species have now been recorded for this area, including some of the most important in terms of biogeography and conservation, such as: *Anodorhynchus hyacinthinus, Chordeiles pusillus, Melanopareia torquata, Herpsilochmus* aff. *sellowi, Elaenia ruficeps, Xenopipo atronitens, Cyanocorax cristatellus* and *Cyanocorax chrysops.*

KEY WORDS: Amazonia; Inventory; Serra do Cachimbo.

The Neotropical Region is considered an area with the most number of bird species on the planet. Most conservative estimates indicate that approximately 3,300 species live in this region (Vuilleumier 1988), of which 1,825 occur in Brazil (CBRO 2011). Specifically in the Amazon, the largest biome of the Neotropical Region, approximately 1,200 species have been recorded, which represents about 65% of the total birds found in Brazil (Haffer 1990, Stotz *et al.* 1996).

It is known, however, that this elevated richness of bird species in the Amazon is not homogeneous. In other words, besides having considerable variation among species richness in sites located in the center, west, and borders of the basin, there is a partitioning of biotic communities related to the so called interfluviums of the large Amazonian Rivers (Haffer 1974, Haffer 1990).

The Tapajós-Xingu interfluvium, into which is inserted Serra do Cachimbo, is among the biogeographic regions that boast an expressive quantity of bird endemism, aside from other taxa. In spite of this, it still remains as one of the least known in all of Amazonia (Cracraft 1985, Haffer 1974), and even basic parameters like distribution and other ecological aspects of its avifauna continue to be little studied.

Ornithological knowledge of this region came rather late, and began only in 1952 with the first of a series of excursions to Serra do Cachimbo (1952, 1954, 1956, 1958, 1959, 1960 and 1962), realized by the professional collector José Hidasi. On these trips, he gathered 228 specimens of birds, representing approximately 97 species which were deposited in the ornithological collection of the Museu Paraense Emílio Goeldi (MPEG), Belém, Pará.

In 1955, Emílio Dente and Werner Bokermann visited the aeronautic base of Serra do Cachimbo with the objective of studying the birds of this region (Pinto and

Camargo 1957). During this campaign, a collection of 185 species was gathered, which may be found deposited at the Museu de Zoologia da Universidade de São Paulo (MZUSP).

Posteriorly, in 1957 an expedition headed by Dr. Helmut Sick of the Museu Nacional do Rio de Janeiro was taken to the Cururu River region at the portion north of Serra do Cachimbo. This resulted in the discovery of a new species of bird, *Lepidothrix vilasboasi* (Sick 1959), endemic to the region (Sick 1959). The remaining material collected by Sick at this area is found deposited at the Museu Nacional do Rio de Janeiro. However, a complete analysis of the collection has never been done.

The south of Pará State, at the division with Mato Grosso State, is certainly one of the most interesting regions of Brazil from a biological point of view. It is considered to be a priority area for conservation (Oren and Albuquerque 1991). This is a complex landscape, embodying the fruit of transition between the Amazon Forest and Cerrado of the Brazilian Central Plateau. In this landscape a mosaic can be found of vegetation ranging from dense ombrophilous forests, through the physiognomy of Cerrado, to areas of savannoid campina (Lieras and Kirkbride 1978). The mix makes this region a magnificent natural laboratory for the study of systematics, evolution, and biogeography of bird communities in transitional areas among adjacent biomes.

The objective of this present work is to present an updated list of birds from Serra do Cachimbo. Some relevant aspects on the composition, richness, and ecological and biogeographical relations of the avifauna of this region are also discussed.

MATERIAL AND METHODS

Study Area

Fieldwork was done principally at Campo de Provas Brigadeiro Veloso of the Brazilian Air Force (CPBV), aside from excursions to localities along BR-163 (Cuiabá-Santarém), near CPBV. The studies consisted of two periods: one in the dry season between August 14 and September 3, 2003; and one in the rainy season from March 15-25, 2004. CPBV is situated in the ecotone between the Amazon and the Cerrado in the south of Pará State, municipality of Novo Progresso (09°16'S, 09°22'S, and 54°55'W, 55°10'W) (Figure 1). The region has a mean altitude of 700 m, dividing tributary waters of the Xingú and Tapajós River Basins (Askew *et al.* 1970, RADAMBRASIL 1980). Mean annual temperature is around 23°C with two well-defined seasons: the dry period from May to September, and the rainy period from October to April (Sudam 1984). According to Lieras and Kirkbride (1978), the region possesses a mosaic of vegetation from campinas and open Cerrado, through bush formations like savanna forests, to campinaranas and ombrophilous forests.

Localities of avifauna sampling

In total, six localities were sampled (collecting points, Figure 1) in the CPBV area, as described bellow:

A: Cristalino River (09°17'S, 55°10'W): area situated at the left bank of the Cristalino River, located

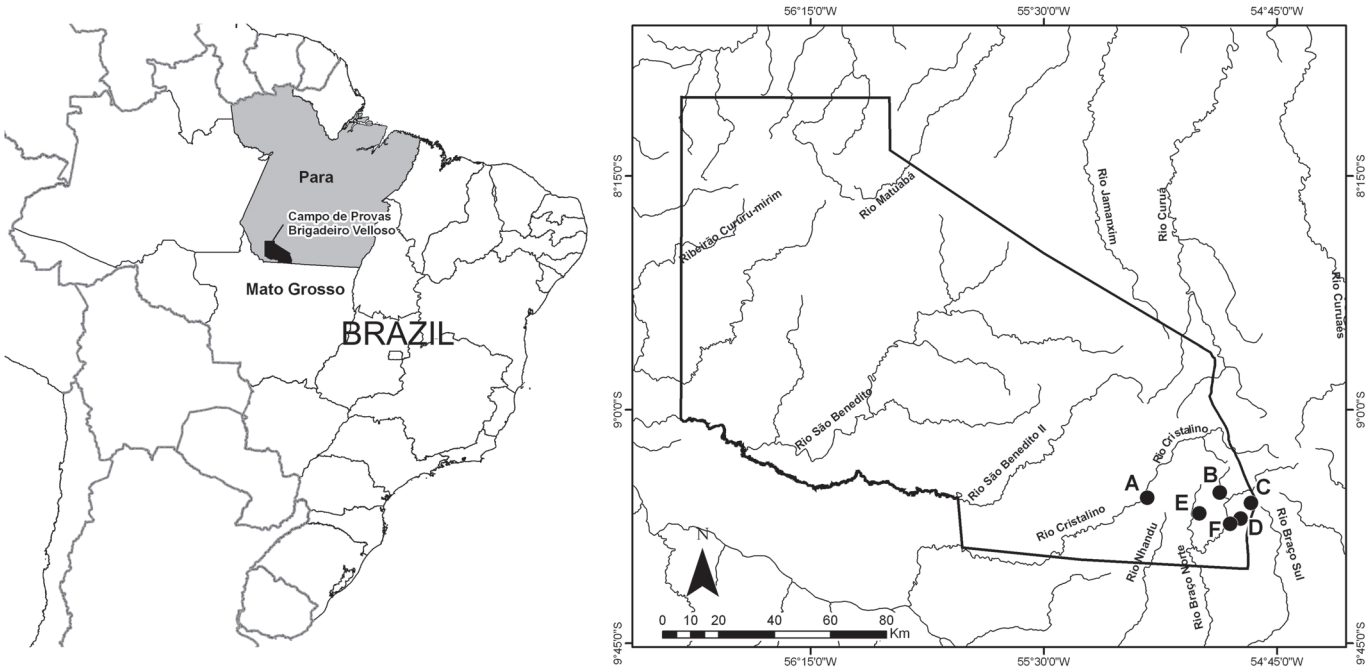

FIGURE 1: Geographic location of Campo de Provas Brigadeiro Veloso in Serra do Cachimbo, south of Pará with indication of sampling points. Legend: **(A)** Cristalino River; **(B)** Tower 2; **(C)** São Francisco Farm, **(D)** Access road to the base, **(E)** Trosoba Creek, and **(F)** Olho-d'água.

approximately 35 km from CPBV headquarters. It is composed of a forestal formation typical of *igapó*, with an annual inundation level of around two meters in the full period, aside from ombrophilous terra-firme forest. This area was inventoried only during the dry period, as the locality becomes inaccessible during the rainy season due to elevated waters of the Cristalino River.

B: Testing Area of Tower 2 (09°16'S, 54°56'W): area situated about 12 km from CPBV headquarters, composed of two distinct forestal formations. The first, directly behind Observation Tower nº 2, presents a campinarana type of forestal formation, with trees of large stature and dossal around 10 to 15 meters. The second vegetal formation is of the open or savannoid type, more specifically Cerrado *sensu stricto,* situated further south of Tower 2, near the airport of the base. In this area it was possible to realize samplings in both seasons.

C: São Francisco Farm (BR-163) (09°18'S, 54°50'W): situated at the margin of BR-163, approximately 10 km from the entrance gate of CPBV. In this area there exists a fragment of terra-firme ombrophilous forest, and fieldwork was accomplished in both seasons.

D: Entrance of the base (09°21'S, 54°52'W): Various points were studied during both seasons along the asphalt road connecting the watchtower of the CPBV entry gate and BR-163. It is composed of vegetation of a xeric aspect, varying between semi-deciduous forest and savanna forest, with trees presenting reduced diameter and mean height around 6 to 8 meters.

E: Trosoba Creek (09°20'S, 55°00'W): located around 8 km from the CPBV airport. It has an open or savannoid vegetal formation, alternating with areas of Cerrado *sensu stricto* and campinas of white sand, and gallery and morichales types of forested areas. The samplings of avifauna were conducted in both seasons at this locality.

F: Olho d'água Campina and Cerrado of the lagoon (09°22'S, 54°54'W): situated around 3 km from CPBV headquarters. This locality presents an open or savannoid vegetal formation, alternating with areas of Cerrado *sensu stricto* and campinas of white sand, and gallery and morichales types of forested areas.

Collection of data

At least three areas of forest and three areas of more open vegetal formations were sampled. The selection of these areas was important to verify the specificity of habitats and habits of the bird species, as well as their relative abundance. In order to accomplish the rapid ecological evaluation program, four data collecting methods were implemented:

Observations were conducted systematically in two preferential periods between 5 and 11 h and between 16 and 21 h. These constitute the periods of greatest activity among birds, including species with nocturnal habits. During these periods pre-determined areas were visited beforehand with the intention of obtaining comparable data between campaigns.

During the time dedicated to observation, birds that were found vocalizing were identified with the aid of recordings belonging to the authors as well as playback. In cases in which field identification was not possible, this was accomplished through comparison with already existing recordings from private archives or those deposited in bioacoustic laboratories.

Capture: capture of individuals was done by mist-nets (12 × 2.5 m, 36 mm mesh). The nets were arranged in the understory of the forest in linear sequence. The nets were opened before the beginning of each observation period and closed at dusk. In total 20 nets were used, divided in two groups of ten each.

Collection: collection was accomplished with the help of shotguns (.22, .36 and .28 caliber) and through mist-net captures. The specimens were taxidermized and deposited in the ornithological collection of MPEG. Taxonomic sequence follow CBRO (2011).

RESULTS AND DISCUSSION

The work developed at CPBV and adjacent regions (see above) resulted in a list of 311 species of birds, distributed among 59 families (Appendix). Of these, the most representative were: Tyrannidae (50), Thamnophilidae (30), Thraupidae (26), Psittacidade (23) and Dendrocolaptidae (15). There were collected 350 specimens representing 121 species.

Comparing the present list of species with material collected by Emílio Dente and Werner Bokermann (Pinto and Camargo, 1957), and that obtained by José Hidasi (MPEG), it was observed that 70 species and one family were not registered by us in this present work (Appendix). As such, 381 species of birds representing 60 families indicate confirmed records for the area of Serra do Cachimbo.

The sampled avifauna presents various levels of endemism. Of 381 species registered, 65 (17.1%) are endemic to the Amazon region. Two of them – *Melanopareia torquata* and *Cyanocorax cristatellus* – are endemic to Cerrado (Silva 1995, Silva and Santos 2005). Of the total Amazonian endemic species, five species occur only in

Brazilian portion of this biome (*Penelope pileata, Psophia dextralis, Pyrilia vulturina, Amazona kawalli* and *Rhegmatorhina gymnops.* One of these, *Rhegmatorhina gymnops,* has a restricted distribution in the Tapajós-Xingu interfluvium (Haffer 1985, Haffer 1990, Oren 2001, Stotz *et al.* 1996).

In the area of Serra do Cachimbo there are two large types of vegetation: one formed by forestal areas (campinarana, *igapó*, gallery and terra-firme forests); and the other being open areas (Cerrado *sensu stricto,* meadows, campinas and dry forests). After evaluating the composition of species among the various vegetation types, it becomes clear that there exists an ecological segregation between forestal and open area bird communities. This suggests that the bird communities present in this transitional area between the Amazon Forest and Cerrado, despite co-existing geographically (present in the same region), are segregated into distinct ecological compartments (habitats).

Typical Amazonian bird species (forestal) principally use areas like campinarana and ombrophilous forest, penetrating areas of Cerrado by means of gallery forests. This pattern corroborates the data of Silva (1996), which indicates exactly these forests as corridors of dispersion for birds of the Amazon and Atlantic forests in the direction of the Cerrado. The species *Momotus momota, Dendrocincla merula, Chiroxiphia pareola* and *Xipholena punicea* exemplify this pattern, as they are strictly forestal and were registered in the gallery forests in the region of Serra do Cachimbo. One interesting example of this pattern is the occurrence of two species of the genus *Corythophis,* which present a clear segregation in terms of use of habitat. While *Corythopis torquatus* utilizes forestal areas dominated by ombrophilous and campinarana forests, *Corythopis delalandi* utilizes gallery forests.

Species typical of open areas have already been registered only in arboreal savanna (cerradão), Cerrado *sensu stricto* and campina. Even within this group there is a distinction in the composition of species by vegetation. *Melanopareia torquata,* endemic to Cerrado, is registered only in more savanna-like Cerrado. However, *Cyanocorax cristatellus,* another species endemic to Cerrado, is more frequently in Cerrado *sensu stricto. Xenopipo atronitens,* typical species of Amazonian campinas, was registered in 'Arboreal Savanna', jointly with *Basileuterus flaveolus, Herpsilochmus* aff. *sellowi* and *Neopelma pallescens,* which are species related to areas of Cerrado and dry forests of northeastern Brazil in the region of Caatinga.

In relation to bird richness by vegetation type, ombrophilous forest presented the largest number of species (211), followed by campinarana (157).

This strong transitional characteristic of the region of Serra do Cachimbo, surrounding the two largest Brazilian biomes (the Amazon and the Cerrado) tend to positively influence local avifauna regarding change in composition and structure of habitat. This biogeographic region is presented as an important scenario in the understanding of ecological relations involving bird communities among the two biomes, as they are contrasted by remarkable differences in environmental heterogeneity, forestal covering, temperature, humidity, rainfall etc.

Haffer (1974) indicates the region of the Tapajós-Xingu interfluvium as one of the centers of endemism ('Pará' Center). Posteriorly, Cracaft (1985) also recognized the 'Pará' area of endemism, but nevertheless unites other groups of taxa characteristic of this area (20 taxa), only three of which coincide with Haffer's proposition (1974). Generally, both rightly involve the region of the Tapajós-Xingu interfluvium, the southern limit of which is Serra do Cachimbo. In other words, all of the species related either to the 'Pará' area of endemism or are geographically limited by the Tapajós and Xingu rivers, would have as their southern limit of distribution the region of Serra do Cachimbo.

Of the eleven taxa united by Haffer (1974), six were registered by us in the region of Serra do Cachimbo: *Psophia dextralis, Pyrilia vulturina, Selenidera gouldii, Pteroglossus i. inscriptus* and *Psarocolius b. bifasciatus.* On the other hand, considering the twenty taxa of Cracraft (1985), only six were registered by us: *Rhegmatorhina gymnops, Hemitriccus m. minor, Myiobius barbatus insignis, Dixiphia pipra separabilis, Psarocolius bifasciatus,* and *Hylophilus brunneiceps inornatus,* this latter recorded only by Pinto and Camargo (1957).

These data further strengthen the suggestion that the Serra do Cachimbo region is the southern limit for a whole group of bird species that are geographically related to the Tapajós-Xingu interfluvium. As such, the Serra do Cachimbo region appears biogeographically important. The presence of this ecotonal region is also relevant as seen through the commentary of Cracraft (1985), suggesting that, independent of the mechanism that gave origin to the areas of endemism, the transitional zone between these areas must protect a sufficiently heterogeneous fauna. This is the result of differential expansion of species coming from adjacent areas of endemism.

Important records

Penelope pileata

Endemic to terra-firme forests south of the Amazon River, from the right bank of the lower Madeira until the Amazonian Maranhão (Hoyo 1994). It is part of a complex of species that also include *Penelope ochrogaster* and *P. jacucaca.* The southern limit of its distribution is still little known, and can come close to *P. ochrogaster* in the southeast of Pará. This is where *P. pileata* occurs in Carajás (Pacheco *et al.* 2007), while *P. ochrogaster* was

registered in terra-firme forest at Santana do Araguaia (Silveira, *pers. obs.,* Somenzari *et al.* this volume). Despite its large distribution, its population is diminishing due to intense deforestation and hunting. In CPBV this species is relatively common, and solitary individuals or groups of up to seven birds were registered in the terra-firme forests as well as in some Cerrado *sensu stricto* areas (MPEG 57296, 57922). Our records apparently expand its distribution, to a considerable degree, in the southern direction. This suggests that its occurrence may reach until the state of Mato Grosso, where still no published record of the species exists. Among Cracids, there are a tendency to observe only one species for each genus in a determined area. However, in the CPBV area the presence of three species of the genus *Penelope* (*Penelope superciliaris, P. jacquacu* and *P. pileata*) is remarkable. They were all registered from the same forests, which makes it interesting for ecological studies. Besides these, three more species of this family were recorded (*Aburria cujubi, Crax f. fasciolata* and *Pauxi tuberosa*). The presence of these species of Cracidae indicates that the area is in an excellent state of conservation, with very low pressure from hunting. It also indicates that CPBV can be designated as an important area for the conservation of Cracids in the south of Pará.

Aratinga pertinax paraensis

This parakeet is part of a group (*sensu* Silveira *et al.* 2005) that includes *Aratinga aurea, A. nana, A. caniculares* and *A. cactorum,* the last of which is probably its sister group. The species of this group share a unique pattern of coloration of remiges as in the adopted guidelines of the polyphyletic genus *Aratinga. Aratinga pertinax* possesses about 15 subspecies (Rowley and Collar 1997), all habitants of open areas and/or xeric environments, aside from insular forms. Only *A. p. paraensis* occurs to the south of Amazonas, specifically in southern Pará, where it was described from specimens obtained from the upper course of the Cururu River, lying within the area of CPBV (Sick 1963). In CPBV there is s taxon commonly found in xeric areas, in couples or small familiar groups, which eventually use areas of Cerrado *sensu stricto* (MPEG 57302). *Aratinga p. paraensis* appears to be more closely related to *A. cactorum* (Silveira, *pers. obs.*), than with the other members of the *A. pertinax* complex. This also represents a biogeographical pattern more consistent with the avifauna of Serra do Cachimbo (see, p. ex., *Herpsilochmus* aff. *sellowi*). The specimens analyzed (Silveira, *pers. obs.*) indicate consistent diagnostic characters, strongly suggesting that *Aratinga paraensis* is a valid taxon related to, yet independent of, *A. cactorum.* The taxonomy of the *A. pertinax* complex must be urgently reevaluated, and many described subspecies certainly represent valid taxa.

Chordeiles pusillus saturatus

This is a little known form described from Serra do Cachimbo (MZUSP 38262 and 38263; Pinto and Camargo 1957). It is locally common as it is easily found in Cerrado areas, especially those which have rocky outcrops. It is particularly found during early morning and is easily detected through its characteristic vocalization. The six taxa currently grouped under the name *Chordeiles pusillus,* distributed throughout the open landscapes of a good part of South America, present great intraspecific variability of plumage, which could have lead to the description of invalid evolutionary units. A taxonomic revision of the group, using vocal, morphological and molecular characters, is important in order to have a more precise idea about its diversity and diversification processes.

Melanopareia torquata

Species endemic to Cerrado (Silva 1995, Silva and Santos 2005), distributed from the northeast of Brazil through the North of Bolivia (Krabbe and Schulenberg 2003). It is relatively common in Cerrado *sensu stricto* (MZUSP 38283; Pinto and Camargo 1957), where it always vocalizes near the ground. During fieldwork it was possible to record the characteristic vocalization of this species on various occasions, always in Cerrado *sensu stricto* areas. The specimens collected at CPBV agree with the nominate form.

Herpsilochmus* aff. *sellowi

Among the most important findings the presence of this taxon is remarkable. It appears that it is more related to *H. sellowi,* endemic to Caatinga (see *Aratinga pertinax paraensis*). However, the specimens found in CPBV present consistent differences in morphology and vocalization which are distinct from other species of the genus. Two males and three females were collected (MPEG 57347-51), aside from recordings of its vocalization on diverse opportunities. In the area of CPBV this species is relatively common in arboreal savanna areas and along the border of Cerrado *sensu stricto* and campinarana.

Elaenia ruficeps

This is a species with geographic distribution predominantly to the north of the Amazon River. It is extremely punctual and has very few records to the south of Amazonas (Fitzpatrick, 2004). One of the few records of the species to the south of Amazonas is precisely in the region of the Cururu River, which lies inside the CPBV area in Serra do Cachimbo, the area studied by Helmut Sick in the years 1956-1957 (Sick 1997). On August 27,

2003 we collected an individual of *Elaenia ruficeps* in an area where a gallery forest is juxtaposed with the border of a campina forest (MPEG 57382). In CPBV this species appears to be rare.

Xenopipo atronitens

This species is widely found in Amazonia. Nevertheless, it presents a strong association with open habitats like campinas and campinaranas beneath sandy ground, which implicates an extremely fragmented and of punctual distribution (Snow 2004). In the CPBV area, we collected eight specimens (MPEG 57402, 57403, 57404, 57405, 57406, 57988, 57989, 57990), all found in campina, campinarana and gallery forest.

Cyanocorax chrysops

The taxon which occurs in Serra do Cachimbo has uncertain taxonomic *status.* The birds of Serra do Cachimbo were initially considered to be *C. c. diesinguii* (MZUSP 38577, 38578, 38579; Pinto and Camargo 1957), a subspecies still little known. Other records are from the falls of the Madeira River and the upper Tapajós, whose holotype is from the border of Amazonas State (Blake and Vaurie 1962). Posteriorly, Pinto and Camargo (1961) examined specimens of *Cyanocorax chrysops* at MZUSP, and reclassified the specimens of Serra do Cachimbo. They described a new subspecies based on this material, designating the taxon *Cyanocorax chrysops insperatus* Pinto and Camargo, 1961. However, most recent authors ignore this subspecies, which seems to be more related to *Cyanocorax cyanopogon,* a taxon typically found in Caatinga and other open areas in the Brazil. This is a pattern shared with other taxa of xeric areas (see *Herpsilochmus* aff. *sellowi* and *Aratinga pertinax paraensis*). In CPBV we collected three specimens, all in Cerrado *sensu stricto*/cerradão area (MPEG 57440, 57468, 57469). At this locality the species is common, living in large groups among the understory of the driest areas of the region, and is syntopically found with *Cyanocorax cristatellus.*

AKNOWLEDGEMENTS

This work had financial support from PROBIO-MMA as a component of the project "Landscapes and Biodiversity: An Integrated Perspective for the Inventory and Conservation of Serra do Cachimbo" (68.0024/02-6). We are grateful to FAB (Força Aérea Brasileira) for logistical support and authorization to realize fieldwork in the interior of the Campo de Provas Brigadeiro Veloso area. We are also grateful to the Museu Paraense Emílio Goeldi for logistical support in the cession of vehicles for team transport to the work area. UPS Brasil (Bruno Ehlers) provided field and laboratory equipment. LFS receives a grant from CNPq and is an *Associate Researcher* of the World Pheasant Association.

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APPENDIX: List of species recorded in the area of Serra do Cachimbo, Campo de Provas Brigadeiro Veloso.
Areas: (1) Cristalino River; (2) Tower 2; (3) São Francisco Farm, (4) Access road to the base, (5) Trosoba Creek, and (6) Olho-d'água.
Evidence: M(a) = species collected in this work, M(b) = species recorded by J. Hidasi (MPEG), M(c) = species recorded by Pinto and Camargo (1957), (Ob) species observed during this work, (Vr) voice recorded.
Habitat: (Fo) = ombrophilous forest, (Ig) = *Igapó*, (Cp) = forested campinarana, (Sa) = arboreal savanna (cerradão), (Cs) = Cerrado *sensu stricto,* (Cm) = campina, (Mg) = gallery forest.

TAXON	ENGLISH NAME	AREAS	HABITAT	EVIDENCE
Tinamiformes Huxley, 1872				
Tinamidae Gray, 1840				
Tinamus tao Temminck, 1815	Gray Tinamou	1,2	Fo;Cp	M(a);M(b);M(c)
Tinamus major (Gmelin, 1789)	Great Tinamou	1,3	Fo	M(a);M(b);M(c)
Crypturellus cinereus (Gmelin, 1789)	Cinereous Tinamou	1,3	Fo	M(a);M(c)
Crypturellus soui (Hermann, 1783)	Little Tinamou	1,2	Fo;Cp	Ob;Vr
Crypturellus undulatus (Temminck, 1815)	Undulated Tinamou	1	Fo	M(a);M(b);M(c)
Crypturellus strigulosus (Temminck, 1815)	Brazilian Tinamou	1,2	Fo;Cp	Ob;Vr
Crypturellus variegatus (Gmelin, 1789)	Variegated Tinamou	1	Fo	Ob;Vr
Crypturellus parvirostris (Wagler, 1827)	Small-billed Tinamou	4,5	Sa;Cs	M(a);M(b);M(c)
Crypturellus tataupa (Temminck, 1815)	Tataupa Tinamou	6	Cs	Ob;Vr
Anseriformes Linnaeus, 1758				
Anhimidae Stejneger, 1885				
Dendrocygna viduata (Linnaeus, 1766)	White-faced Whistling-Duck	6	Ig	Ob
Cairina moschata (Linnaeus, 1758)	Muscovy Duck	Pinto and Camargo	Ig	M(c)
Galliformes Linnaeus, 1758				
Cracidae Rafinesque, 1815				
Ortalis superciliaris (Gray, 1867)	Buff-browed Chachalaca	1,2,3,4,5,6	Fo;Cp;Sa;Cs	M(a);M(c)
Penelope jacquacu Spix, 1825	Spix's Guan	1,2,5	Fo;Cp;Cs	M(a)
Penelope pileata Wagler, 1830	White-crested Guan	2,5,6	Cs	M(a)
Aburria cujubi (Pelzeln, 1858)	Red-throated Piping-Guan	1,2,3,6	Fo;Cp;Cs	M(a);M(c)
Pauxi tuberosa (Spix, 1825)	Razor-billed Curassow	1,2,3	Fo;Cp	M(a);M(b);M(c)
Crax fasciolata Spix, 1825	Bare-faced Curassow	1,2,3	Fo;Cp	M(a);M(c)
Odontophoridae Gould, 1844				
Odontophorus gujanensis (Gmelin, 1789)	Marbled Wood-Quail	1,3	Fo	M(a);M(b);M(c)
Ciconiiformes Bonaparte, 1854				
Phalacrocoracidae Reichenbach, 1849				
Phalacrocorax brasilianus (Gmelin, 1789)	Neotropic Cormorant	Pinto and Camargo	Ig	M(c)
Anhingidae Reichenbach, 1849				
Anhinga anhinga (Linnaeus, 1766)	Anhinga	1	Ig	Ob
Pelecaniformes Sharpe, 1891				
Ardeidae Leach, 1820				
Tigrisoma lineatum (Boddaert, 1783)	Rufescent Tiger-Heron	1	Ig	Ob
Agamia agami (Gmelin, 1789)	Agami Heron	Pinto and Camargo	Ig	M(c)
Butorides striata (Linnaeus, 1758)	Striated Heron	Pinto and Camargo	Ig	M(c)
Bubulcus ibis (Linnaeus, 1758)	Cattle Egret	1	Ig	Ob
Ardea alba Linnaeus, 1758	Great Egret	2,5	Cs	Ob
Pilherodius pileatus (Boddaert, 1783)	Capped Heron	2,3	Ig;Cs	M(a)
Egretta thula (Molina, 1782)	Snowy Egret	2,5	Cs	Ob
Threskiornithidae Poche, 1904				
Mesembrinibis cayennensis (Gmelin, 1789)	Green Ibis	1	Ig	M(a);M(b);M(c)
Phimosus infuscatus (Lichtenstein, 1823)	Bare-faced Ibis	1	Ig	Ob
Cathartiformes Seebohm, 1890				
Cathartidae Lafresnaye, 1839				
Cathartes aura (Linnaeus, 1758)	Turkey Vulture	1,3,5,6	Fo;Cs	Ob
Cathartes burrovianus Cassin, 1845	Lesser Yellow-headed Vulture	2,5	Cs	Ob
Cathartes melambrotus Wetmore, 1964	Greater Yellow-headed Vulture	1,2,3	Fo;Cp	Ob
Coragyps atratus (Bechstein, 1793)	Black Vulture	1,2,3,4,6	Fo;Cs;Sa	Ob
Sarcoramphus papa (Linnaeus, 1758)	King Vulture	2	Cp	Ob
Accipitriformes Bonaparte, 1831				
Accipitridae Vigors, 1824				
Elanoides forficatus (Linnaeus, 1758)	Swallow-tailed Kite	1	Sa;Cs;Cm	Ob

TAXON	ENGLISH NAME	AREAS	HABITAT	EVIDENCE
Gampsonyx swainsonii Vigors, 1825	Pearl Kite	Hidasi/Pinto and Camargo	Sa;Cs;Cm	M(b);M(c)
Harpagus bidentatus (Latham, 1790)	Double-toothed Kite	Pinto and Camargo	Fo	M(c)
Accipiter bicolor (Vieillot, 1817)	Bicolored Hawk	1,3	Fo	Ob
Ictinia plumbea (Gmelin, 1788)	Plumbeous Kite	1,2,3,4,6	Fo;Cs;Sa	Ob
Geranospiza caerulescens (Vieillot, 1817)	Crane Hawk	2,5	Cs	Ob
Heterospizias meridionalis (Latham, 1790)	Savanna Hawk	Pinto and Camargo	Cs;Cm	M(c)
Urubitinga urubitinga (Gmelin, 1788)	Great Black-Hawk	1	Ig	M(a);M(b);M(c)
Rupornis magnirostris (Gmelin, 1788)	Roadside Hawk	1,5	Fo;Ig;Cs	M(a);M(b);M(c)
Geranoaetus albicaudatus (Vieillot, 1816)	White-tailed Hawk	5,6	Cs	M(a);M(c)
Buteo brachyurus Vieillot, 1816	Short-tailed Hawk	1	Fo	Ob
Buteo swainsoni Bonaparte, 1838	Swainson's Hawk	1	Sa;Cs;Cm	Ob
Spizaetus ornatus (Daudin, 1800)	Ornate Hawk-Eagle	1	Fo	Ob;Vr
Falconiformes Bonaparte, 1831				
Falconidae Leach, 1820				
Daptrius ater Vieillot, 1816	Black Caracara	1,2	Fo;Cp	M(a);M(b);M(c)
Ibycter americanus (Boddaert, 1783)	Red-throated Caracara	1,2,3	Fo;Cp	M(a);M(b);M(c)
Caracara plancus (Miller, 1777)	Southern Caracara	5,6	Cs	Ob
Milvago chimachima (Vieillot, 1816)	Yellow-headed Caracara	1,5,6	Fo;Cp;Cs	M(a);M(b);M(c)
Herpetotheres cachinnans (Linnaeus, 1758)	Laughing Falcon	2,5	Fo;Cp;Cs	Ob
Micrastur ruficollis (Vieillot, 1817)	Barred Forest-Falcon	2,3	Fo;Cp	Ob;Vr
Micrastur mintoni Whittaker, 2002	Cryptic Forest-Falcon	2,3	Fo;Cp	M(a);M(b);M(c)
Eurypygiformes Furbringer, 1888				
Eurypygidae Selby, 1840				
Eurypyga helias (Pallas, 1781)	Sunbittern	Hidasi/Pinto and Camargo	Ig	M(b);M(c)
Gruiformes Bonaparte, 1854				
Psophiidae Bonaparte, 1831				
Psophia viridis Spix, 1825	Green-winged Trumpeter	1,3	Fo	M(a)
Rallidae Rafinesque, 1815				
Laterallus viridis (Statius Muller, 1776)	Russet-crowned Crake	6	Cs;Cm	M(a)
Porzana albicollis (Vieillot, 1819)	Ash-throated Crake	1	Ig	Ob;Vr
Neocrex erythrops (Sclater, 1867)	Paint-billed Crake	Pinto and Camargo	Ig	M(c)
Heliornithidae Gray, 1840				
Heliornis fulica (Boddaert, 1783)	Sungrebe	Pinto and Camargo	Ig	M(c)
Cariamiformes Furbringer, 1888				
Cariamidae Bonaparte, 1850				
Cariama cristata (Linnaeus, 1766)	Red-legged Seriema	5,6	Cs;Cm	M(a)
Charadriiformes Huxley, 1867				
Charadriidae Leach, 1820				
Vanellus chilensis (Molina, 1782)	Southern Lapwing	5,6	Cs;Cm	Ob
Pluvialis dominica (Statius Muller, 1776)	American Golden-Plover	Pinto and Camargo	Cm	M(c)
Scolopacidae Rafinesque, 1815				
Gallinago paraguaiae (Vieillot, 1816)	South American Snipe	Hidasi	Cs;Cm	M(b)
Bartramia longicauda (Bechstein, 1812)	Upland Sandpiper	Pinto and Camargo	Cs;Cm	M(c)
Actitis macularius (Linnaeus, 1766)	Spotted Sandpiper	6	Cs;Cm	M(a);M(b);M(c)
Tringa solitaria Wilson, 1813	Solitary Sandpiper	Hidasi/Pinto and Camargo	Cs;Cm	M(b);M(c)
Tringa melanoleuca (Gmelin, 1789)	Greater Yellowlegs	Pinto and Camargo	Cs;Cm	M(c)
Tringa flavipes (Gmelin, 1789)	Lesser Yellowlegs	Pinto and Camargo	Cs;Cm	M(c)
Calidris fuscicollis (Vieillot, 1819)	White-rumped Sandpiper	Pinto and Camargo	Cs;Cm	M(c)
Columbiformes Latham, 1790				
Columbidae Leach, 1820				
Columbina talpacoti (Temminck, 1811)	Ruddy Ground-Dove	4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Claravis pretiosa (Ferrari-Perez, 1886)	Blue Ground-Dove	4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Patagioenas speciosa (Gmelin, 1789)	Scaled Pigeon	1,2,3,4,5,6	Fo;Cp;Sa;Cs	M(a);M(b);M(c)
Patagioenas cayennensis (Bonnaterre, 1792)	Pale-vented Pigeon	1,2,3,4,5,6	Fo;Ig;Sa;Cs	M(a);M(b);M(c)
Patagioenas subvinacea (Lawrence, 1868)	Ruddy Pigeon	1,3	Fo	Ob;Vr

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Leptotila verreauxi Bonaparte, 1855	White-tipped Dove	1,3,5,6	Fo;Cs;Cm	M(a);M(b);M(c)
Leptotila rufaxilla (Richard and Bernard, 1792)	Gray-fronted Dove	1,4,6	Fo;Cs	M(a);M(b);M(c)
Geotrygon montana (Linnaeus, 1758)	Ruddy Quail-Dove	1,3	Fo	M(a);M(b);M(c)
Psittaciformes Wagler, 1830				
Psittacidae Rafinesque, 1815				
Anodorhynchus hyacinthinus (Latham, 1790)	Hyacinth Macaw	6	Fo	Ob
Ara ararauna (Linnaeus, 1758)	Blue-and-yellow Macaw	5,6	Fo;Cs	M(a);M(b);M(c)
Ara macao (Linnaeus, 1758)	Scarlet Macaw	1,2,3	Fo;Cp	Ob;Vr
Ara chloropterus Gray, 1859	Red-and-green Macaw	1,2,3,6	Fo;Cp;Cs	Ob;Vr
Ara severus (Linnaeus, 1758)	Chestnut-fronted Macaw	1,2,3,6	Fo;Ig;Cp;Cs	Ob;Vr
Orthopsittaca manilata (Boddaert, 1783)	Red-bellied Macaw	6	Fo;Cp;Sa;Cs	M(a);M(b);M(c)
Diopsittaca nobilis (Linnaeus, 1758)	Red-shouldered Macaw	1,2	Fo;Cp	M(a);M(b);M(c)
Aratinga leucophthalma (Statius Muller, 1776)	White-eyed Parakeet	1,2	Fo;Ig;Cp;Cs	Ob;Vr
Aratinga aurea (Gmelin, 1788)	Peach-fronted Parakeet	4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Aratinga pertinax (Linnaeus, 1758)	Brown-throated Parakeet	6	Sa;Cs;Cm	M(a)
Pyrrhura picta (Statius Muller, 1776)	Painted Parakeet	1,2,3,6	Fo;Cp	M(a);M(b);M(c)
Forpus xanthopterygius (Spix, 1824)	Blue-winged Parrotlet	1,2,4,5,6	Fo;Sa;Cs	Ob;Vr
Brotogeris versicolurus (Statius Muller, 1776)	Canary-winged Parakeet	Hidasi	Fo	M(b)
Brotogeris chiriri (Vieillot, 1818)	Yellow-chevroned Parakeet	1,2,4,5,6	Fo;Cp;Sa;Cs	M(a);M(b);M(c)
Brotogeris cyanoptera (Pelzeln, 1870)	Cobalt-winged Parakeet	2,3	Fo;Cp	M(a)
Pionites leucogaster (Kuhl, 1820)	White-bellied Parrot	2,3	Fo;Cp	M(a)
Pyrilia vulturina (Kuhl, 1820)	Vulturine Parrot	1,2	Fo;Ig;Cp	Ob;Vr
Pyrilia aurantiocephala (Gaban-Lima, Raposo and Höfling, 2002)	Bald Parrot	1,2	Fo;Cp	Ob
Pionus menstruus (Linnaeus, 1766)	Blue-headed Parrot	1,2,3,6	Fo;Cp	M(a);M(b);M(c)
Amazona kawalli Grantsau and Camargo, 1989	Kawall's Parrot	1,2,3	Fo;Cp	Ob;Vr
Amazona farinosa (Boddaert, 1783)	Mealy Parrot	1,2,3	Fo;Cp	Ob;Vr
Amazona amazonica (Linnaeus, 1766)	Orange-winged Parrot	1,2	Fo;Cp	M(a)
Amazona ochrocephala (Gmelin, 1788)	Yellow-crowned Parrot	1,2,3	Fo;Cp	M(a)
Cuculiformes Wagler, 1830				
Cuculidae Leach, 1820				
Piaya cayana (Linnaeus, 1766)	Squirrel Cuckoo	Pinto and Camargo	Fo;Ig	M(c)
Piaya melanogaster (Vieillot, 1817)	Black-bellied Cuckoo	1	Fo	Ob
Coccyzus melacoryphus Vieillot, 1817	Dark-billed Cuckoo	Pinto and Camargo	Cp	M(c)
Crotophaga major Gmelin, 1788	Greater Ani	1,5	Ig;Cm	M(a);M(b);M(c)
Crotophaga ani Linnaeus, 1758	Smooth-billed Ani	2,3,4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Tapera naevia (Linnaeus, 1766)	Striped Cuckoo	Hidasi/Pinto and Camargo	Ig;Cs;Cm	M(b);M(c)
Strigiformes Wagler, 1830				
Strigidae Leach, 1820				
Megascops choliba (Vieillot, 1817)	Tropical Screech-Owl	1	Ig	Ob;Vr
Megascops usta (Sclater, 1858)	Austral Screech-Owl	1	Fo	M(a);M(b);M(c)
Strix virgata (Cassin, 1849)	Mottled Owl	1	Fo	Ob;Vr
Athene cunicularia (Molina, 1782)	Burrowing Owl	2,6	Cs	Ob
Caprimulgiformes Ridgway, 1881				
Nyctibiidae Chenu and Des Murs, 1851				
Nyctibius griseus (Gmelin, 1789)	Common Potoo	1,2	Fo;Cp	M(a)
Caprimulgidae Vigors, 1825				
Antrostomus rufus (Boddaert, 1783)	Rufous Nightjar	1,2	Fo;Ig;Cs	M(a)
Lurocalis semitorquatus (Gmelin, 1789)	Short-tailed Nighthawk	2		Ob;Vr
Hydropsalis nigrescens (Cabanis, 1848)	Blackish Nightjar	1	Fo	Ob;Vr
Hydropsalis albicollis (Gmelin, 1789)	Pauraque	1,2,4,5,6	Cs;Sa;Cm	Ob;Vr
Hydropsalis parvula (Gould, 1837)	Little Nightjar	2	Sa;Cs	Ob;Vr
Hydropsalis torquata (Gmelin, 1789)	Scissor-tailed Nightjar	1,2,4,5,6	Fo;Cs;Sa;Cm	M(a);M(b);M(c)
Chordeiles pusillus Gould, 1861	Least Nighthawk	1,2,5	Cs;Cm	M(a);M(b);M(c)
Chordeiles nacunda (Vieillot, 1817)	Nacunda Nighthawk	1,2,4,5,6	Cs;Sa;Cm	M(a);M(b);M(c)
Chordeiles minor (Forster, 1771)	Common Nighthawk	1	Ig	Ob;Vr

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Apodiformes Peters, 1940				
Apodidae Olphe-Galliard, 1887				
Cypseloides senex (Temminck, 1826)	Great Dusky Swift	6	Ig	M(a);M(b);M(c)
Chaetura spinicaudus (Temminck, 1839)	Band-rumped Swift	2,5,6	Cp;Cs;Cm	Ob
Chaetura brachyura (Jardine, 1846)	Short-tailed Swift	2,3	Fo;Cp;Cs	Ob
Tachornis squamata (Cassin, 1853)	Fork-tailed Palm-Swift	1,2,3,4,5,6	Ig;Cs;Sa;Cm	M(a);M(b);M(c)
Trochilidae Vigors, 1825				
Phaethornis ruber (Linnaeus, 1758)	Reddish Hermit	1,3	Fo	Ob
Campylopterus largipennis (Boddaert, 1783)	Gray-breasted Sabrewing	1,2,3	Fo;Cp	Ob
Anthracothorax nigricollis (Vieillot, 1817)	Black-throated Mango	2	Cs;Cm	Ob
Chrysolampis mosquitus (Linnaeus, 1758)	Ruby-topaz Hummingbird	1	Fo	M(a);M(b);M(c)
Lophornis gouldii (Lesson, 1832)	Dot-eared Coquette	Pinto and Camargo	Fo	M(c)
Chlorostilbon notatus (Reich, 1793)	Blue-chinned Sapphire	Hidasi/Pinto and Camargo	Cs;Cm	M(b);M(c)
Thalurania furcata (Gmelin, 1788)	Fork-tailed Woodnymph	1,2	Fo;Ig;Cp;Cs	M(a);M(b);M(c)
Polytmus guainumbi (Pallas, 1764)	White-tailed Goldenthroat	5,6	Cs;Cm	Ob
Amazilia versicolor (Vieillot, 1818)	Versicolored Emerald	Hidasi/Pinto and Camargo	Fo;Cp	M(b);M(c)
Heliothryx auritus (Gmelin, 1788)	Black-eared Fairy	Pinto and Camargo	Cs;Cm	M(c)
Heliomaster longirostris (Audebert and Vieillot, 1801)	Long-billed Starthroat	Pinto and Camargo	Fo	M(c)
Calliphlox amethystina (Boddaert, 1783)	Amethyst Woodstar	Hidasi	Fo	M(b)
Trogoniformes A. O. U., 1886				
Trogonidae Lesson, 1828				
Trogon melanurus Swainson, 1838	Black-tailed Trogon	1,3	Fo	M(a);M(b);M(c)
Trogon viridis Linnaeus, 1766	White-tailed Trogon	1,2	Fo;Cp	M(a);M(b);M(c)
Trogon ramonianus Deville and DesMurs, 1849	Amazonian Trogon	Pinto and Camargo	Fo	M(c)
Trogon curucui Linnaeus, 1766	Blue-crowned Trogon	1,3	Ig	Ob;Vr
Trogon rufus Gmelin, 1788	Black-throated Trogon	1,3	Fo	M(a);M(b);M(c)
Trogon collaris Vieillot, 1817	Collared Trogon	1,3	Fo	M(a);M(b);M(c)
Pharomachrus pavoninus (Spix, 1824)	Pavonine Quetzal	2	Cp	Ob;Vr
Coraciiformes Forbes, 1844				
Alcedinidae Rafinesque, 1815				
Megaceryle torquata (Linnaeus, 1766)	Ringed Kingfisher	6	Ig	Ob
Chloroceryle amazona (Latham, 1790)	Amazon Kingfisher	6	Ig	M(a);M(b);M(c)
Chloroceryle americana (Gmelin, 1788)	Green Kingfisher	Hidasi	Ig	M(b)
Chloroceryle inda (Linnaeus, 1766)	Green-and-rufous Kingfisher	Pinto and Camargo	Ig	M(c)
Momotidae Gray, 1840				
Momotus momota (Linnaeus, 1766)	Amazonian Motmot	1,2,3	Fo;Cp	Ob;Vr
Galbuliformes Fürbringer, 1888				
Galbulidae Vigors, 1825				
Brachygalba lugubris (Swainson, 1838)	Brown Jacamar	1,4,5,6	Fo;Sa;Cs	M(a);M(c)
Galbula cyanicollis Cassin, 1851	Blue-cheeked Jacamar	Pinto and Camargo	Fo	M(c)
Galbula ruficauda Cuvier, 1816	Rufous-tailed Jacamar	5,6	Cs	Ob;Vr
Galbula leucogastra Vieillot, 1817	Bronzy Jacamar	1	Fo	Ob;Vr
Galbula dea (Linnaeus, 1758)	Paradise Jacamar	1,2	Fo;Cp	M(a);M(c)
Jacamerops aureus (Statius Muller, 1776)	Great Jacamar	1,3	Fo	Ob;Vr
Bucconidae Horsfield, 1821				
Notharchus tectus (Boddaert, 1783)	Pied Puffbird	3	Fo	M(a)
Bucco tamatia Gmelin, 1788	Spotted Puffbird	4	Sa	M(a)
Malacoptila rufa (Spix, 1824)	Rufous-necked Puffbird	1	Fo	M(a)
Monasa nigrifrons (Spix, 1824)	Black-fronted Nunbird	1,2	Fo;Ig;Cp	M(a);M(b);M(c)
Chelidoptera tenebrosa (Pallas, 1782)	Swallow-winged Puffbird	1,2,4,5,6	Fo;Ig;Cp;Cs;Sa;Cm	M(a);M(b);M(c)
Piciformes Meyer and Wolf, 1810				
Ramphastidae Vigors, 1825				
Ramphastos toco Statius Muller, 1776	Toco Toucan	4,5	Sa;Cs	Ob
Ramphastos tucanus Linnaeus, 1758	White-throated Toucan	1,2,3	Fo;Ig;Cp	Ob;Vr
Ramphastos vitellinus Lichtenstein, 1823	Channel-billed Toucan	1,2,3	Fo;Ig;Cp	M(a);M(c)

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Selenidera gouldii (Natterer, 1837)	Gould's Toucanet	2	Cp	M(a)
Pteroglossus viridis (Linnaeus, 1766)	Green Aracari	Pinto and Camargo	Fo	M(c)
Pteroglossus inscriptus Swainson, 1822	Lettered Aracari	1,4,6	Fo;Ig;Sa	Ob;Vr
Pteroglossus aracari (Linnaeus, 1758)	Black-necked Aracari	1,3	Fo;Ig	Ob;Vr
Pteroglossus beauharnaesii Wagler, 1832	Curl-crested Aracari	4	Sa	Ob
Picidae Leach, 1820				
Picumnus aurifrons Pelzeln, 1870	Bar-breasted Piculet	1	Fo;Ig	M(a);M(b);M(c)
Melanerpes cruentatus (Boddaert, 1783)	Yellow-tufted Woodpecker	1,3	Fo	M(a);M(b);M(c)
Veniliornis affinis (Swainson, 1821)	Red-stained Woodpecker	Pinto and Camargo	Fo	M(c)
Piculus flavigula (Boddaert, 1783)	Yellow-throated Woodpecker	2,3	Fo;Cp	M(a);M(b);M(c)
Piculus chrysochloros (Vieillot, 1818)	Golden-green Woodpecker	3	Fo	M(a)
Celeus elegans (Statius Muller, 1776)	Chestnut Woodpecker	Pinto and Camargo	Fo	M(c)
Celeus torquatus (Boddaert, 1783)	Ringed Woodpecker	1	Fo	Ob;Vr
Dryocopus lineatus (Linnaeus, 1766)	Lineated Woodpecker	Hidasi/Pinto and Camargo	Fo	M(b);M(c)
Campephilus rubricollis (Boddaert, 1783)	Red-necked Woodpecker	1,3	Fo	M(a);M(b);M(c)
Passeriformes Linnaeus, 1758				
Thamnophilidae Swainson, 1824				
Myrmeciza atrothorax (Boddaert, 1783)	Black-throated Antbird	1,3	Fo;Ig	M(a);M(b);M(c)
Myrmotherula brachyura (Hermann, 1783)	Pygmy Antwren	Pinto and Camargo	Fo;Ig	M(c)
Myrmotherula hauxwelli (Sclater, 1857)	Plain-throated Antwren	1,2	Fo;Cp	M(a)
Myrmotherula axillaris (Vieillot, 1817)	White-flanked Antwren	1,2,3	Fo;Ig;Cp	M(a);M(c)
Formicivora grisea (Boddaert, 1783)	White-fringed Antwren	4,5,6	Sa;Cs	M(a);M(b);M(c)
Formicivora rufa (Wied, 1831)	Rusty-backed Antwren	6	Cs	Ob;Vr
Thamnomanes caesius (Temminck, 1820)	Cinereous Antshrike	1,3	Fo	M(a);M(b);M(c)
Herpsilochmus aff. *sellowi* Whitney and Pacheco, 2000	Caatinga Antwren	4,5	Sa	M(a);M(c)
Herpsilochmus rufimarginatus (Temminck, 1822)	Rufous-winged Antwren	1,2	Fo;Cp	M(a)
Thamnophilus doliatus (Linnaeus, 1764)	Barred Antshrike	1,2,3,4,5,6	Fo;Cp;Sa;Cs	Ob;Vr
Thamnophilus torquatus Swainson, 1825	Rufous-winged Antshrike	Hidasi/Pinto and Camargo	Cs;Cm	M(b);M(c)
Thamnophilus schistaceus d'Orbigny, 1835	Plain-winged Antshrike	1,2,3	Fo;Cp	Ob;Vr
Thamnophilus murinus Sclater and Salvin, 1868	Mouse-colored Antshrike	1,2	Fo;Cp	Ob;Vr
Thamnophilus stictocephalus Pelzeln, 1868	Natterer's Slaty-Antshrike	4,5,6	Sa	M(a);M(c)
Thamnophilus amazonicus Sclater, 1858	Amazonian Antshrike	2	Fo	M(a)
Cymbilaimus lineatus (Leach, 1814)	Fasciated Antshrike	1,3	Fo	M(a);M(b);M(c)
Taraba major (Vieillot, 1816)	Great Antshrike	1,2,3,4,6	Ig;Cs;Sa	Ob;Vr
Sclateria naevia (Gmelin, 1788)	Silvered Antbird	Pinto and Camargo	Fo	M(c)
Schistocichla rufifacies (Hellmayr, 1929)	Rufous-faced Antbird	1,3	Fo	M(a);M(c)
Hypocnemoides maculicauda (Pelzeln, 1868)	Band-tailed Antbird	Pinto and Camargo	Ig	M(c)
Hypocnemoides melanopogon (Sclater, 1857)	Black-chinned Antbird	1,2,3	Ig;Cp	Ob;Vr
Hylophylax naevius (Gmelin, 1789)	Spot-backed Antbird	Pinto and Camargo	Fo	M(c)
Myrmoborus leucophrys (Tschudi, 1844)	White-browed Antbird	2,6	Fo;Cp	M(a)
Myrmoborus myotherinus (Spix, 1825)	Black-faced Antbird	2	Fo;Cp	M(a)
Cercomacra cinerascens (Sclater, 1857)	Gray Antbird	1,3	Fo	Ob;Vr
Cercomacra nigrescens (Cabanis and Heine, 1859)	Blackish Antbird	Hidasi	Fo	M(b)
Hypocnemis striata (Spix, 1825)	Spix's Warbling-Antbird	1,2,3	Fo;Cp	M(a);M(b);M(c)
Willisornis poecilinotus (Cabanis, 1847)	Scale-backed Antbird	1,2	Fo;Cp	M(a);M(c)
Rhegmatorhina gymnops Ridgway, 1888	Bare-eyed Antbird	2	Cp	M(a)
Phlegopsis nigromaculata (d'Orbigny and Lafresnaye, 1837)	Black-spotted Bare-eye	1,3	Fo	M(a)
Melanopareiidae Ericson, Olson, Irested, Alvarenga and Fjeldsa, 2010				
Melanopareia torquata (Wied, 1831)	Collared Crescentchest	5,6	Cs	M(a);M(b);M(c)
Grallariidae Sclater and Salvin, 1873				
Myrmothera campanisona (Hermann, 1783)	Thrush-like Antpitta	1,2,3	Fo;Cp	Ob;Vr
Formicariidae Gray, 1840				
Formicarius colma Boddaert, 1783	Rufous-capped Antthrush	1,2,3,5	Fo;Cp;Sa	M(a)

TAXON	ENGLISH NAME	AREAS	HABITAT	EVIDENCE
Formicarius analis (d'Orbigny and Lafresnaye, 1837)	Black-faced Antthrush	1	Fo	Ob;Vr
Scleruridae Swainson, 1827				
Sclerurus mexicanus Sclater, 1857	Tawny-throated Leaftosser	1,3	Fo	Ob;Vr
Sclerurus rufigularis Pelzeln, 1868	Short-billed Leaftosser	2,3	Fo;Cp	M(a)
Sclerurus caudacutus (Vieillot, 1816)	Black-tailed Leaftosser	1,3	Fo	Ob;Vr
Dendrocolaptidae Gray, 1840				
Dendrocincla fuliginosa (Vieillot, 1818)	Plain-brown Woodcreeper	2	Fo	M(a)
Dendrocincla merula (Lichtenstein, 1829)	White-chinned Woodcreeper	1,2,3,4	Fo;Cp	M(a);M(c)
Sittasomus griseicapillus (Vieillot, 1818)	Olivaceous Woodcreeper	1,5	Fo	M(a);M(c)
Certhiasomus stictolaemus (Pelzeln, 1868)	Spot-throated Woodcreeper	2	Fo	M(a)
Glyphorynchus spirurus (Vieillot, 1819)	Wedge-billed Woodcreeper	1,2,3	Fo;Cp	M(a)
Xiphorhynchus spixii (Lesson, 1830)	Spix's Woodcreeper	Pinto and Camargo	Fo	M(c)
Xiphorhynchus obsoletus (Lichtenstein, 1820)	Striped Woodcreeper	Pinto and Camargo	Fo	M(c)
Xiphorhynchus guttatus (Lichtenstein, 1820)	Buff-throated Woodcreeper	Pinto and Camargo	Fo	M(c)
Campylorhamphus procurvoides (Lafresnaye, 1850)	Curve-billed Scythebill	1,2	Fo;Cp	Ob;Vr
Dendroplex picus (Gmelin, 1788)	Straight-billed Woodcreeper	1,2,3	Fo;Ig;Cp	Ob;Vr
Lepidocolaptes albolineatus (Lafresnaye, 1845)	Lineated Woodcreeper	1,2	Fo;Cp	M(a);M(c)
Nasica longirostris (Vieillot, 1818)	Long-billed Woodcreeper	1,2	Ig;Cp	Ob;Vr
Dendrocolaptes certhia (Boddaert, 1783)	Amazonian Barred-Woodcreeper	2	Fo;Cp	M(a);M(c)
Xiphocolaptes promeropirhynchus (Lesson, 1840)	Strong-billed Woodcreeper	1,2	Fo	Ob;Vr
Hylexetastes uniformis Hellmayr, 1909	Uniform Woodcreeper	Pinto and Camargo	Fo	M(c)
Furnariidae Gray, 1840				
Incertae sedis				
Xenops minutus (Sparrman, 1788)	Plain Xenops	1,3	Fo	M(a);M(c)
Xenops rutilans Temminck, 1821	Streaked Xenops	Hidasi/Pinto and Camargo	Fo	M(b);M(c)
Furnariinae Gray, 1840				
Automolus ochrolaemus (Tschudi, 1844)	Buff-throated Foliage-gleaner	1,2	Fo;Cp	Ob;Vr
Philydor erythrocercum (Pelzeln, 1859)	Rufous-rumped Foliage-gleaner	Pinto and Camargo	Fo	M(c)
Synallaxis albescens Temminck, 1823	Pale-breasted Spinetail	6	Cp;Sa	M(a);M(c)
Synallaxis albigularis Sclater, 1858	Dark-breasted Spinetail	1,3	Fo	M(a)
Pipridae Rafinesque, 1815				
Neopelma pallescens (Lafresnaye, 1853)	Pale-bellied Tyrant-Manakin	2	Cp;Sa	M(a)
Tyranneutes stolzmanni (Hellmayr, 1906)	Dwarf Tyrant-Manakin	1,2,3	Fo;Cp	M(a)
Pipra fasciicauda Hellmayr, 1906	Band-tailed Manakin	1,2	Ig;Cp	M(a)
Pipra rubrocapilla Temminck, 1821	Red-headed Manakin	1,2	Fo;Cp	M(a);M(b);M(c)
Lepidothrix nattereri (Sclater, 1865)	Snow-capped Manakin	1,2	Fo;Cp	M(a)
Manacus manacus (Linnaeus, 1766)	White-bearded Manakin	1,2,3	Fo;Cp	M(a);M(b);M(c)
Heterocercus linteatus (Strickland, 1850)	Flame-crowned Manakin	1	Ig	M(a);M(b);M(c)
Machaeropterus pyrocephalus (Sclater, 1852)	Fiery-capped Manakin	1,3	Fo	M(a)
Dixiphia pipra (Linnaeus, 1758)	White-crowned Manakin	1,2,3	Fo;Cp	M(a);M(c)
Xenopipo atronitens Cabanis, 1847	Black Manakin	1	Cp	M(a);M(b);M(c)
Chiroxiphia pareola (Linnaeus, 1766)	Blue-backed Manakin	1,2,3	Fo;Cp	M(a)
Tityridae Gray, 1840				
Onychorhynchus coronatus (Statius Muller, 1776)	Royal Flycatcher	1	Fo	Ob;Vr
Terenotriccus erythrurus (Cabanis, 1847)	Ruddy-tailed Flycatcher	1,3	Fo	M(a);M(c)
Myiobius barbatus (Gmelin, 1789)	Whiskered Flycatcher	1,2	Fo;Cp	Ob
Myiobius atricaudus Lawrence, 1863	Black-tailed Flycatcher	1,2,3	Fo;Cp	M(a);M(c)
Schiffornis turdina (Wied, 1831)	Thrush-like Schiffornis	1,3	Fo;Ig	M(a)
Iodopleura isabellae Parzudaki, 1847	White-browed Purpletuft	Pinto and Camargo	Fo	M(c)
Tityra cayana (Linnaeus, 1766)	Black-tailed Tityra	2,3,6	Cp;Cs	Ob
Tityra semifasciata (Spix, 1825)	Masked Tityra	2	Fo;C'p	M(a);M(b);M(c)
Pachyramphus marginatus (Lichtenstein, 1823)	Black-capped Becard	4,5,6	Sa;Cs	M(a)
Cotingidae Bonaparte, 1849				
Lipaugus vociferans (Wied, 1820)	Screaming Piha	1,2,3	Fo;Cp	M(a);M(b);M(c)
Gymnoderus foetidus (Linnaeus, 1758)	Bare-necked Fruitcrow	1	Ig	M(a);M(c)
Xipholena punicea (Pallas, 1764)	Pompadour Cotinga	2,3	Fo;Cp	M(a)

TAXON	ENGLISH NAME	AREAS	HABITAT	EVIDENCE
Cotinga cayana (Linnaeus, 1766)	Spangled Cotinga	Pinto and Camargo	Fo	M(c)
Querula purpurata (Statius Muller, 1776)	Purple-throated Fruitcrow	2,3	Fo;Cp	M(a);M(c)
Cephalopterus ornatus Geoffroy Saint-Hilaire, 1809	Amazonian Umbrellabird	2,3	Fo;Ig;Cp	M(a);M(b);M(c)
Incertae sedis				
Platyrinchus coronatus Sclater, 1858	Golden-crowned Spadebill	1	Fo	M(a)
Platyrinchus platyrhynchos (Gmelin, 1788)	White-crested Spadebill	2,4	Fo	M(a);M(c)
Neopipo cinnamomea (Lawrence, 1869)	Cinnamon Manakin-Tyrant	1	Fo	Ob
Rhynchocyclidae Berlepsch, 1907				
Mionectes oleagineus (Lichtenstein, 1823)	Ochre-bellied Flycatcher	1,2,3	Fo;Cp	M(a)
Mionectes macconnelli (Chubb, 1919)	McConnell's Flycatcher	1,2	Fo;Cp	Ob
Leptopogon amaurocephalus Tschudi, 1846	Sepia-capped Flycatcher	4,5	Sa;Cs	Ob
Corythopis torquatus (Tschudi, 1844)	Ringed Antpipit	1,3	Fo	M(a);M(b);M(c)
Corythopis delalandi (Lesson, 1830)	Southern Antpipit	Hidasi	Mg	M(b)
Tolmomyias flaviventris (Wied, 1831)	Yellow-breasted Flycatcher	4,5,6	Sa;Cs	M(a)
Hemitriccus minor (Snethlage, 1907)	Snethlage's Tody-Tyrant	1	Fo	Ob;Vr
Hemitriccus zosterops (Pelzeln, 1868)	White-eyed Tody-Tyrant	1,2	Fo;Cp	M(a);M(c)
Hemitriccus margaritaceiventer (d'Orbigny and Lafresnaye, 1837)	Pearly-vented Tody-tyrant	4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Lophotriccus galeatus (Boddaert, 1783)	Helmeted Pygmy-Tyrant	3	Fo	M(a);M(b);M(c)
Tyrannidae Vigors, 1825				
Zimmerius gracilipes (Sclater and Salvin, 1868)	Slender-footed Tyrannulet	Hidasi	Fo	M(b)
Euscarthmus rufomarginatus (Pelzeln, 1868)	Rufous-sided Pygmy-Tyrant	2	Sa;Cs;Cm	Ob;Vr
Camptostoma obsoletum (Temminck, 1824)	Southern Beardless-Tyrannulet	3,4,5,6	Fo;Sa;Cs;Cm	Ob;Vr
Elaenia flavogaster (Thunberg, 1822)	Yellow-bellied Elaenia	2,6	Cs;Sa	M(a);M(b)
Elaenia spectabilis Pelzeln, 1868	Large Elaenia	6	Sa;Cs	M(a);M(b)
Elaenia cristata Pelzeln, 1868	Plain-crested Elaenia	Hidasi/Pinto and Camargo	Sa;Cs;Cm	M(b);M(c)
Elaenia chiriquensis Lawrence, 1865	Lesser Elaenia	2,4,5,6	Sa;Cs;Cm	M(a);M(b)
Elaenia ruficeps Pelzeln, 1868	Rufous-crowned Elaenia	4,5	Sa	M(a)
Myiopagis gaimardii (d'Orbigny, 1839)	Forest Elaenia	1,2,3	Fo;Cp	M(a);M(b)
Myiopagis viridicata (Vieillot, 1817)	Greenish Elaenia	2,6	Cp;Sa	Ob;Vr
Tyrannulus elatus (Latham, 1790)	Yellow-crowned Tyrannulet	4,5,6	Sa;Cs	Ob
Phaeomyias murina (Spix, 1825)	Mouse-colored Tyrannulet	6	Sa;Cs	M(a);M(b);M(c)
Attila spadiceus (Gmelin, 1789)	Bright-rumped Attila	2,3	Fo;Cp	Ob;Vr
Legatus leucophaius (Vieillot, 1818)	Piratic Flycatcher	2,6	Cp;Cs	M(a);M(b);M(c)
Myiarchus swainsoni Cabanis and Heine, 1859	Swainson's Flycatcher	2,4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Myiarchus ferox (Gmelin, 1789)	Short-crested Flycatcher	2,4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Myiarchus tyrannulus (Statius Muller, 1776)	Brown-crested Flycatcher	4,5,6	Sa;Cs;Cm	Ob;Vr
Rhytipterna simplex (Lichtenstein, 1823)	Grayish Mourner	2,6	Cp	Ob;Vr
Casiornis rufus (Vieillot, 1816)	Rufous Casiornis	4,5	Sa;Cs	Ob
Pitangus sulphuratus (Linnaeus, 1766)	Great Kiskadee	1,2,3,4,5,6	Fo;Ig;Cp;Sa;Cs	M(a);M(b);M(c)
Philohydor lictor (Lichtenstein, 1823)	Lesser Kiskadee	2	Cp	Ob;Vr
Myiodynastes maculatus (Statius Muller, 1776)	Streaked Flycatcher	1,2,3,4,5,6	Fo;Cp;Sa;Cs	M(a);M(b);M(c)
Megarynchus pitangua (Linnaeus, 1766)	Boat-billed Flycatcher	2,4,5,6	Fo;Cp;Sa	M(a);M(b);M(c)
Myiozetetes cayanensis (Linnaeus, 1766)	Rusty-margined Flycatcher	Hidasi/Pinto and Camargo	Fo;Ig	M(b);M(c)
Myiozetetes similis (Spix, 1825)	Social Flycatcher	2,4,5,6	Cp;Sa;Cs	Ob;Vr
Tyrannus melancholicus Vieillot, 1819	White-throated Kingbird	1,2,4,5,6	Fo;Ig;Cp;Sa;Cs;Cm	M(a);M(b);M(c)
Tyrannus savana Vieillot, 1808	Fork-tailed Flycatcher	Pinto and Camargo	Cs;Cm	M(c)
Griseotyrannus aurantioatrocristatus (d'Orbigny and Lafresnaye, 1837)	Crowned Slaty Flycatcher	Hidasi	Fo	M(b)
Empidonomus varius (Vieillot, 1818)	Variegated Flycatcher	4,5,6	Sa;Cs;Cm	M(a);M(b);M(c)
Pyrocephalus rubinus (Boddaert, 1783)	Vermilion Flycatcher	Hidasi/Pinto and Camargo	Sa;Cs	M(b);M(c)
Fluvicola pica (Boddaert, 1783)	Pied Water-Tyrant	Hidasi	Sa;Cs;Cm	M(b)
Fluvicola albiventer (Spix, 1825)	Black-backed Water-Tyrant	Hidasi	Sa;Cs;Cm	M(b)
Cnemotriccus fuscatus (Wied, 1831)	Fuscous Flycatcher	4,5,6	Sa;Cs	M(a)

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Lathrotriccus euleri (Cabanis, 1868)	Euler's Flycatcher	6	Sa;Cs	M(a);M(b)
Vireonidae Swainson, 1837				
Cyclarhis gujanensis (Gmelin, 1789)	Rufous-browed Peppershrike	1,2,3,4,5,6	Fo;Ig;Cp;Sa;Cs;Cm	M(a);M(b);M(c)
Vireo olivaceus (Linnaeus, 1766)	Red-eyed Vireo	2	Fo;Ig;Cp;Cs	M(a);M(b);M(c)
Hylophilus brunneiceps Sclater, 1866	Brown-headed Greenlet	Pinto and Camargo	Fo	M(c)
Corvidae Leach, 1820				
Cyanocorax cristatellus (Temminck, 1823)	Curl-crested Jay	4,5,6	Sa;Cs	M(a);M(c)
Cyanocorax chrysops (Vieillot, 1818)	Plush-crested Jay	4,5,6	Sa	M(a);M(c)
Hirundinidae Rafinesque, 1815				
Pygochelidon cyanoleuca (Vieillot, 1817)	Blue-and-white Swallow	6	Ig	Ob
Alopochelidon fucata (Temminck, 1822)	Tawny-headed Swallow	6	Ig	M(a);M(b);M(c)
Atticora fasciata (Gmelin, 1789)	White-banded Swallow	2,6	Ig	Ob
Stelgidopteryx ruficollis (Vieillot, 1817)	Southern Rough-winged Swallow	2,4,5,6	Ig;Sa;Cs;Cm	M(a)
Progne chalybea (Gmelin, 1789)	Gray-breasted Martin	2,4,5,6	Cs;Sa	M(a);M(b);M(c)
Tachycineta albiventer (Boddaert, 1783)	White-winged Swallow	6	Ig	Ob
Tachycineta leucorrhoa (Vieillot, 1817)	White-rumped Swallow	6	Ig	Ob
Hirundo rustica Linnaeus, 1758	Barn Swallow	Pinto and Camargo	Cs	M(c)
Troglodytidae Swainson, 1831				
Microcerculus marginatus (Sclater, 1855)	Scaly-breasted Wren	1	Fo	M(a)
Troglodytes musculus Naumann, 1823	Southern House Wren	1,2,6	Fo;Ig;Cp;Cs	M(a);M(b);M(c)
Pheugopedius genibarbis (Swainson, 1838)	Moustached Wren	Hidasi	Ig	M(b)
Cantorchilus leucotis (Lafresnaye, 1845)	Buff-breasted Wren	1,2,3	Fo;Ig;Cp	Ob;Vr
Cyphorhinus arada (Hermann, 1783)	Musician Wren	1	Fo	M(a);M(b);M(c)
Polioptilidae Baird, 1858				
Ramphocaenus melanurus Vieillot, 1819	Long-billed Gnatwren	Pinto and Camargo	Fo	M(c)
Turdidae Rafinesque, 1815				
Turdus leucomelas Vieillot, 1818	Pale-breasted Thrush	1,2,3,6	Fo;Cp	M(a);M(b);M(c)
Turdus fumigatus Lichtenstein, 1823	Cocoa Thrush	1,2	Fo;Cp	M(a);M(b);M(c)
Turdus ignobilis Sclater, 1858	Black-billed Thrush	1	Fo	M(a);M(b);M(c)
Turdus amaurochalinus Cabanis, 1850	Creamy-bellied Thrush	Hidasi	Fo;Cp;Sa	M(b)
Turdus albicollis Vieillot, 1818	White-necked Thrush	2	Fo	M(a)
Mimidae Bonaparte, 1853				
Mimus saturninus (Lichtenstein, 1823)	Chalk-browed Mockingbird	5,6	Cs;Cm	Ob;Vr
Motacillidae Horsfield, 1821				
Anthus lutescens Pucheran, 1855	Yellowish Pipit	5,6	Cs;Cm	Ob
Coerebidae d'Orbigny and Lafresnaye, 1838				
Coereba flaveola (Linnaeus, 1758)	Bananaquit	2,4,6	Fo;Ig;Cp;Cs;Sa	M(a);M(b);M(c)
Thraupidae Cabanis, 1847				
Saltator grossus (Linnaeus, 1766)	Slate-colored Grosbeak	2	Fo;Cp	Ob;Vr
Saltator maximus (Statius Muller, 1776)	Buff-throated Saltator	2,6	Fo;Cp	M(a);M(b);M(c)
Tachyphonus phoenicius Swainson, 1838	Red-shouldered Tanager	Hidasi/Pinto and Camargo	Fo	M(b);M(c)
Tachyphonus rufus (Boddaert, 1783)	White-lined Tanager	6	Cs;Cm	Ob
Ramphocelus carbo (Pallas, 1764)	Silver-beaked Tanager	1,2,3,5,6	Ig;Cp;Cs	M(a);M(b);M(c)
Lanio luctuosus (d'Orbigny and Lafresnaye, 1837)	White-shouldered Tanager	1,2,3	Fo;Cp	Ob
Lanio cristatus (Linnaeus, 1766)	Flame-crested Tanager	1,2,3,5	Cs	M(a);M(b);M(c)
Lanio surinamus (Linnaeus, 1766)	Fulvous-crested Tanager	1,2,3	Fo;Cp	M(a)
Tangara gyrola (Linnaeus, 1758)	Bay-headed Tanager	2	Fo;Cp	Ob
Tangara schrankii (Spix, 1825)	Green-and-gold Tanager	1,2	Fo;Cp	M(a)
Tangara mexicana (Linnaeus, 1766)	Turquoise Tanager	1	Fo	Ob
Tangara punctata (Linnaeus, 1766)	Spotted Tanager	Pinto and Camargo	Fo	M(c)
Tangara episcopus (Linnaeus, 1766)	Blue-gray Tanager	1,2,3,4,5,6	Fo;Ig:Cp;Cs;Sa	Ob;Vr
Tangara palmarum (Wied, 1823)	Palm Tanager	1,2,3,4,5,6	Fo;Ig:Cp;Cs;Sa	M(a);M(b);M(c)
Tangara nigrocincta (Bonaparte, 1838)	Masked Tanager	Pinto and Camargo	Fo	M(c)
Tangara cyanicollis (d'Orbigny and Lafresnaye, 1837)	Blue-necked Tanager	3,6	Fo	M(a);M(b);M(c)
Tangara cayana (Linnaeus, 1766)	Burnished-buff Tanager	6	Sa;Cs	M(a);M(b);M(c)
Schistochlamys melanopis (Latham, 1790)	Black-faced Tanager	6	Sa;Cs;Cm	M(a);M(b);M(c)

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Schistochlamys ruficapillus (Vieillot, 1817)	Cinnamon Tanager	5,6	Cs;Cm	M(a);M(c)
Paroaria gularis (Linnaeus, 1766)	Red-capped Cardinal	6	Ig	Ob
Tersina viridis (Illiger, 1811)	Swallow Tanager	1,2,3,4,5,6	Fo;Ig;Cp;Sa	M(a);M(c)
Dacnis flaviventer d'Orbigny and Lafresnaye, 1837	Yellow-bellied Dacnis	2,3,6	Fo;Cp	M(a);M(b);M(c)
Dacnis cayana (Linnaeus, 1766)	Blue Dacnis	2,3,4,5,6	Fo;Cp;Sa	M(a);M(b);M(c)
Cyanerpes caeruleus (Linnaeus, 1758)	Purple Honeycreeper	2	Fo	M(a);M(b)
Cyanerpes cyaneus (Linnaeus, 1766)	Red-legged Honeycreeper	2,3,6	Fo;Cp	M(a);M(b);M(c)
Chlorophanes spiza (Linnaeus, 1758)	Green Honeycreeper	1,3	Fo	M(a)
Hemithraupis guira (Linnaeus, 1766)	Guira Tanager	2,3	Cp;Cs	M(a);M(b);M(c)
Emberizidae Vigors, 1825				
Zonotrichia capensis (Statius Muller, 1776)	Rufous-collared Sparrow	4,5,6	Sa;Cs	M(a);M(b);M(c)
Ammodramus humeralis (Bosc, 1792)	Grassland Sparrow	5,6	Cs;Cm	M(a);M(b);M(c)
Sicalis citrina Pelzeln, 1870	Stripe-tailed Yellow-Finch	Hidasi/Pinto and Camargo	Ig;Cs	M(b);M(c)
Volatinia jacarina (Linnaeus, 1766)	Blue-black Grassquit	4,5,6	Sa;Cs	M(a);M(b);M(c)
Sporophila plumbea (Wied, 1830)	Plumbeous Seedeater	Pinto and Camargo	Sa;Cs;Cm	M(c)
Sporophila lineola (Linnaeus, 1758)	Lined Seedeater	Hidasi/Pinto and Camargo	Sa;Cs;Cm	M(b);M(c)
Sporophila angolensis (Linnaeus, 1766)	Chestnut-bellied Seed-Finch	Pinto and Camargo	Sa;Cs;Cm	M(c)
Arremon taciturnus (Hermann, 1783)	Pectoral Sparrow	1,2	Fo;Ig;Cp	M(a);M(b);M(c)
Cardinalidae Ridgway, 1901				
Habia rubica (Vieillot, 1817)	Red-crowned Ant-Tanager	2	Cp	Ob;Vr
Parulidae Wetmore, Friedmann, Lincoln, Miller, Peters, van Rossem, Van Tyne and Zimmer 1947				
Basileuterus culicivorus (Deppe, 1830)	Golden-crowned Warbler	6	Sa	M(a);M(b);M(c)
Basileuterus flaveolus (Baird, 1865)	Flavescent Warbler	4,6	Sa	M(a);M(c)
Icteridae Vigors, 1825				
Psarocolius viridis (Statius Muller, 1776)	Green Oropendola	1,2,3	Fo;Ig;Cp	Ob;Vr
Psarocolius bifasciatus (Spix, 1824)	Olive Oropendola	1,2,3	Fo;Cp	M(a)
Cacicus cela (Linnaeus, 1758)	Yellow-rumped Cacique	1,2,3,6	Fo;Ig;Cp	M(a);M(b);M(c)
Icterus cayanensis (Linnaeus, 1766)	Epaulet Oriole	3	Fo;Cp	M(a)
Fringillidae Leach, 1820				
Euphonia chlorotica (Linnaeus, 1766)	Purple-throated Euphonia	1,2,3	Fo;Cp;Cs	M(a);M(b);M(c)
Euphonia violacea (Linnaeus, 1758)	Violaceous Euphonia	2	Fo	M(a);M(b);M(c)
Euphonia laniirostris d'Orbigny and Lafresnaye, 1837	Thick-billed Euphonia	1,2	Fo;Cp	M(a);M(b);M(c)
Euphonia rufiventris (Vieillot, 1819)	Rufous-bellied Euphonia	2,3	Fo;Cp;Sa;Cs	M(a)

Revista Brasileira de Ornitologia, 19(2), 260-275
Junho de 2011

ARTIGO

Birds of an Amazonia-*Cerrado* ecotone in southern Pará, Brazil, and the efficiency of associating multiple methods in avifaunal inventories

Marina Somenzari[1,2,3], Luís Fábio Silveira[2], Vitor de Queiroz Piacentini[1,2], Marco Antonio Rego[1,2], Fábio Schunck[2] and Vagner Cavarzere[1,2]

1. Pós-Graduação (Zoologia), Instituto de Biociências, Universidade de São Paulo.
2. Seção de Aves, Museu de Zoologia da Universidade de São Paulo. Avenida Nazaré, 481, 04263000, São Paulo, SP, Brasil.
3. Corresponding author. Email: masomenzari@gmail.com

Recebido em 02/03/2011. Aceito em 28/05/2011.

RESUMO: Avifauna de um ecótono Amazônia-Cerrado no sul do Pará, Brasil, e a eficiência do uso associado de múltiplas metodologias em inventários ornitológicos. A região sudeste do Pará é ainda muito pouco conhecida e apenas recentemente passou a contar com alguns inventários representativos. Apresentamos aqui o resultado do levantamento de aves da Fazenda Fartura, na divisa dos Estados do Pará e Mato Grosso, caracterizada pela transição entre os biomas Amazônia e Cerrado. A área foi inventariada em quatro viagens de campo (duas na estação seca, duas na chuvosa) entre 2009 e 2010, totalizando 509 espécies de aves registradas, a maioria das quais documentada por vouchers. Adicionalmente, outras sete espécies foram computadas através de registros secundários, o que faz desta localidade a segunda em número de espécies no Brasil. Discutimos brevemente também a importância da associação de diversos métodos de amostragem para a eficiência de inventários de curto prazo.

PALAVRAS-CHAVE: Ecótono Amazônia-Cerrado; Inventário; Associação de Metodologias.

ABSTRACT: Birds of an Amazonia-*Cerrado* ecotone in southern Pará, Brazil, and the efficiency of associating multiple methods in avifaunal inventories. The southeastern Pará remains little known, and has only recently been covered by a few representative surveys of its avifauna. Herein, we present the results of a bird survey in Fazenda Fartura (Fartura Farm), located on the border between the states of Pará and Mato Grosso, in the transition of the Amazonia and *Cerrado* biomes. The area was sampled in four field trips (two in the dry season, two in the rainy season) between 2009 and 2010. As a result, we recorded 509 species, most of them documented through vouchers. Seven additional species were recorded by indirect evidence, rendering Fartura Farm the second most diverse Brazilian locality regarding bird species. We also briefly discuss the importance of applying diverse sampling methods to achieve efficiency in short-term inventories.

KEY-WORDS: Amazonia-Cerrado Ecotone; Inventory; Methods.

Amazonia is characterized as being a heterogeneous region, with the most diverse avifauna on the planet (Stotz *et al.* 1996). Its largest rivers usually delimit biogeographical regions or distinct areas of endemism (Haffer 1974, Cracraft 1985, Silva *et al.* 2005). Despite these areas being well delimited, the role of these rivers as causal agents (or merely maintainers of this diversity) depends on more detailed and multi-taxonomic studies. Estimates on Amazonian bird diversity are clearly conservative, and there is a considerable degree of taxonomic uncertainty regarding many of the bird species ocurring in the biome.

The southeastern region of Pará is still little known from the ornithological point of view. Most inventory efforts therein are concentrated in the Carajás area, where long-term studies that began in the 1980s have registered up to 575 bird species (Pacheco *et al.* 2006); such an extensive checklist of species renders Carajás the gratest local bird richness known to date in Brazil.

Southeasternmost Pará may be considered to belong to the poorly delineated "Campo Cerrado Center" of endemism, defined as an enormous area of open and savannastic formations limited to the north and west by the Amazonia Forest, to the east by *Caatinga,* to the south by the Atlantic Forest, and also by Chaco to the southwest (Cracraft 1985). However, the surrounding areas also deserve consideration; specifically the adjacent "Xingu Center" (*sensu* Silva *et al.* 2005) or, more broadly defined, the "Pará Center" (*sensu* Cracraft 1985), both limited to the east by the Tocantins River and extending southward to the limits of the Amazonia Forest. These two centers of endemism (Xingu/Pará and Campo Cerrado) are interesting due to the presence of subspecies such as the Opal-crowned Manakin (*Lepidothrix iris eucephala*), the

Pearly Parakeet (*Pyrrhura* [*lepida*] *anerythra*), and the Cinnamon-throated Hermit (*Phaethornis nattereri/maranhaoensis;* Cracraft 1985) which, amongst others, should have their taxonomic *status* reevaluated. Furthermore, the geographic limits of the Xigu/Pará and Campo Cerrado centers of endemism depend on a more precise definition, especially in light of the distributional patterns of the species occurring within its boundaries and composition of the bird community in their region of contact.

The complex ecotonal region of Amazonia and Cerrado in southeastern Pará and northeastern Mato Grosso is still little explored. Only one locality along the right bank of the Araguaia River in the state of Tocantins has been studied in a more systematic way (Pinheiro and Dornas, 2009). Herein, we present the results of an ornithological inventory performed throughout two consecutive years at a locality situated in the ecotonal region between Amazonia and the Cerrado in southeastern Pará, discussing the importance of applying diverse sampling methods to short-term avifaunal inventories.

MATERIAL AND METHODS

The study was conducted at Fazenda Fartura (09°40'S, 50°23'W), with headquarters in the municipality of Santana do Araguaia, state of Pará. Its southernmost portion lies in the state of Mato Grosso and is limited to the east by the Araguaia River (Figure 1). This farm holds an area of 53,078 ha, of which 35,108 ha are preserved areas including forest, Cerrado and seasonally flooded environments. The remaining 17,970 ha consist of pastures.

We undertook four expeditions in the study area: two in rainy seasons (1727 January 2009 and 0721 February 2010), and two in dry seasons (29 August to 13 September 2009, and 30 August to 12 September 2010), comprising 47 effective sampling days.

Since collection methods vary with respect to efficiency and specificity, combination of distinct methods ensure comprehensiveness of sampling. Therefore, our inventory relied on the simultaneous application of four methods: direct observations with the aid of binoculars, recognition of vocalizations, capture with mist-nets, and collection with shotguns. The records were documented whenever possible by means of recording vocalizations, photographs, and the collection of voucher specimens.

The equipment used in documenting vocalizations consisted of the following recorders: Marantz PMD, Sony PCMD50, Sony PCMM10, Marantz PMD660, and Sennheiser ME66 microphones. Collected specimens were taxidermized, and their carcasses preserved in 70% v/v ethanol. All voucher material (specimens, photographs and recordings) were deposited at the Museu de Zoologia da Universidade de São Paulo (MZUSP).

Fieldwork began around 5:00 in the morning and extended until 20:00 in order to survey nocturnal birds. Mist-nets were opened at 6:00 in the morning and closed at 12:00, the afternoon period being set aside for sampling by unlimited-radius linear transects. In each expedition, 40 nets were used (12 × 2.40 m, 30 mm mesh), divided in two sets of 20, and aligned along two transects with a distance of at least 3 km between them. The nets of each set were opened simultaneously, in three consecutive days. Through this method, 21 areas were sampled, for a total of 5,760 net-hours. Records attained while moving between sampled localities were also considered.

The vegetal formations listed below were sampled proportionaly to their presence in the farm:

— *Terra-Firme* Forest: the predominant forestal formation (moist broadleaf forest) in the entire farm region, found in varying degrees of conservation; sampled in all expeditions.
— *V*árzea Forest: seasonally flooded forests found at the margins of the Araguaia and Santana Rivers; sampled rammdmly in the rainy and dry seasons.
— Flooded grasslands ("*varjão*"): seasonally inundated grasslands; due to difficulty of access, these formations were sampled only during the dry seasons.
— Pastures: pasture areas destined for cattle-raising and mainly composed of exotic grasses; not systematically sampled.
— Transitional environments and water bodies: ecotonal regions of the Amazonia and Cerrado biomes, and natural ponds, small dams and creeks; not systematically sampled.

Complementary to our fieldwork, we also used a list of species collected in the area by the staff of Museu Paraense Emílio Goeldi in 1992 (MPEG, unpublished data). The taxonomic sequence follows CBRO (2011).

RESULTS AND DISCUSSION

During the 47 fieldwork days we recorded 509 species of birds belonging to 23 Orders and 71 Families. Among these, 381 were documented by photographs and/or audio recordings, with 351 out of these having voucher specimens deposited in the MZUSP collections. This number rises to 516 (Appendix) when secondary data is also considered, including four species collected exclusively by the team of MPEG, along with three species recorded by Gerard Baudet and Wilson L. M. Neto.

The curve of species accumulation shows that asymptote has not yet been attained (Figure 2), indicating that the number of species occurring at this locality is even greater. Bird diversity at Fazenda Fartura is very high, being the second locality with the greatest number of bird

species in Brazil, after Carajás (575 species; Pacheco *et al.* 2007), approximately 400 km to the north of the Farm.

Inventories that draw upon different and complementary methods tend to survey bird communities more efficiently in a shorter time span. Sampling with a high number of mist-nets and researchers allows simultaneously evaluation of many different vegetal formations. Documenting all species recorded minimizes the possibility of

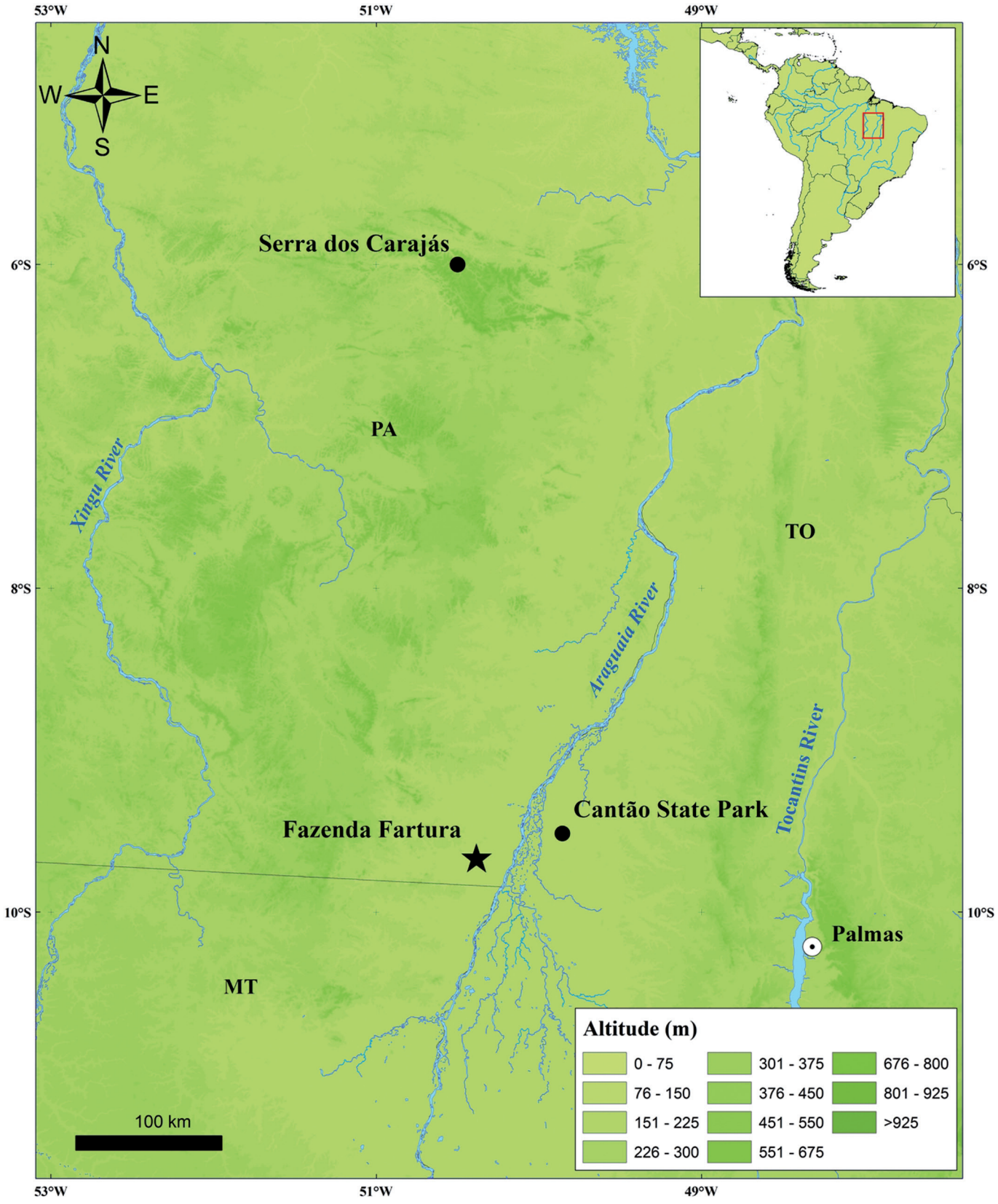

FIGURE 1: Location of Fazenda Fartura in extreme southeastern Pará, near Serra dos Carajás and Cantão State Park. Acronyms refer to Brazilian States: PA: Pará, MT: Mato Grosso, TO: Tocantins.

TABLE 1: Threathened species at national (MMA 2003) or regional (SEMA 2007) level recorded at Fazenda Fartura. VU: Vulnerable; EN: Endangered.

Taxon	English name	SEMA	MMA
Penelope ochrogaster	Chestnut-bellied Guan		VU
Harpyhaliaetus coronatus	Crowned Eagle	VU	VU
Primolius maracana	Blue-winged Macaw	VU	
Cercomacra ferdinandi	Bananal Antbird	VU	VU
Sakesphorus luctuosus araguayae	Glossy Antshrike	VU	
Synallaxis simoni	Araguaia Spinetail		VU
Dendrocincla fuliginosa trumaii	Plain-brown Woodcreeper		VU
Procnias averano	Bearded Bellbird		VU
Sporophila palustris	Marsh Seedeater		EN

errors allowing revision, corrections, and posterior independent confirmation of identifications (see Piacentini *et al.* 2010).

The efficiency of this combined and intensive approach becomes evident by comparing its results to those of other studies consisting of much longer sampling periods. As an example, Pacheco *et al.* (2007) presents an avifaunal list from Carajás, compiled during more than 20 years of research in an area that also has a great diversity of habitat. The results computed during an incomparably longer period than the one of our study differ in 66 species from the list presented here. A similar comparison can be made with the locality of Cantão State Park, in the same region of and very similar to our study site regarding habitat structure. In a period of about 180 days, Pinheiro and Dornas (2009) recorded 382 bird species. It is important to emphasize that the studies mentioned above surveyed birds mainly with observations and audio recordings, while the use of mist-nets was reduced and comparatively fewer researchers were acting in the field.

Besides our study, Rego *et al.* (2011) provides another example of short-term inventories with expressive results. In that study, 254 species were registered during 17 days of fieldwork and mist-netting in the Cerrado of the Serra Geral do Tocantins Ecological Station (EESGT), whereas Santos (2001), who spent 83 days and used mist-nets as well, recorded about the same number of species in Chapada das Mangabeiras, a locality with habitat diversity similar to EESGT and located only 100 km north of that station. The sampling effort of both studies was proportionately similar, including mist-netting hours (calculated from Santos [2001]'s information), which indicate that the association of different methods, in conjunction with the presence of a greater number of researchers in the field, may rapidly and sensibly improve the efficiency of bird inventories of a given locality, independently on the environment and habitat structure present in the area (*i.e.* forest, savanna, flooded grasslands). The examples cited above suggest that intensive inventories based on the combined application of distinctive sampling methods produce a significant ammount of data in short periods of time, which is crucial in the face of constant threats to natural habitat remnants. Nonetheless, the simultaneous application of several methods depends on many researchers working together in field, a fact that implies higher expenses.

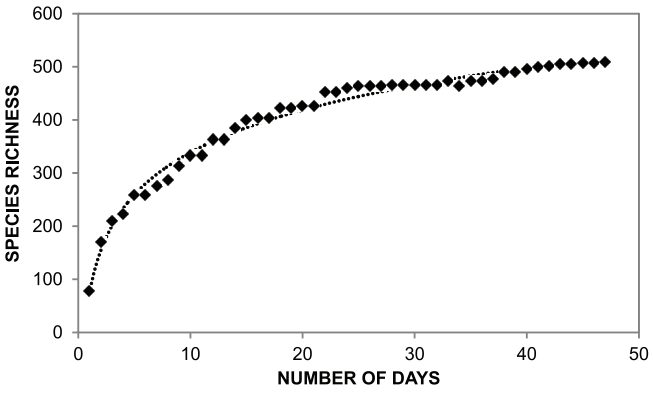

FIGURE 2: Accumulated species richness by days sampled at Fazenda Fartura, southeastern Pará.

The presence of 99 species that are highly sensitive to environmental alterations (*sensu* Stotz *et al.* 1996, see Appendix), together with a large number of game species imply a good conservation state of the area. One must also notice that Fazenda Fartura holds populations of nine threatened taxa at national and state levels (Table 1), which would qualify it as an Important Bird Area (IBA; see De Luca *et al.* 2009).

The present study has revealed some important findings related to the limits of distribution of some species. New southern/southeastern limits have been set for the Chestnut-crowned Foliage-gleaner (*Automolus rufipileatus*), the Short-billed Honeycreeper (*Cyanerpes nitidus*) and the Cinnamon-rumped Foliage-gleaner (*Philydor pyrrhodes*). Meanwhile, for the Olivaceous Elaenia (*Elaenia mesoleuca*), the Marsh Seedeater (*Sporophila palustris*), the Dark-throated Seedeater (*Sporophila ruficollis*) and the Eastern Slaty-Thrush (*Turdus subalaris*) – all septentrional migrants – a new northern limit was established. The records of the Crowned Eagle (*Harpyhalietus coronatus*) and of the Araguaia Spinetail (*Synallaxis simoni*) are the first for the state of Pará, and the register of the Bearded Bellbird (*Procnias averano*) is the first for the state of Mato

Grosso and also represents its new westernmost distribution. Furthermore, the population of *Pyrrhura* (*lepida*) *anerythra,* a poorly known endemism of the Xingu/Araguaia-Tocantins interfluvium (Somenzari and Silveira in prep.), is quite expressive, with numerous flocks seen in terra-firme forest in virtually all days of fieldwork. Details on these records and further information on these species will be published elsewhere (Somenzari *et al.* in prep.).

ACKNOWLEDGEMENTS

We are grateful to Wilson L. M. Neto, Inabel, Edson Lima, Tomas Sigrist, Gerard Baudet, Belém, José Leite, Fabio and Raimundo, for the support provided during the field trips. Anna Ferraroni, Fernanda Bocalini, Gláucia Cristina Del Rio, Léo Signorini Novaes e Rafael Marcondes for the help during fieldwork. MS, MAR and VC thank the Coordenação de Aperfeiçoamento de Pessoal de Ensino Superior (CAPES) for a Masters fellowship; VQP thanks the Fundação de Apoio a Pesquisa do Estado de São Paulo (FAPESP) for a Doctoral fellowship (process n. 06/603004). LFS receives a grant from Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq). UPS Brasil (Bruno Ehlers) provided field and laboratory equipments".

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APPENDIX: Species recorded at Fazenda Fartura, southeastern Pará. Sensitivity according to Stotz *et al.* (1996): L: low; M: medium; H: high. *Type of evidence:* V: visual record (*: records by third parties); H: heard only; P: photograph; R: sound recording; C: collected specimen; MPEG: species collected only by MPEG team.

Taxon	English Name	Sensit.	Evidence
Struthioniformes			
Rheidae			
Rhea americana	Greater Rhea	L	**V**
Tinamiformes			
Tinamidae			
Tinamus tao	Gray Tinamou	H	**R**
Tinamus major	Great Tinamou	M	**R**
Crypturellus cinereus	Cinereous Tinamou	L	**C**
Crypturellus soui	Little Tinamou	L	**R**
Crypturellus undulatus	Undulated Tinamou	L	**C**
Crypturellus strigulosus	Brazilian Tinamou	H	**C**
Crypturellus parvirostris	Small-billed Tinamou	L	**V**
Crypturellus tataupa	Tataupa Tinamou	L	**V**
Anseriformes			
Anhimidae			
Anhima cornuta	Horned Screamer	M	**C**
Anatidae			
Dendrocygna viduata	White-faced Whistling-Duck	L	**V**
Dendrocygna autumnalis	Black-bellied Whistling-Duck	L	**P**
Neochen jubata	Orinoco Goose	M	**C**
Cairina moschata	Muscovy Duck	M	**V**
Amazonetta brasiliensis	Brazilian Teal	L	**V**
Galliformes			
Cracidae			
Ortalis motmot	Little Chachalaca	M	**R**
Penelope superciliaris	Rusty-margined Guan	M	**C**
Penelope ochrogaster	Chestnut-bellied Guan	H	**C**
Aburria cujubi	Red-throated Piping Guan	H	C
Pauxi tuberosa	Razor-billed Curassow	H	**V**
Crax fasciolata	Bare-faced Curassow	M	**C**
Ciconiiformes			
Ciconiidae			
Jabiru mycteria	Jabiru	M	**C**
Mycteria americana	Wood Stork	L	**C**
Suliformes			
Phalacrocoracidae			
Phalacrocorax brasilianus	Neotropic Cormorant	L	**V**
Anhingidae			
Anhinga anhinga	Anhinga	M	**V**
Pelecaniformes			
Ardeidae			
Tigrisoma lineatum	Rufescent Tiger-Heron	M	**C**
Agamia agami	Agami Heron	M	**V**
Cochlearius cochlearius	Boat-billed Heron	H	**C**
Nycticorax nycticorax	Black-crowned Night-Heron	L	**C**
Butorides striata	Striated Heron	L	**C**
Bubulcus ibis	Cattle Egret	L	**C**
Ardea cocoi	Cocoi Heron	L	**V**
Ardea alba	Great Egret	L	**P**
Syrigma sibilatrix	Whistling Heron	M	**C**
Pilherodius pileatus	Capped Heron	M	**P**
Egretta thula	Snowy Egret	L	**V**
Threskiornithidae			
Mesembrinibis cayennensis	Green Ibis	M	**V**
Phimosus infuscatus	Bare-faced Ibis	M	**C**

Taxon	English Name	Sensit.	Evidence
Theristicus caudatus	Buff-necked Ibis	L	**C**
Platalea ajaja	Roseate Spoonbill	M	**P**
Cathartiformes			
Cathartidae			
Cathartes aura	Turkey Vulture	L	C
Cathartes burrovianus	Lesser Yellow-headed Vulture	M	**V**
Cathartes melambrotus	Greater Yellow-headed Vulture	M	**C**
Coragyps atratus	Black Vulture	L	**P**
Sarcoramphus papa	King Vulture	M	**C**
Accipitriformes			
Pandionidae			
Pandion haliaetus	Osprey	M	**V**
Accipitridae			
Elanoides forficatus	Swallow-tailed Kite	M	**V**
Gampsonyx swainsonii	Pearl Kite	L	**V**
Elanus leucurus	White-tailed Kite	L	**V**
Harpagus bidentatus	Double-toothed Kite	M	**C**
Circus buffoni	Long-winged Harrier	L	**V**
Accipiter poliogaster	Gray-bellied Goshawk	H	**V**
Accipiter superciliosus	Tiny Hawk	H	**C**
Accipiter bicolor	Bicolored Hawk	L	**C**
Ictinia plumbea	Plumbeous Kite		**C**
Busarellus nigricollis	Black-collared Hawk	L	**V**
Rostrhamus sociabilis	Snail Kite	L	**V**
Geranospiza caerulescens	Crane Hawk	M	**V**
Heterospizias meridionalis	Savanna Hawk	L	**C**
Urubitinga urubitinga	Great Black-Hawk	M	**V**
Rupornis magnirostris	Roadside Hawk	L	**C**
Geranoaetus albicaudatus	White-tailed Hawk	L	**V**
Leucopternis kuhli	White-browed Hawk	H	**V**
Harpyhaliaetus coronatus	Crowned Eagle	M	**P**
Buteo nitidus	Gray Hawk	M	**C**
Buteo brachyurus	Short-tailed Hawk	M	**V**
Buteo albonotatus	Zone-tailed Hawk	M	**V**
Morphnus guianensis	Crested Eagle	H	**V***
Harpia harpyja	Harpy Eagle	H	**V***
Spizaetus ornatus	Ornate Hawk-Eagle	M	P
Falconiformes			
Falconidae			
Daptrius ater	Black Caracara	L	**C**
Ibycter americanus	Red-throated Caracara	H	**C**
Caracara plancus	Southern Caracara	L	**V**
Milvago chimachima	Yellow-headed Caracara	L	**C**
Herpetotheres cachinnans	Laughing Falcon	L	**V**
Micrastur ruficollis	Barred Forest-Falcon	M	**C**
Micrastur mintoni	Cryptic Forest-falcon	H	**C**
Micrastur mirandollei	Slaty-backed Forest-Falcon	M	**C**
Micrastur semitorquatus	Collared Forest-Falcon	M	**V**
Falco sparverius	American Kestrel	L	**V**
Falco rufigularis	Bat Falcon	L	**C**
Falco femoralis	Aplomado Falcon	L	**C**
Falco peregrinus	Peregrine Falcon	M	**V**
Eurypygiformes			
Eurypygidae			
Eurypyga helias	Sunbittern	M	**C**
Gruiformes			
Aramidae			
Aramus guarauna	Limpkin	M	**V**

Taxon	English Name	Sensit.	Evidence
Psophiidae			
Psophia dextralis	Brown-winged Trumpeter	H	**R**
Rallidae			
Aramides ypecaha	Giant Wood-Rail	M	**C**
Aramides cajanea	Gray-necked Wood-Rail	H	**C**
Laterallus viridis	Russet-crowned Crake	L	**R**
Laterallus melanophaius	Rufous-sided Crake	L	**H**
Porzana albicollis	Ash-throated Crake	M	**C**
Porphyrio martinica	Purple Gallinule	L	**V**
Heliornithidae			
Heliornis fulica	Sungrebe	M	V
Cariamiformes			
Cariamidae			
Cariama cristata	Red-legged Seriema	M	**V**
Charadriiformes			
Charadriidae			
Vanellus cayanus	Pied Lapwing	M	**C**
Vanellus chilensis	Southern Lapwing	L	**C**
Charadrius collaris	Collared Plover	H	**V***
Scolopacidae			
Gallinago paraguaiae	South American Snipe	L	**C**
Actitis macularius	Spotted Sandpiper	L	**V**
Tringa solitaria	Solitary Sandpiper	L	**C**
Tringa flavipes	Lesser Yellowlegs	L	**V**
Jacanidae			
Jacana jacana	Wattled Jacana	L	**C**
Sternidae			
Sternula superciliaris	Yellow-billed Tern	H	**V**
Phaetusa simplex	Large-billed Tern	H	**C**
Rynchopidae			
Rynchops niger	Black Skimmer	H	**V**
Columbiformes			
Columbidae			
Columbina minuta	Plain-breasted Ground-Dove	L	**V**
Columbina talpacoti	Ruddy Ground-Dove	L	**C**
Columbina squammata	Scaled Dove	L	**C**
Columbina picui	Picui Ground-Dove	L	**V**
Claravis pretiosa	Blue Ground-Dove	L	**V**
Uropelia campestris	Long-tailed Ground-Dove	M	C
Patagioenas speciosa	Scaled Pigeon	M	**C**
Patagioenas picazuro	Picazuro Pigeon	M	**V**
Patagioenas cayennensis	Pale-vented Pigeon	M	**C**
Patagioenas plumbea	Plumbeous Pigeon	H	R
Patagioenas subvinacea	Ruddy Pigeon	H	**C**
Zenaida auriculata	Eared Dove	L	**V**
Leptotila verreauxi	White-tipped Dove	M	**C**
Leptotila rufaxilla	Gray-fronted Dove	M	**C**
Geotrygon violacea	Violaceous Quail-Dove	H	**MPEG**
Geotrygon montana	Ruddy Quail-Dove	M	**C**
Psittaciformes			
Psittacidae			
Ara ararauna	Blue-and-yellow Macaw	M	**V**
Ara macao	Scarlet Macaw	M	**R**
Ara chloropterus	Red-and-green Macaw	H	**V**
Ara severus	Chestnut-fronted Macaw	M	**C**
Orthopsittaca manilata	Red-bellied Macaw	M	**V**
Primolius maracana	Blue-winged Macaw	M	**V**
Primolius auricollis	Yellow-collared Macaw	M	**C**

Taxon	English Name	Sensit.	Evidence
Diopsittaca nobilis	Red-shouldered Macaw	M	**C**
Aratinga leucophthalma	White-eyed Parakeet	L	**C**
Aratinga aurea	Peach-fronted Parakeet	M	**C**
Pyrrhura lepida	Pearly Paraket	H	**C**
Pyrrhura amazonum	Hellmayr's Parakeet	H	**C**
Brotogeris chiriri	Yellow-chevroned Parakeet	M	**C**
Brotogeris chrysoptera	Golden-winged Parakeet	M	**C**
Touit huetii	Scarlet-shouldered Parrotlet	H	**R**
Pionites leucogaster	White-bellied Parrot	M	**C**
Pionus menstruus	Blue-headed Parrot	L	**C**
Amazona aestiva	Blue-fronted Parrot	M	**V**
Amazona amazonica	Orange-winged Parrot	M	**C**
Amazona farinosa	Mealy Parrot	M	**V**
Deroptyus accipitrinus	Red-fan Parrot	H	**C**
Opisthocomiformes			
Opisthocomidae			
Opisthocomus hoazin	Hoatzin	M	**C**
Cuculiformes			
Cuculidae			
Coccycua minuta	Little Cuckoo	L	**V**
Piaya cayana	Squirrel Cuckoo	L	**C**
Piaya melanogaster	Black-bellied Cuckoo	H	**C**
Crotophaga major	Greater Ani	M	**C**
Crotophaga ani	Smooth-billed Ani	L	**C**
Guira guira	Guira Cuckoo	L	**C**
Tapera naevia	Striped Cuckoo	L	**C**
Dromococcyx phasianellus	Pheasant Cuckoo	M	C
Dromococcyx pavoninus	Pavonine Cuckoo	H	**R**
Neomorphus sp.		H	**H**
Strigiformes			
Tytonidae			
Tyto alba	Barn Owl	L	**C**
Strigidae			
Megascops choliba	Tropical Screech-Owl	L	**R**
Megascops usta	Austral Screech-Owl	H	**C**
Pulsatrix perspicillata	Spectacled Owl	M	**H**
Bubo virginianus	Great Horned Owl	L	**V**
Glaucidium hardyi	Amazonian Pygmy-Owl	H	**R**
Glaucidium brasilianum	Ferruginous Pygmy-Owl	L	**C**
Athene cunicularia	Burrowing Owl	M	**R**
Caprimulgiformes			
Nyctibiidae			
Nyctibius grandis	Great Potoo	M	**H**
Nyctibius aethereus	Large-tailed Potoo	H	**R**
Nyctibius griseus	Common Potoo	L	**R**
Caprimulgidae			
Nyctiphrynus ocellatus	Ocellated Poorwill	M	**C**
Antrostomus rufus	Rufous Nightjar	L	**H**
Antrostomus sericocaudatus	Silky-tailed Nightjar	M	**C**
Lurocalis semitorquatus	Short-tailed Nighthawk	M	**C**
Hydropsalis leucopyga	Band-tailed Nighthawk	M	**V**
Hydropsalis nigrescens	Blackish Nightjar	M	**C**
Hydropsalis albicollis	Pauraque	L	**C**
Hydropsalis parvula	Little Nightjar	L	**C**
Hydropsalis maculicauda	Spot-tailed Nightjar	M	**H**
Hydropsalis torquata	Scissor-tailed Nightjar	L	**C**
Podager nacunda	Nacunda Nighthawk	L	**V**
Chordeiles minor	Common Nighthawk	M	**V**

Taxon	English Name	Sensit.	Evidence
Chordeiles rupestris	Sand-colored Nightjar	M	**C**
Chordeiles acutipennis	Lesser Nighthawk	L	**V**
Apodiformes			
Apodidae			
Chaetura spinicaudus	Band-rumped Swift	L	**V**
Chaetura brachyura	Short-tailed Swift	L	**V**
Tachornis squamata	Fork-tailed Palm-Swift	L	**V**
Panyptila cayennensis	Lesser Swallow-tailed Swift	M	**P**
Trochilidae			
Glaucis hirsutus	Rufous-breasted Hermit	L	**C**
Phaethornis maranhaoensis	Maranhão Hermit	M	**C**
Phaethornis ruber	Reddish Hermit	M	**C**
Phaethornis superciliosus	Long-tailed Hermit	H	**C**
Campylopterus largipennis	Gray-breasted Sabrewing	M	**C**
Eupetomena macroura	Swallow-tailed Hummingbird	L	**C**
Florisuga mellivora	White-necked Jacobin	L	**C**
Anthracothorax nigricollis	Black-throated Mango	L	**C**
Chrysolampis mosquitus	Ruby-topaz Hummingbird	L	**C**
Lophornis gouldii	Dot-eared Coquette	L	**V**
Chlorostilbon notatus	Blue-chinned Sapphire	L	**C**
Thalurania furcata	Fork-tailed Woodnymph	M	**C**
Hylocharis cyanus	White-chinned Sapphire	L	**C**
Polytmus guainumbi	White-tailed Goldenthroat	M	**C**
Amazilia versicolor	Versicolored Emerald	L	**C**
Amazilia fimbriata	Glittering-throated Emerald	L	**C**
Heliothryx auritus	Black-eared Fairy	M	**C**
Heliomaster longirostris	Long-billed Starthroat	M	**C**
Calliphlox amethystina	Amethyst Woodstar	L	**V**
Trogoniformes			
Trogonidae			
Trogon melanurus	Black-tailed Trogon	M	**C**
Trogon viridis	White-tailed Trogon	M	**C**
Trogon violaceus	Violaceous Trogon	M	**H**
Trogon curucui	Blue-crowned Trogon	M	**V**
Trogon rufus	Black-throated Trogon	M	**R**
Trogon collaris	Collared Trogon	M	**V**
Coraciiformes			
Alcedinidae			
Megaceryle torquata	Ringed Kingfisher	L	**C**
Chloroceryle amazona	Amazon Kingfisher	L	**C**
Chloroceryle aenea	American Pygmy Kingfisher	M	**C**
Chloroceryle americana	Green Kingfisher	L	**V**
Chloroceryle inda	Green-and-rufous Kingfisher	M	**V**
Momotidae			
Momotus momota	Blue-crowned Motmot	M	**C**
Galbuliformes			
Galbulidae			
Brachygalba lugubris	Brown Jacamar	L	**V**
Galbula cyanicollis	Blue-cheeked Jacamar	H	**C**
Galbula ruficauda	Rufous-tailed Jacamar	L	**C**
Galbula dea	Paradise Jacamar	M	C
Bucconidae			
Notharchus hyperrhynchus	White-necked Puffbird	M	**C**
Notharchus tectus	Pied Puffbird	M	**V**
Bucco tamatia	Spotted Puffbird	M	**C**
Nystalus striolatus	Striolated Puffbird	M	**R**
Nystalus chacuru	White-eared Puffbird	M	**V**
Nystalus maculatus	Spot-backed Puffbird	M	V

Taxon	English Name	Sensit.	Evidence
Malacoptila rufa	Rufous-necked Puffbird	H	**C**
Nonnula ruficapilla	Rufous-capped Nunlet	M	**C**
Monasa nigrifrons	Black-fronted Nunbird	M	**R**
Monasa morphoeus	White-fronted Nunbird	H	**C**
Chelidoptera tenebrosa	Swallow-wing	M	**C**
Piciformes			
Ramphastidae			
Ramphastos toco	Toco Toucan	M	**C**
Ramphastos tucanus	Red-billed Toucan	H	**R**
Ramphastos vitellinus	Channel-billed Toucan	H	**C**
Selenidera gouldii	Gould's Toucanet	M	**C**
Pteroglossus inscriptus	Lettered Aracari	M	**C**
Pteroglossus aracari	Black-necked Aracari	M	**C**
Picidae			
Picumnus aurifrons	Bar-breasted Piculet	M	**C**
Picumnus albosquamatus	White-wedged Piculet	L	**C**
Melanerpes candidus	White Woodpecker	L	**C**
Melanerpes cruentatus	Yellow-tufted Woodpecker	L	**C**
Veniliornis affinis	Red-stained Woodpecker	M	**C**
Veniliornis passerinus	Little Woodpecker	L	**C**
Piculus flavigula	Yellow-throated Woodpecker	H	**C**
Piculus chrysochloros	Golden-green Woodpecker	M	**C**
Colaptes melanochloros	Green-barred Woodpecker	L	**C**
Colaptes campestris	Campo Flicker	L	
Celeus undatus	Waved Woodpecker	H	C
Celeus flavescens	Blond-crested Woodpecker	M	**C**
Celeus flavus	Cream-colored Woodpecker	M	**C**
Celeus torquatus	Ringed Woodpecker	H	**C**
Dryocopus lineatus	Lineated Woodpecker	L	**C**
Campephilus rubricollis	Red-necked Woodpecker	H	**C**
Passeriformes			
Thamnophilidae			
Pygiptila stellaris	Spot-winged Antshrike	H	**MPEG**
Myrmeciza atrothorax	Black-throated Antbird	L	**C**
Epinecrophylla leucophthalma	White-eyed Antwren	H	**C**
Epinecrophylla ornata	Ornate Antwren	H	**C**
Myrmotherula brachyura	Pygmy Antwren	L	**C**
Myrmotherula multostriata	Amazonian Streaked-Antwren	L	**C**
Myrmotherula hauxwelli	Plain-throated Antwren	H	**C**
Myrmotherula axillaris	White-flanked Antwren	M	**C**
Formicivora grisea	White-fringed Antwren	L	**C**
Formicivora rufa	Rusty-backed Antwren	L	**C**
Thamnomanes caesius	Cinereous Antshrike	H	**C**
Herpsilochmus longirostris	Large-billed Antwren	M	**C**
Herpsilochmus rufimarginatus	Rufous-winged Antwren	M	**C**
Sakesphorus luctuosus	Glossy Antshrike	M	**C**
Thamnophilus doliatus	Barred Antshrike	L	**C**
Thamnophilus torquatus	Rufous-winged Antshrike	M	**H**
Thamnophilus schistaceus	Plain-winged Antshrike	H	**C**
Thamnophilus stictocephalus	Natterer's Slaty-Antshrike	L	**C**
Thamnophilus aethiops	White-shouldered Antshrike	H	**C**
Thamnophilus amazonicus	Amazonian Antshrike	L	**C**
Cymbilaimus lineatus	Fasciated Antshrike	M	**C**
Sclateria naevia	Silvered Antbird	M	**C**
Hypocnemoides maculicauda	Band-tailed Antbird	M	**C**
Hylophylax naevius	Spot-backed Antbird	H	**C**
Hylophylax punctulatus	Dot-backed Antbird	M	C
Pyriglena leuconota	White-backed Fire-eye	H	**C**

Taxon	English Name	Sensit.	Evidence
Myrmoborus leucophrys	White-browed Antbird	M	**C**
Myrmoborus myotherinus	Black-faced Antbird	H	**C**
Cercomacra cinerascens	Gray Antbird	H	**C**
Cercomacra nigrescens	Blackish Antbird	M	**C**
Cercomacra ferdinandi	Bananal Antbird	M	**C**
Hypocnemis striata	Spix's Warbling-Antbird	M	**C**
Willisornis poecilinotus	Scale-backed Antbird	M	**C**
Phlegopsis nigromaculata	Black-spotted Bare-eye	M	**C**
Conopophagidae			
Conopophaga aurita	Chestnut-belted Gnateater	H	**C**
Formicariidae			
Formicarius colma	Rufous-capped Antthrush	H	**C**
Formicarius analis	Black-faced Antthrush	M	**C**
Scleruridae			
Sclerurus mexicanus	Tawny-throated Leaftosser	H	**C**
Sclerurus rufigularis	Short-billed Leaftosser	H	**MPEG**
Dendrocolaptidae			
Dendrocincla fuliginosa	Plain-brown Woodcreeper	H	**C**
Dendrocincla merula	White-chinned Woodcreeper	H	**C**
Sittasomus griseicapillus	Olivaceous Woodcreeper	M	**C**
Certhiasomus stictolaemus	Spot-throated Woodcreeper	H	**C**
Glyphorynchus spirurus	Wedge-billed Woodcreeper	M	**C**
Nasica longirostris	Long-billed Woodcreeper	H	**C**
Hylexetastes brigidai	Brigida's Woodcreeper	H	**C**
Dendrocolaptes certhia	Amazonian Barred-Woodcreeper	H	**C**
Dendroplex picus	Straight-billed Woodcreeper	H	**C**
Xiphorhynchus spixii	Spix's Woodcreeper	H	**C**
Xiphorhynchus guttatus	Buff-throated Woodcreeper	L	**R**
Lepidocolaptes angustirostris	Narrow-billed Woodcreeper	M	**V**
Lepidocolaptes albolineatus	Lineated Woodcreeper	H	**C**
Furnariidae			
Incertae sedis			
Xenops milleri	Rufous-tailed Xenops	H	**C**
Xenops minutus	Plain Xenops	M	**C**
Furnarius figulus	Wing-banded Hornero	L	**C**
Furnarius leucopus	Pale-legged Hornero	L	**C**
Furnarius rufus	Rufous Hornero	L	**C**
Automolus ochrolaemus	Buff-throated Foliage-gleaner	M	**C**
Automolus paraensis	Pará Foliage-gleaner	M	**C**
Automolus ruficipileatus	Chestnut-crowned Foliage-gleaner	M	**C**
Philydor erythrocercum	Rufous-rumped Foliage-gleaner	H	**C**
Philydor pyrrhodes	Cinnamon-rumped Foliage-gleaner	H	**C**
Phacellodomus ruber	Greater Thornbird	L	**V**
Certhiaxis cinnamomeus	Yellow-chinned Spinetail	M	**C**
Certhiaxis sp.			
Synallaxis albescens	Pale-breasted Spinetail	L	**C**
Synallaxis rutilans	Ruddy Spinetail	H	C
Synallaxis cherriei	Chestnut-throated Spinetail	M	**MPEG**
Synallaxis simoni	Araguaia Spinetail	L	**C**
Cranioleuca vulpina	Rusty-backed Spinetail	M	**C**
Pipridae			
Neopelma pallescens	Pale-bellied Tyrant-Manakin	M	**C**
Tyranneutes stolzmanni	Dwarf Tyrant-Manakin	H	**C**
Pipra fasciicauda	Band-tailed Manakin	M	**C**
Pipra rubrocapilla	Red-headed Manakin	H	**C**
Lepidothrix iris	Opal-crowned Manakin	M	**C**
Manacus manacus	White-bearded Manakin	L	C
Heterocercus linteatus	Flame-crested Manakin	M	**C**

Taxon	English Name	Sensit.	Evidence
Machaeropterus pyrocephalus	Fiery-capped Manakin	M	**C**
Xenopipo atronitens	Black Manakin	M	**C**
Chiroxiphia pareola	Blue-backed Manakin	H	**C**
Tityridae			
Onychorhynchus coronatus	Royal Flycatcher	H	**C**
Terenotriccus erythrurus	Ruddy-tailed Flycatcher	M	**C**
Schiffornis turdina	Thrush-like Schiffornis	H	**C**
Iodopleura isabellae	White-browed Purpletuft	M	**C**
Tityra inquisitor	Black-crowned Tityra	M	**C**
Tityra cayana	Black-tailed Tityra	M	**C**
Tityra semifasciata	Masked Tityra	M	**C**
Pachyramphus viridis	Green-backed Becard	M	**V**
Pachyramphus castaneus	Chestnut-crowned Becard	M	**V**
Pachyramphus polychopterus	White-winged Becard	L	**C**
Pachyramphus marginatus	Black-capped Becard	H	**C**
Pachyramphus minor	Pink-throated Becard	H	**C**
Xenopsaris albinucha	White-naped Xenopsaris	M	**C**
Cotingidae			
Lipaugus vociferans	Screaming Piha	H	**C**
Gymnoderus foetidus	Bare-necked Fruitcrow	M	**C**
Procnias averano	Bearded Bellbird	H	**C**
Cotinga cayana	Spangled Cotinga	H	**C**
Querula purpurata	Purple-throated Fruitcrow	M	**C**
Cephalopterus ornatus	Amazonian Umbrellabird	M	**V**
Incertae sedis			
Platyrinchus mystaceus	White-throated Spadebill	H	H
Platyrinchus platyrhynchos	White-crested Spadebill	H	**C**
Piprites chloris	Wing-barred Piprites	H	**H**
Mionectes oleagineus	Ochre-bellied Flycatcher	M	**C**
Leptopogon amaurocephalus	Sepia-capped Flycatcher	M	**C**
Corythopis torquatus	Ringed Antpipit	H	**C**
Rhynchocyclus olivaceus	Olivaceous Flatbill	H	**V**
Tolmomyias sulphurescens	Yellow-olive Flycatcher	M	**R**
Tolmomyias poliocephalus	Gray-crowned Flycatcher	M	**C**
Tolmomyias flaviventris	Yellow-breasted Flycatcher	L	**C**
Todirostrum maculatum	Spotted Tody-Flycatcher	L	**C**
Todirostrum cinereum	Common Tody-Flycatcher	L	**C**
Todirostrum chrysocrotaphum	Yellow-browed Tody-Flycatcher	M	**C**
Poecilotriccus sylvia	Slate-headed Tody-Flycatcher	L	**C**
Myiornis ecaudatus	Short-tailed Pygmy-Tyrant	M	**C**
Hemitriccus minor	Snethlage's Tody-Tyrant	H	**C**
Hemitriccus griseipectus	White-bellied Tody-Tyrant	H	**C**
Hemitriccus striaticollis	Stripe-necked Tody-Tyrant	M	**C**
Tyrannidae			
Inezia subflava	Amazonian Tyrannulet	M	**C**
Euscarthmus meloryphus	Tawny-crowned Pygmy-Tyrant	L	**C**
Ornithion inerme	White-lored Tyrannulet	M	**C**
Camptostoma obsoletum	Southern Beardless-Tyrannulet	L	**C**
Elaenia flavogaster	Yellow-bellied Elaenia	L	**C**
Elaenia albiceps	White-crested Elaenia	L	**C**
Elaenia mesoleuca	Olivaceous Elaenia	L	**C**
Elaenia cristata	Plain-crested Elaenia	M	**C**
Elaenia chiriquensis	Lesser Elaenia	L	**C**
Myiopagis gaimardii	Forest Elaenia	M	C
Myiopagis viridicata	Greenish Elaenia	M	**C**
Tyrannulus elatus	Yellow-crowned Tyrannulet	L	**R**
Phaeomyias murina	Mouse-colored Tyrannulet	L	**V**
Phyllomyias fasciatus	Planalto Tyrannulet	M	**V**

Taxon	English Name	Sensit.	Evidence
Serpophaga nigricans	Sooty Tyrannulet	L	**C**
Attila cinnamomeus	Cinnamon Attila	H	**H**
Attila spadiceus	Bright-rumped Attila	M	**C**
Legatus leucophaius	Piratic Flycatcher	L	**C**
Ramphotrigon ruficauda	Rufous-tailed Flatbill	M	**C**
Myiarchus tuberculifer	Dusky-capped Flycatcher	L	**C**
Myiarchus swainsoni	Swainson's Flycatcher	L	**MPEG**
Myiarchus ferox	Short-crested Flycatcher	L	**C**
Myiarchus tyrannulus	Brown-crested Flycatcher	L	**C**
Sirystes sibilator	Sirystes	M	**C**
Rhytipterna simplex	Grayish Mourner	H	**C**
Rhytipterna immunda	Pale-bellied Mourner	M	**C**
Casiornis fuscus	Ash-throated Casiornis	M	**C**
Pitangus sulphuratus	Great Kiskadee	L	**C**
Philohydor lictor	Lesser Kiskadee	L	**C**
Myiodynastes maculatus	Streaked Flycatcher	L	**C**
Megarynchus pitangua	Boat-billed Flycatcher	L	**C**
Myiozetetes cayanensis	Rusty-margined Flycatcher	L	**C**
Myiozetetes similis	Social Flycatcher	L	**V**
Tyrannus albogularis	White-throated Kingbird	L	**C**
Tyrannus melancholicus	Tropical Kingbird	L	**C**
Tyrannus savana	Fork-tailed Flycatcher	L	**C**
Empidonomus varius	Variegated Flycatcher	L	**V**
Griseotyrannus aurantioatrocristatus	Crowned Slaty Flycatcher	L	**C**
Myiophobus fasciatus	Bran-colored Flycatcher	H	
Lathrotriccus euleri	Euler's Flycatcher	M	C
Pyrocephalus rubinus	Vermilion Flycatcher	L	**C**
Fluvicola albiventer	Black-backed Water-Tyrant	M	**V**
Arundinicola leucocephala	White-headed Marsh-Tyrant	M	**C**
Cnemotriccus fuscatus	Fuscous Flycatcher	L	**C**
Contopus sp.			**V**
Knipolegus poecilocercus	Amazonian Black-Tyrant	M	**C**
Knipolegus orenocensis	Riverside Tyrant	M	**C**
Xolmis cinereus	Gray Monjita	L	**V**
Xolmis velatus	White-rumped Monjita	M	**V**
Vireolanius leucotis	Slaty-capped Shrike-Vireo	H	**H**
Vireo olivaceus	Red-eyed Vireo	L	**C**
Hylophilus semicinereus	Gray-chested Greenlet	L	**C**
Hylophilus hypoxanthus	Dusky-capped Greenlet	H	**C**
Hylophilus ochraceiceps	Tawny-crowned Greenlet	M	**MPEG**
Corvidae			
Cyanocorax cristatellus	Curl-crested Jay	M	**V**
Hirundinidae			
Stelgidopteryx ruficollis	Southern Rough-winged Swallow	L	**C**
Progne tapera	Brown-chested Martin	L	**C**
Progne subis	Purple Martin	L	**P**
Progne chalybea	Grey-breasted Martin	L	**C**
Tachycineta albiventer	White-winged Swallow	L	**C**
Tachycineta leucorrhoa	White-rumped Swallow	L	**V**
Troglodytidae			
Microcerculus marginatus	Scaly-breasted Wren	H	**MPEG**
Troglodytes musculus	Southern House-Wren	L	**V**
Campylorhynchus turdinus	Thrush-like Wren	L	**C**
Pheugopedius genibarbis	Moustached Wren	L	**H**
Pheugopedius coraya	Coraya Wren	L	**C**
Cantorchilus leucotis	Buff-breasted Wren	L	**C**
Donacobiidae			
Donacobius atricapilla	Black-capped Donacobius	M	C

Taxon	English Name	Sensit.	Evidence
Polioptilidae			
Ramphocaenus melanurus	Long-billed Gnatwren	L	**C**
Polioptila dumicola	Masked Gnatcatcher	M	**C**
Turdidae			
Turdus leucomelas	Pale-breasted Thrush	L	
Turdus amaurochalinus	Creamy-bellied Thrush	L	**C**
Turdus subalaris	Eastern Slaty-Thrush	L	**C**
Turdus albicollis	White-necked Thrush	M	**C**
Mimidae			
Mimus saturninus	Chalk-browed Mockingbird	L	**C**
Motacillidae			
Anthus lutescens	Yellowish Pipit	L	**V**
Coerebidae			
Coereba flaveola	Bananaquit	L	**C**
Thraupidae			
Saltator grossus	Slate-colored Grosbeak	M	**MPEG**
Saltator maximus	Buff-throated Saltator	L	**C**
Saltator coerulescens	Grayish Saltator	L	**C**
Saltator atricollis	Black-throated Saltator	M	**C**
Compsothraupis loricata	Scarlet-throated Tanager	H	**V**
Nemosia pileata	Hooded Tanager	L	**C**
Thlypopsis sordida	Orange-headed Tanager	L	**C**
Cypsnagra hirundinacea	White-rumped Tanager	H	**V**
Tachyphonus rufus	White-lined Tanager	L	**C**
Ramphocelus carbo	Silver-beaked Tanager	L	**C**
Lanio penicillata	Gray-headed Tanager	M	**V**
Lanio cristatus	Flame-crested Tanager	M	**C**
Lanio surinamus	Fulvous-crested Tanager	M	**V**
Lanio luctuosus	White-shouldered Tanager	M	**C**
Tangara sayaca	Sayaca Tanager	L	**C**
Tangara palmarum	Palm Tanager	L	**C**
Tangara mexicana	Turquoise Tanager	M	C
Tangara punctata	Spotted Tanager	H	**C**
Tangara cayana	Burnished-buff Tanager	M	**C**
Tangara cyanicollis	Blue-necked Tanager	L	**C**
Tangara nigrocincta	Masked Tanager	M	**C**
Neothraupis fasciata	White-banded Tanager	M	**V**
Schistochlamys melanopis	Black-faced Tanager	L	**C**
Paroaria baeri	Crimson-fronted Cardinal	M	**C**
Tersina viridis	Swallow Tanager	L	**C**
Dacnis lineata	Black-faced Dacnis	M	**V**
Dacnis cayana	Blue Dacnis	L	**C**
Cyanerpes nitidus	Short-billed Honeycreeper	H	**C**
Cyanerpes caeruleus	Purple Honeycreeper	M	**C**
Cyanerpes cyaneus	Red-legged Honeycreeper	L	**V**
Chlorophanes spiza	Green Honeycreeper	M	**C**
Hemithraupis guira	Guira Tanager	L	**V**
Hemithraupis flavicollis	Yellow-backed Tanager	M	**MPEG**
Conirostrum speciosum	Chestnut-vented Conebill	L	**C**
Emberizidae			
Zonotrichia capensis	Rufous-collared Sparrow	L	**C**
Ammodramus humeralis	Grassland Sparrow	L	**C**
Sicalis columbiana	Orange-fronted Yellow-finch	L	**C**
Emberizoides herbicola	Wedge-tailed Grass-Finch	L	**C**
Volatinia jacarina	Blue-black Grassquit	L	**C**
Sporophila plumbea	Plumbeous Seedeater	M	**C**
Sporophila collaris	Rusty-collared Seedeater	L	**C**
Sporophila lineola	Lined Seedeater	L	**C**

Taxon	English Name	Sensit.	Evidence
Sporophila nigricollis	Yellow-bellied Seedeater	L	**C**
Sporophila leucoptera	White-bellied Seedeater	L	**C**
Sporophila bouvreuil	Capped Seedeater	M	**C**
Sporophila hypoxantha	Tawny-bellied Seedeater	M	**V**
Sporophila ruficollis	Dark-throated Seedeater	M	**C**
Sporophila palustris	Marsh Seedeater	M	**C**
Sporophila angolensis	Chestnut-bellied Seed-Finch	L	**C**
Arremon taciturnus	Pectoral Sparrow	M	**C**
Cardinalidae			
Granatellus pelzelni	Rose-breasted Chat	M	**C**
Caryothraustes canadensis	Yellow-green Grosbeak	M	**V**
Cyanoloxia cyanoides	Blue-black Grosbeak	M	**C**
Parulidae			
Basileuterus flaveolus	Flavescent Warbler	M	**C**
Phaeothlypis rivularis	Neotropical River Warbler	M	**C**
Icteridae			
Psarocolius viridis	Green Oropendola	H	**C**
Psarocolius bifasciatus	Olive Oropendola	M	**C**
Procacicus solitarius	Solitary Cacique	L	C
Cacicus haemorrhous	Red-rumped Cacique	L	**V**
Cacicus cela	Yellow-rumped Cacique	L	**C**
Icterus cayanensis	Epaulet Oriole	M	**C**
Icterus croconotus	Orange-backed Troupial	L	**V**
Gnorimopsar chopi	Chopi Blackbird	L	**C**
Molothrus oryzivorus	Giant Cowbird	L	**V**
Molothrus bonariensis	Shiny Cowbird	L	V
Sturnella militaris	Red-breasted Blackbird	L	**V**
Fringillidae			
Euphonia chlorotica	Purple-throated Euphonia	L	**C**
Euphonia violacea	Violaceous Euphonia	L	**V**
Euphonia chrysopasta	White-lored Euphonia	M	**C**
Euphonia minuta	White-vented Euphonia	M	**C**
Euphonia rufiventris	Rufous-bellied Euphonia	M	**C**
Passeridae			
Passer domesticus	House Sparrow	L	**V**

Revista Brasileira de Ornitologia, 19(2), 276-301
Junho de 2011

ARTIGO

Aves coligidas por José Hidasi e Manoel Santa-Brígida na Amazônia Tocantinense: implicações para a distribuição geográfica das aves amazônicas brasileiras

Túlio Dornas[1,2] e Renato Torres Pinheiro[1,2]

[1.] Grupo de Pesquisa em Ecologia e Conservação das Aves, Universidade Federal do Tocantins – ECOAVES/UFT. Avenida NS15 ALCNO 14, Quadra 109 Norte, Estação Experimental, Laboratório de Ecologia e Ornitologia, Campus Universitário de Palmas Palmas, Tocantins, Brasil. CEP 77020-210. E-mail: tuliodornas@yahoo.com.br
[2.] Programa de Pesquisa em Biodiversidade, Amazônia Oriental, Núcleo Tocantins.

Recebido em 08/03/2011. Aceito em 21/05/2011.

ABSTRACT: Birds collected by José Hidasi and Manoel Santa-Brígida in Tocantins: implications for the geographic distribution of Brazilian Amazonian birds. Presently there are still large gaps in our knowledge of the Amazonian avifauna. Bird collections made by José Hidasi and Manoel Santa-Brígida, between 1960 and 1995, are unique for some localities of Amazonian Tocantins, but they were never published. Thus, this article presents an exhaustive compilation, based on ornithological collections of national and foreign museums, of birds collected by both naturalists. Of the 328 species compiled, seven seem to have a geographical distribution not compatible with the Tocantins area leaving 321 species for the entire region. The location sampled most intensively was Araguatins with 297 species. The presence of birds endemics to the Cerrado and to the Amazon show the ecotonal character of Amazonian Tocantins. At least 62 species with an Amazonian distribution had their geographic distributions expanded to eastern Amazonia because of the collections of J. Hidasi and M. Santa-Brígida. However, after almost 50 years, 19 species, among them *Tinamus major, Touit huetii, Galbula dea, Thamnophilus palliatus* and *Hylophilax naevius,* have not recently been recorded for the region. The heavy human interference on Tocantins' Amazonian vegetation may cause some species to go extinct in Tocantins' Amazonian vegetation.

KEY-WORDS: Amazônia; Araguatins; Rio Araguaia; Tocantins.

RESUMO: Aves coligidas por José Hidasi e Manoel Santa-Brígida na Amazônia Tocantinense: implicações para a distribuição geográfica das aves amazônicas brasileiras. Ainda existem grandes lacunas do conhecimento ornitológico na Amazônia, sendo a Amazônia tocantinense uma delas. As aves coletadas por José Hidasi e Manoel Santa-Brígida, entre 1960 e 1995, constam como as únicas em algumas localidades na Amazônia tocantinense, porém nunca foram publicadas. Deste modo, este manuscrito apresenta uma exaustiva compilação realizada em coleções ornitológicas de museus nacionais e estrangeiros em busca das aves coletadas por ambos naturalistas. Das 328 espécies compiladas, sete não apresentam distribuição geográfica compatível com a região, totalizando 321 espécies. A localidade melhor amostrada com 297 espécies foi Araguatins. A compilação de aves endêmicas aos biomas Cerrado e Amazônia mostram o caráter ecotonal da Amazônia tocantinense. Pelo menos 62 espécies compiladas, com distribuição na Amazônia, tiveram suas áreas de distribuições geográficas estendidas para o extremo leste amazônico devido às coletas de J. Hidasi e M. Santa-Brígida. Entretanto, após quase 50 anos, 19 espécies, dentre elas *Tinamus major, Touit huetii, Galbula dea, Thamnophilus palliatus* e *Hylophilax naevius,* não possuem registros recentes na região. A intensa interferência antrópica na cobertura vegetal da Amazônia tocantinense pode refletir na extinção de espécies Amazônicas para o estado do Tocantins.

PALAVRAS-CHAVE: Amazônia; Araguatins; Rio Araguaia; Tocantins.

A avifauna do estado do Tocantins listada inicialmente por Hidasi (1998) com 524 espécies recentemente foi revisada por Dornas (2009) resultando em uma riqueza de 628 espécies de aves, aproximadamente 35% das aves do Brasil. Embora a riqueza de aves no Tocantins seja expressiva, os esforços de amostragem ornitológica são ainda insuficientes; até a década de 1990 verificou-se que praticamente todo o território do estado do Tocantins era carente de inventariamento ornitológico (Oren e Albuquerque 1991, Silva 1995).

Contudo, além de revisar a riqueza de aves do estado, Dornas (2009) também verificou qual o tamanho do esforço amostral ornitológico no Tocantins após a década de 1990. Tendo como base referencial os critérios adotados por Oren e Albuquerque (1991), Silva (1995), Silva e Santos (2005) e Santos e Silva (2007), foi considerado que as localidades com pelo menos 100 espécies de aves listadas apresentariam uma amostragem ornitológica mínima, e os resultados encontrados apontaram que apenas 10% do território do Tocantins estariam assim representados.

Com relação à documentação das espécies de aves em território tocantinense o cenário é mais preocupante.

As localidades onde foram assinaladas com pelo menos 50 espécies documentadas, isto é, espécies registradas através de coleta, fotografia e/ou gravação sonora, foram denominadas localidades minimamente documentadas. Verificou-se que esta condição estaria representada em apenas 2% dos limites do território tocantinense. Estes percentuais demostram que a maior parte do território do Tocantins ainda são carentes de inventários ornitológicos, e uma das regiões que mais se destacou pela escassez de estudos ornitológicos foi a Amazônia tocantinense (Dornas 2009).

O histórico de estudos ornitológicos nesta região do Tocantins inicialmente remete as passagens de alguns naturalistas oitocentistas como o Francis Laporte de Castelnau (1810-1880) e o inglês William John Burchell (1782-1863). Ambos exploraram longos trechos dos rios Tocantins e Araguaia, inclusive a região de suas confluências (Papavero 1971, Vanzolini 1996, Pickering 1998, Castelnau 2000), no entanto, a contribuição ornitológica dos mesmos é pequena.

Grande parte de material zoológico de F. Castelnau foi perdido no trecho tocantinense de sua expedição (Papavero 1971, Castelnau 2000) e aquilo que efetivamente foi coligido e depositado no Museum National d'Histoire Naturelle, Paris, França, não foi estudado de forma adequada (Silva 1989). Por sua vez, J. Burchell coligiu poucos exemplares de aves, os quais não tiveram relato criterioso quanto às localidades de coleta, pois somente foi assinalado "Brazil" nas etiquetas de depósito, dificultando qualquer abordagem mais detalhada (Vanzolini 1996).

Na primeira metade do século XX, entre 1925 e 1926, a região teve a rápida passagem do alemão Henrich Snethlage (1897-1939), sobrinho da reconhecida ornitóloga Emilie Snethlage (Hellmayr 1929, Sick 1997). Os poucos dias de campo em São Antônio da Boa Vista (atual Itaguatins, norte do Tocantins, próxima ao limites da atual Amazônia tocantinense) e sua saúde debilitada, não permitiram que H. Snethlage coletasse um volume maior de espécies de aves na região, sendo o pouco material então coletado depositado no Field Museum of Natural History, Chicago, Estados Unidos (Hellmayr 1929).

Contudo, somente na segunda metade do século XX que a região da Amazônia tocantinense foi alvo de inventários mais sistematizados e representativos, principalmente aqueles realizados pelo ornitólogo húngaro/brasileiro José Hidasi (JH). Embora tenha atuado na região entre 1957 e 1995, foi na região de Araguatins, município no extremo norte do estado, as margens do rio Araguaia, que JH concentrou maior parte de seus esforços os quais qualificaram Araguatins como localidade mais bem amostrada na Amazônia tocantinense (Oren e Albuquerque 1991).

Em geral, as demais localidades amostradas nos limites amazônicos do Tocantins por JH foram alvo de rápidas passagens, quase sempre resultante das paradas de suas viagens no extremo norte do estado (Perroti 2006). Mais precisamente, após a década de 1980, essas coletas foram resultado de suas estadias para fixação temporária de seu Museu Itinerante. Utilizando-se de um ônibus próprio, JH percorria o interior do Brasil, principalmente regiões norte, nordeste e centro-oeste, expondo animais taxidermizados nativos e exóticos as comunidades vistadas, oportunizando a coleta de novos exemplares de aves pelas regiões por onde passava.

Entretanto, grande parcela deste material coligido por JH nestes quase 50 anos de coleta ganhou vários destinos sendo enviado para diversas coleções nacionais e estrangeiras, como por exemplo, Field Museum of Natural History (FMHN), em Chicago nos Estados Unidos ou Hungary Natural History Museum (HNHM), em Budapeste, Hungria (Perroti 2006, Dornas 2009). Listagem completa é apresentada mais adiante em materias e métodos.

Em 1983, Manoel Santa-Brígida (MSB), naquela época servidor do Museu Paraense Emílio Goeldi (MPEG) em Belém, atuando como taxidermista e assistente do memorável ornitólogo Fernando Novaes, coligiu aves na margem tocantinense do rio Araguaia nos municípios de Couto de Magalhães, Xambioá, Santa Fé do Araguaia e Ananás. Todo este material encontra-se depositado no MPEG conforme observado pelos autores.

No que se refere aos levantamentos mais contemporâneos, Olmos *et al.* (2004) realizaram inventários na região norte e nordeste do Tocantins, aonde algumas das localidades estudadas adentravam nos limites da Amazônia tocantinense. Além deste estudo, em 2009, R. T. Pinheiro e colaboradores (em preparação) realizaram inventário ornitológico em remanescentes florestais nas margens do rio Araguaia nos municípios de Ananás, Xambioá e Santa Fé do Araguaia.

Todavia, a Amazônia tocantinense ainda é uma das porções amazônicas menos conhecidas do ponto de vista ornitológico. Não só pela falta de inventários, reconhecidamente carentes na região, mas pelo fato de não haver publicações que explicitem as aves ocorrentes nessa região e discutam aspectos biogeográficos e/ou ecológicos. Araguatins, por exemplo, é assinalada como região minimamente amostrada segundo Oren e Alburqueque (1991) para a Amazônia, mas nunca teve sua avifauna publicada. Embora as coleções de Manoel Santa-Brígida não satisfaçam os critérios de localidade minimamente amostrada adotado por Oren e Albuquerque (1991), esta coleção também nunca teve suas espécies publicadas e discutidas.

Previamente aos resultados apresentados neste artigo, as coleções de aves coligidas por ambos têm registros de suma relevância para o conhecimento ornitológico do Tocantins e da Amazônia. Deste modo, o objetivo deste manuscrito é divulgar as listas de aves coligidas por JH e MSB para a região da Amazônia tocantinense, dando

enfoque à representatividade de ambas para a região leste amazônica e para o estado do Tocantins. Também é objetivo deste manuscrito discutir aspectos da distribuição geográfica de diversas espécies coletadas tanto a nível amazônico, quanto ao nível estadual e nacional.

MATERIAIS E MÉTODOS

Área de Estudo

A Amazônia tocantinense está localizada na porção norte do estado do Tocantins com uma área de 24.863,01 km^2, cujos limites correspondem 0,6% do bioma Amazônico, ou a 9% do território do Tocantins (MMA 2007) (Figura 1). O percentual de cobertura vegetal nativa é ainda controverso, dados federais apontam uma área de 9.553,23 km^2 (38%) correspondentes à cobertura vegetal nativa na região, sendo os 62% restantes representados por áreas antropizadas pela urbanização, agricultura e pecuária (MMA 2007). Entretanto, dados oficiais do Estado apontam apenas 14% de cobertura vegetal nativa ainda remanescente (SEPLAN 2008), e consequentemente um percentual consideravelmente maior de antropização.

Inserida no interflúvio Tocantins-Araguaia, a Amazônia tocantinense caracteriza-se por ser uma forte zona de contato entre os biomas Amazônia e Cerrado (MMA 2007, SEPLAN 2008). Embora, em alguns trechos haja um marcante mosaico de ambientes florestais e savânicos, a vegetação de floresta ombrófila densa (ambientes ombrófilos com florística florestal amazônica, com vegetação de macrofanerófitos e mesofanerófitos, além de lianas lenhosas e epífitas em abundância) e floresta ombrófila aberta (transição entre a floresta amazônica e as regiões extra-amazônicas, caracterizando uma diminuição gradativa de densidade de recobrimento) são as fisionomias vegetais predominantes (SEPLAN 2008).

Geomorfologicamente, a Amazônia tocantinense está mesclada à bacia sedimentar do Parnaíba e a Faixa de Dobramentos do Proterozóico Médio e Superior sendo formada principalmente pelas unidades geomorfológicas da Depressão do Araguaia e Chapadas do Meio Norte (SEPLAN 2008). Com temperatura média anual de 28°C e precipitação média anual variando entre 1.400 mm e 1.900 mm, dependendo da região, o clima é definido segundo Método de Thornthwaite como B1wA'a' (clima úmido com moderada deficiência hídrica) e C2rA'a' (clima úmido subúmido com pequena deficiência hídrica) (SEPLAN 2008).

Dentro dos limites da Amazônia tocantinense as coletas realizadas por JH e MSB cobriram nove municípios: Ananás, Araguatins, Araguaína, Colinas do Tocantins, Colméia, Couto de Magalhães, Guaraí, Santa Fé do Araguaia e Xambioá (Figura 1). Apesar de Axixá do Tocantins, São Miguel do Tocantins e Tocantinópolis não estarem inseridos no limites da Amazônia tocantinense, a avifauna coletada por JH nestes municípios foi considerada no manuscrito. Estes municípios estão não mais que 50 km de distância dos limites do Cerrado e Amazônia e, além disso, compartilham de ambientes ombrófilos devido à acentuada transição entre florestas ombrófilas e as fisionomias savânicas nesta região do Tocantins (SEPLAN 2008).

A principal região amostrada por JH foi Araguatins, onde realizou várias expedições entre os anos de 1957 e 1969, contemplando quase sempre entre os meses de setembro e dezembro, exceto em 1964, quando concentrou esforços no mês de fevereiro. As coletas foram efetuadas em ilhas fluviais, nas margens do rio Araguaia, em remanescentes florestais e em áreas de cerrado próximos a sede municipal (05°39'S, 48°07'O). Ainda durante este período JH realizou rápidas coletas em passagem a Araguaína (07°10'S, 48°14'S), Tocantinópolis (06°19'S, 47°25'O) e São Miguel do Tocantins (05°33'S, 47°34'O).

Entre os meses de novembro e dezembro de 1980, JH coletou rapidamente em Colméia (08°43'S, 48°45'O) e Couto de Magalhães (08°19'S, 49°14'O); em julho de 1983 coligiu aves em São Miguel do Tocantins, Axixá do Tocantins (05°36'S, 47°46'O), Tocantinópolis, Araguaína e Colinas do Tocantins (08°08'S, 48°35'O). Algumas novas coletas foram realizadas em janeiro de 1995 em Tocantinópolis e em março do mesmo ano em Guaraí (08°49'S, 48°30'O).

As coletas realizadas por MSB, em fevereiro de 1983, ocorreram em Couto de Magalhães (08°19'S, 49°14'O), na Fazenda São José e na Fazenda Farol dos Trópicos, ambas localizadas nas margens do rio Araguaia. Também foram amostradas as regiões de Santa Isabel (05°58'S, 48°15'O) em Ananás, remanso da fazenda São José dos Claros (06°26'S, 48°33'O) em Xambioá e o posto indígena Xambioá em Santa Fé do Araguaia, todas as localidades situadas às margens do rio Araguaia.

Procedimentos e coleta de dados

A compilação das aves da Amazônia tocantinense coletadas por JH e MSB ocorreu da seguinte forma:

Compilação de registros através de visitas às coleções ornitológicas: Foram visitadas as coleções ornitológicas do Museu de Zoologia da Universidade de São Paulo (MZUSP), Museu Paraense Emílio Goeldi (MPEG), Museu Nacional do Rio de Janeiro (MNRJ), Museu de Ornitologia de Goiânia (MOG), Coleção Ornitológica do Instituto Tropical Subúmido da Universidade Católica de Goiás (COITS-UCG), Coleção do Museu de Zoologia José Hidasi da Fundação Universidade Estadual do Tocantins (MZJH).

Solicitação dos registros a curadores das coleções ornitológicas não visitadas: Foram requeridos registros à Coleção Ornitológica da Universidade Federal de Pernambuco (COUFPE), Colección Ornitológica da Estación Biológica Doñana, em Sevilla, Espanha (COEBD), Muséum National d'Histoire Naturelle de Paris, na França (MNHN), Mátra Museum em Gyöngyös (MMGY) (Béla, 2002), Mora Ferenc Museum em Szeged (MFM) e Hungary Natural History Museum (HNHM), em Budapeste, sendo estes três últimos localizados na Hungria.

FIGURA 1: Limites da Amazônia tocantinense e as localidades onde ocorreram coletas de aves: **1.** Araguatins, **2.** Axixá do TO, **3.** São Miguel do Tocantins, **4.** Tocantinópolis, **5.** Ananás (Santa Isabel – rio Araguaia), **6.** Xambioá (remanso da fazenda São José dos Claros – rio Araguaia), **7.** Araguaína, **8.** Santa Fé do Araguaia (Posto indígena Xambioá, **9.** Colinas do TO, **10.** Guaraí, **11.** Colméia, **12.** Couto de Magalhães (Fazenda Farol dos Trópicos – rio Araguaia), **13.** Couto de Magalhães (fazenda São José – rio Araguaia), **14.** Couto de Magalhães. A linha cinza escura separa os biomas da Amazonia (Área em linhas diagonais) e do bioma Cerrado (area com linhas cruzadas). Linhas escuras são fronteiras de estados.
FIGURE 1: Boundaries of Tocantins' Amazonian Forest and places where specimens were colected from: **1.** Araguatins, **2.** Axixá do TO, **3.** São Miguel do Tocantins, **4.** Tocantinópolis, **5.** Ananás (Santa Isabel – rio Araguaia), **6.** Xambioá (remanso da fazenda São José dos Claros – rio Araguaia), **7.** Araguaína, **8.** Santa Fé do Araguaia (Posto indígena Xambioá, **9.** Colinas do TO, **10.** Guaraí, **11.** Colméia, **12.** Couto de Magalhães (Fazenda Farol dos Trópicos – rio Araguaia), **13.** Couto de Magalhães (fazenda São José – rio Araguaia), **14.** Couto de Magalhães. The dark gray line separates the Amazonia biome (area in cross-hatched) and the Cerrado biome (white area). Dark lines are State boundairs.

Compilação de registros através da consulta a bases de dados da Ornithological Information Sistem – ORNISNET (www.ornisnet.org): Foram compilados registros das coleções ornitológicas das seguintes instituições norte-americanas: California Academy of Sciences (CAS), Field Museum of Natural History (FMHN), Museum of Comparative Zoology (MCZ), Louisiana State University Museum of Zoology (LSUMZ), Museum of Natural History Smithsonian Institution (USNM), Natural History Museum of Los Angeles County (LACM), University of Kansas Natural History Museum (KUNHM) e University of Michigan Museum of Zoology (UMMZ).

Na visita realizada ao Museu de Ornitologia de Goiânia (MOG) vários dos espécimes apontados como tombados na coleção não foram encontrados e desta forma foram destacadas por um * na listagem final das aves compiladas (Tabela 1). Verificou-se que alguns desses exemplares, não encontrados devido à permuta realizada por JH com outras instituições, receberam novos tombamentos nas coleções de destino. Nos casos que tal fato foi identificado, os espécimes reencontrados foram listados já acompanhados pela sigla e pelo número tombo de sua atual coleção.

Os espécimes compilados da Coleção Ornitológica do Instituto Tropical Subúmido da Universidade Católica de Goiás (COITS-UCG) não havia recebido tombamento até o fim da visita em setembro de 2008, pois haviam sido recém doados pelo Museu de Ornitologia de Goiânia. Como tal procedimento ainda não havia sido efetuado até o momento de submissão deste manuscrito, os espécimes foram listados com a sigla da atual coleção, COITS-UCG, e com os números tombos provenientes do Museu de Ornitologia de Goiânia.

Ao final da compilação, as espécies foram classificadas quanto ao *status* de endemismos para o Cerrado (Cavalcanti 1999, Silva e Santos 2005), Amazônia (Stotz *et al.* 1996) e Brasil (CBRO 2009). O *status* migratório ou residente segue aqueles apresentados pelo CBRO (2009). No que se refere ao *status* de ameaça de extinção foram levadas em conta as listas de espécies de aves ameaçadas do Ministério do Meio Ambiente (MMA 2003, Machado *et al.* 2005, Silveira e Straube 2008) e da IUCN (2009).

Aquelas espécies que tenham registros compilados para a região, mas tiveram suas distribuições geográficas consideradas incompatíveis ou improváveis para a área delimitada, foram descartadas da listagem final e justificadas em seção a parte. E por fim, aquelas espécies cujos espécimes coletados representam extensão da distribuição geográfica (segundo Ridgely e Tudor 1989, 1994, Sick 1997, Erize *et al.* 2006, Sigrist 2006, Ridgely *et al.* 2007) ou primeiro e únicos registros para o estado do Tocantins, segundo Dornas (2009), foram destacados dentre os registros notáveis.

RESULTADOS E DISCUSSÃO

A compilação de aves coligidas por JH e MSB para a Amazônia tocantinense revelou o registro de 328 espécies. Deste total, 302 foram coletadas em Araguatins, 23 na Fazenda São José em Couto de Magalhães, 16 em Tocantinópolis, 14 na Fazenda Farol dos Trópicos em Couto de Magalhães, 10 em Ananás e Santa Fé do Araguaia, nove em Xambioá e em São Miguel do TO, sete em Axixá do TO, quatro em Colméia e uma em Araguaína, Colinas do TO, Couto de Magalhães e Guaraí. Porém, sete espécies não apresentam distribuição geográfica compatível com a Amazônia tocantinense e por isso foram desconsideradas, resultando em uma riqueza de 321 espécies de aves (veja abaixo).

Do ponto de vista quantitativo, a riqueza de aves revelada por essa compilação não representa a riqueza total de aves esperada para a Amazônia tocantinense. Espécies consideradas comuns e de ampla distribuição no Brasil, como as aquáticas *Ardea cocoi, Dendrocygna autumnalis, Egretta thula, Megaceryle torquata* ou as terrestres *Theristicus caudatus, Myiarchus swainsoni, Myiarchus tyrranullus* não foram contempladas nas coletas dos dois naturalistas.

Outra evidência é a passagem de Henrich Snethlage, em 1927, por Itaguatins, onde coletou *Basileuterus culicivorus, Campylorhynchus turdinus, Chloroceryle inda* e *Nasica longirostris* (Hellmayr 1929), espécies cujos registros não foram realizados por ambos naturalistas para as regiões onde atuaram. Além disso, as coletas realizadas por JH e MSB ocorreram em apenas nove dos 34 municípios inseridos na Amazônia tocantinense, refletindo em um potencial de acréscimo na riqueza de espécies de aves, caso outros municípios dessa região fossem contemplados pelos naturalistas-coletores. De fato, esse acréscimo existe quando verificada a listagem de aves identificadas por Olmos *et al.* (2004) e pelos autores (dados não publicados) para outros locais da Amazônia tocantinense.

Dentre as localidades amostradas, apenas a região de Araguatins teria sido representativamente inventariada. A riqueza de aves compiladas para a região totalizou 302 especies de aves, no entanto, dentre as sete espécies consideradas de ocorrência improvável ou incompativel, cinco (*Trogon surrucura, Pteroglossus viridis, Pteroglossus castanotis, Tangara schrankii* e *Paroaria baeri*) seriam oriundas de Araguatins. Tal condição reduziria assim a riqueza de 302 espécies, para 297 espécies compiladas para a região.

Esta riqueza ainda é notoriamente representativa para Araguatins, como pode ser observado após comparar as riquezas de aves encontradas para alguns remanescentes amazônicos no Tocantins recentemente estudados por Olmos *et al.* (2004), embora as metodologias tenham sido diferentes. Em Ananás, por exemplo, um remanescente florestal apresentou 229 espécies de aves; já em Wanderlândia, no interflúvio dos rios Lages e Corda, em outro remanescente florestal, foram detectadas 262 espécies (Olmos *et al.* 2004).

TABELA 1: Lista das espécies compiladas para Amazônia tocantinense coletadas por José Hidasi e Manoel Santa-Brígida.
Status migratório: R = residente; VN = migrante neártico.
Status de distribuição: Ea = restrito à Amazônia (Stotz *et al.,* 2006); Ec = restrito ao Cerrado (Cavalcanti, 1999; Silva & Santos, 2005); Ebr = restrito ao Brasil (CBRO, 2009).
Nível de ameaça: Vul = vulnerável a extinçao; 1 = IUCN (2009), 2 = MMA (2003).
= especie com distribuição amazônica que teve sua área de ocorrência estendida para o extremo leste amazônico.
@ = espécie com distribuição geográfica incompatível com a região da Amazônia tocantinense.
* = espécimes com tombamento para o Museu de Ornitologia de Goiânia (MOG) que não foram encontrados durante visita.
Localidades: 1. Araguatins; 2. Axixá do TO; 3. São Miguel do TO; 4. Tocantinópolis; 5. Ananás (Santa Isabel – rio Araguaia), 6. Xambioá (remanso da fazenda São José dos Claros – rio Araguaia), 7. Araguaína, 8. Santa Fé do Araguaia (Posto indígena Xambioá, 9. Colinas do TO, 10. Guaraí, 11. Colméia, 12. Couto de Magalhães (Fazenda Farol dos Trópicos – rio Araguaia), 13. Couto de Magalhães (fazenda São José – rio Araguaia), 14. Couto de Magalhães.

TABLE 1: Species collected by José Hidasi and Manoel Santa-Brígida.
Migratory status: R = resident; VN = neartic migrant.
Distribution: Ea = Amazonian endemic (Stotz *et al.,* 2006); Ec = Cerrado endemic (Cavalcanti, 1999; Silva & Santos, 2005); Ebr = Brazilian endemic CBRO, 2009).
Threat level: Vul = Vulnerable; 1 = IUCN (2009), 2 = MMA (2003).
= Amazonian species which had it distribution expanded to the East.
@ = Doubtful record.
* = Specimens housed at (MOG) but not found.
Localities: 1. Araguatins; 2. Axixá do TO; 3. São Miguel do TO; 4. Tocantinópolis; 5. Ananás (Santa Isabel – rio Araguaia), 6. Xambioá (remanso da fazenda São José dos Claros – rio Araguaia), 7. Araguaína, 8. Santa Fé do Araguaia (Posto indígena Xambioá, 9. Colinas do TO, 10. Guaraí, 11. Colméia, 12. Couto de Magalhães (Fazenda Farol dos Trópicos – rio Araguaia), 13. Couto de Magalhães (fazenda São José – rio Araguaia), 14. Couto de Magalhães.

Ordem/Família/Espécie	Nome Popular (CBRO 2009)	Status migratório	Status de ameaça e distribuição	Registros e Localidades
Tinamiformes Huxley, 1872				
Tinamidae Gray, 1840				
Tinamus tao Temminck, 1815	azulona	R		**1.** MOG 2, MPEG 20602
Tinamus major (Gmelin, 1789) #	inhambu-de-cabeça-vermelha	R		**1.** MOG 3
Tinamus guttatus Pelzeln, 1863 #	inhambu-galinha	R		**1.** MOG 7788*
Crypturellus cinereus (Gmelin, 1789)	inhambu-preto	R	Ea	**1.** MOG 4, 983;
Crypturellus soui (Hermann, 1783)	tururim	R		**1.** LSUMZ 64934; MOG 5, 878, 4705*, 9245*; MPEG 20605, 28354; MZUSP 52160-63, 72028
Crypturellus undulatus (Temminck, 1815)	jaó	R		**1.** LSUMZ 63516, MOG 4704
Crypturellus variegatus (Gmelin, 1789) #	inhambu-anhangá	R		**1.** MOG 6, 8174
Crypturellus parvirostris (Wagler, 1827)	inhambu-chororó	R		**1.** FMHN 344284; MPEG 603-4, 606-7, 20603; MZUSP 52166-169, 72026
Anseriformes Linnaeus, 1758				
Anatidae Leach, 1820				
Dendrocygna viduata (Linnaeus, 1766)	irerê	R		**13.** MPEG 34766
Galliformes Linnaeus, 1758				
Cracidae Rafinesque, 1815				
Ortalis superciliaris (Gray, 1867) #	aracuã-de-sobrancelhas	R	Ebr	**1.** MOG 93*, 989; MPEG 20612; MZUSP 52194-195
Penelope superciliaris Temminck, 1815	jacupemba	R		**1.** LSUMZ 65079; MPEG 20609; MZUSP 52192
Penelope ochrogaster Pelzeln, 1870	jacu-de-barriga-castanha	R	Ebr, Ec, Vul[1,2]	**1.** MOG 91*
Aburria cujubi (Pelzeln, 1858) #	cujubi	R	Ea	**1.** MOG 1172*; **8.** MPEG 34763
Odontophoridae Gould, 1844				
Odontophorus gujanensis (Gmelin, 1789) #	uru-corcovado	R		**1.** MZJH 308
Ciconiiformes Bonaparte, 1854				
Ardeidae Leach, 1820				
Zebrilus undulatus (Gmelin, 1789) #	socoí-zigue-zague	R		**1.** LSUMZ 65060; MOG 35; **13.** MPEG 34765
Butorides striata (Linnaeus, 1758)	socozinho	R		**1.** HNHM 66.4.1; MPEG 20613, 21831-833; MZUSP 52173-176
Ardea alba Linnaeus, 1758	garça-branca-grande	R		**1.** MOG 9634; **12.** MPEG 34706
Threskiornithidae Poche, 1904				
Mesembrinibis cayennensis (Gmelin, 1789)	coró-coró	R		**1.** MPEG 20650; MZUSP 72328

Ordem/Família/Espécie	Nome Popular (CBRO 2009)	Status migratório	Status de ameaça e distribuição	Registros e Localidades
Falconiformes Bonaparte, 1831				
Accipitridae Vigors, 1824				
Elanoides forficatus (Linnaeus, 1758)	gavião-tesoura	R		**1.** MOG 58*
Gampsonyx swainsonii Vigors, 1825	gaviãozinho	R		**1.** MOG 5003*, 4964*
Harpagus bidentatus (Latham, 1790)	gavião-ripina	R		**1.** MZUSP 52177
Ictinia plumbea (Gmelin, 1788)	sovi	R		**1.** MZUSP 52178-179
Geranospiza caerulescens (Vieillot, 1817)	gavião-pernilongo	R		**1.** MOG 2086*
Leucopternis albicollis (Latham, 1790)	gavião-branco	R		**1.** MZUSP 52187
Heterospizias meridionalis (Latham, 1790)	gavião-caboclo	R		**13.** MPEG 34715
Rupornis magnirostris (Gmelin, 1788)	gavião-carijó	R		**1.** MOG 4978*; MPEG 20651, 20653, 21829; MZUSP 52180-185; **13.** MPEG 34712
Buteo albicaudatus Vieillot, 1816	gavião-de-rabo-branco	R		**1.** MOG 68
Buteo nitidus (Latham, 1790)	gavião-pedrês	R		**1.** MZUSP 52186
Spizaetus melanoleucus (Vieillot, 1816)	gavião-pato	R		**1.** MOG 5290*
Falconidae Leach, 1820				
Daptrius ater Vieillot, 1816	gavião-de-anta	R		**1.** MNRJ 33582
Ibycter americanus (Boddaert, 1783)	gralhão	R		**1.** MOG 80; MZJH 222
Caracara plancus (Miller, 1777)	caracará	R		**1.** MOG 5275*; **13.** MPEG 34714
Milvago chimachima (Vieillot, 1816)	carrapateiro	R		**1.** MPEG 20652; **13.** MPEG 34713
Herpetotheres cachinnans (Linnaeus, 1758)	acauã	R		**1.** MPEG 21834
Micrastur ruficollis (Vieillot, 1817)	falcão-caburé	R		**1.** MZUSP 52189
Micrastur mirandollei (Schlegel, 1862) #	tanatau	R		**1.** MZUSP 52188
Falco sparverius Linnaeus, 1758	quiriquiri	R		**1.** MZJH 251
Falco rufigularis Daudin, 1800	cauré	R		**8.** MPEG 34724
Falco femoralis Temminck, 1822	falcão-de-coleira	R		**1.** MZJH 239
Gruiformes Bonaparte, 1854				
Rallidae Rafinesque, 1815				
Aramides cajanea (Statius Muller, 1776)	saracura-três-potes	R		**1.** LSUMZ 33653; MPEG 21925
Amaurolimnas concolor (Gosse, 1847)	saracura-lisa	R		**1.** MZUSP 53045
Laterallus viridis (Statius Muller, 1776)	sanã-castanha	R		**1.** ITS-UCG 107; MZUSP 52198, 65065
Porzana flaviventer (Boddaert, 1783) #	sanã-amarela	R		**1.** MOG 105
Porphyrio martinica (Linnaeus, 1766)	frango-d'água-azul	R		**1.** MZUSP 65067
Heliornithidae Gray, 1840				
Eurypygidae Selby, 1840				
Eurypyga helias (Pallas, 1781)	pavãozinho-do-pará	R		**1.** MOG 112*; MZUSP 52199
Charadriiformes Huxley, 1867				
Charadriidae Leach, 1820				
Vanellus cayanus (Latham, 1790)	batuíra-de-esporão	R		**1.** MPEG 20614, 21827-828, MZUSP 52203-208, 72013
Vanellus chilensis (Molina, 1782)	quero-quero	R		**1.** MPEG 21826; **13.** MPEG 34653
Pluvialis dominica (Statius Muller, 1776)	batuiruçu	VN		**1.** MZUSP 52209-210
Scolopacidae Rafinesque, 1815				
Calidris fuscicollis (Vieillot, 1819)	maçarico-de-sobre-branco	VN		**1.** MZUSP 52214-220
Jacanidae Chenu & Des Murs, 1854				
Jacana jacana (Linnaeus, 1766)	jaçanã	R		**1.** LSUMZ 51220; MPEG 20615; MZJH 434, MZUSP 52200-202
Sternidae Vigors, 1825				
Sternula superciliaris (Vieillot, 1819)	trinta-réis-anão	R		**1.** MOG 130; MZUSP 52221
Rynchopidae Bonaparte, 1838				
Rynchops niger Linnaeus, 1758	talha-mar	R		**1.** COEBD 2609; MPEG 20611; MZUSP 52222-225
Columbiformes Latham, 1790				
Columbidae Leach, 1820				
Columbina minuta (Linnaeus, 1766)	rolinha-de-asa-canela	R		**1.** MZUSP 65024
Columbina talpacoti (Temminck, 1811)	rolinha-roxa	R		**1.** MPEG 20619, 22044, 22046; MZUSP 52241-244; **13.** MPEG 34652

Ordem/Família/Espécie	Nome Popular (CBRO 2009)	Status migratório	Status de ameaça e distribuição	Registros e Localidades
Columbina squammata (Lesson, 1831)	fogo-apagou	R		**1.** FMHN 425472; MPEG 20620, 21941, 22040, 22048; MZUSP 52246-252; **13.** MPEG 34659
Claravis pretiosa (Ferrari-Perez, 1886)	pararu-azul	R		**1.** MPEG 20621-622; MZUSP 52253-255; 4. MOG 4785*
Uropelia campestris (Spix, 1825)	rolinha-vaqueira	R		**13.** MPEG 34651
Patagioenas speciosa (Gmelin, 1789)	pomba-trocal	R		**1.** MPEG 20616; MZUSP 52237, 52338-339, 69917
Patagioenas cayennensis (Bonnaterre, 1792)	pomba-galega	R		**1.** MZUSP 52225
Patagioenas subvinacea (Lawrence, 1868)	pomba-botafogo	R		**1.** LSUMZ 63523; MOG 5294*
Leptotila verreauxi Bonaparte, 1855	juriti-pupu	R		**1.** MPEG 20617-618, 21932; MZUSP 52226-234, 65037-039; **13.** MPEG 34658
Leptotila rufaxilla (Richard & Bernard, 1792)	juriti-gemedeira	R		**1.** MPEG 20623, 21931; MZUSP 52235, 52236, 65043
Geotrygon montana (Linnaeus, 1758)	pariri	R		**1.** MOG 147*, 1051, 2402*, 5152*, 9652*, 12381*; MZJH 607; MZUSP 52256-257
Psittaciformes Wagler, 1830				
Psittacidae Rafinesque, 1815				
Anodorhynchus hyacinthinus (Latham, 1790) #	arara-azul-grande	R	Vul[1,2]	**1.** LSUMZ 65081*
Ara severus (Linnaeus, 1758) #	maracanã-guaçu	R		**1.** MZUSP 65079
Diopsittaca nobilis (Linnaeus, 1758)	maracanã-pequena	R		**1.** MPEG 20586, 20590; MZUSP 52349-355; **3.** MOG 4751*; **6.** MPEG 34670; **13.** MPEG 34655
Aratinga leucophthalma (Statius Muller, 1776)	periquitão-maracanã	R		**1.** MPEG 20587-589, 20597, 21948; MZUSP 52305-325
Aratinga jandaya (Gmelin, 1788)	jandaia-verdadeira	R	Ebr	**1.** FMHN 344303; LSUMZ 32251; MNHN 469; MFM69.20.1; MOG 170*, 5056*; MPEG 20591-593, 21937, 21945; MZUSP 52356-362
Aratinga aurea (Gmelin, 1788)	periquito-rei	R		**1.** MPEG 20596, 21935-940, 21942-944, 21946; MZUSP 52366
Pyrrhura amazonum Hellmayr, 1906	tiriba-de-hellmayr	R	Ea	**1.** FMHN 344298; MNHN 476, 477: MOG 179, 805*; MPEG 20600, 22038; MZUSP 52367-372, 72262
Brotogeris versicolurus (Statius Muller, 1776) @	periquito-de-asa-branca	R		**4.** MOG 7222*
Brotogeris chiriri (Vieillot, 1818)	periquito-de-encontro-amarelo	R		**1.** MNHN 488, 499; MOG 184*; MPEG 20598; MZUSP 52381, 52406
Brotogeris chrysoptera (Linnaeus, 1766) #	periquito-de-asa-dourada	R		**1.** MPEG 20599, 20601; MZUSP 51407-51414
Touit huetii (Temminck, 1830) #	apuim-de-asa-vermelha	R		**1.** MNHN 499; MOG 849*; MPEG 20595, 27839; MZUSP 51419, 65097, 72239
Pyrilia vulturina (Kuhl, 1820) #	curica-urubu	R	Ebr, Ea	**1.** MOG 202
Pionus menstruus (Linnaeus, 1766)	maitaca-de-cabeça-azul	R		**1.** MNHN 427; MPEG 20594; MZUSP 52516-517
Amazona amazonica (Linnaeus, 1766)	curica	R		**1.** LSUMZ 32255; MOG 6251*, 11415*; MPEG 20584; MZUSP 52415
Deroptyus accipitrinus (Linnaeus, 1758) #	anacã	R	Ea	**1.** MOG 199, 2655; MPEG 20585; MZJH 810, MZUSP 52418
Opisthocomiformes Sclater, 1880				
Opisthocomidae Swainson, 1837				
Opisthocomus hoazin (Statius Muller, 1776)	cigana	R		**1.** MPEG 20610, 21830; MZUSP 52196, MZUSP 72379
Cuculiformes Wagler, 1830				
Cuculidae Leach, 1820				
Piaya cayana (Linnaeus, 1766)	alma-de-gato	R		**1.** KUNHN 52424; MZUSP 52258-263, 72317; **9.** MOG 4750*

Ordem/Família/Espécie	Nome Popular (CBRO 2009)	Status migratório	Status de ameaça e distribuição	Registros e Localidades
Crotophaga major Gmelin, 1788	anu-coroca	R		**1.** COUFPE 121; MOG 155*; MPEG 20703-705; MZJH 1029; MZUSP 52272-281; USNM 516001
Crotophaga ani Linnaeus, 1758	anu-preto	R		**1.** MPEG 20706; MZUSP 52267-268, 72318; USNM 516003
Guira guira (Gmelin, 1788)	anu-branco	R		**1.** MPEG 20707; MZUSP 52298; **10.** MOG 7300*
Tapera naevia (Linnaeus, 1766)	saci	R		**1.** MPEG 21930, 21947; MZUSP 52265-266, 65051
Strigiformes Wagler, 1830				
Strigidae Leach, 1820				
Megascops choliba (Vieillot, 1817)	corujinha-do-mato	R		**1.** LSUMZ 63525; MPEG 20649; MZUSP 52421-423, 72347
Pulsatrix perspicillata (Latham, 1790)	murucututu	R		**1.** MOG 1092; MZUSP 52420
Bubo virginianus (Gmelin, 1788)	jacurutu	R		**1.** MOG 208*
Glaucidium brasilianum (Gmelin, 1788)	caburé	R		**1.** MZUSP 52424
Asio clamator (Vieillot, 1808)	coruja-orelhuda	R		**1.** MZUSP 52708
Caprimulgiformes Ridgway, 1881				
Caprimulgidae Vigors, 1825				
Chordeiles acutipennis (Hermann, 1783)	bacurau-de-asa-fina	R		**1.** MOG 1109, 1112*; MPEG 21919
Nyctiprogne leucopyga (Spix, 1825)	bacurau-de-cauda-barrada	R		**1.** MNRJ (em tombamento); **13.** MPEG 34650
Nyctidromus albicollis (Gmelin, 1789)	bacurau	R		**1.** MPEG 20648, 28341; MZUSP 52425-429, 69950-952
Apodiformes Peters, 1940				
Trochilidae Vigors, 1825				
Glaucis hirsutus (Gmelin, 1788)	balança-rabo-de-bico-torto	R		**1.** MZUSP 52431
Phaethornis maranhaoensis Grantsau, 1968	rabo-branco-do-maranhão	R	Ebr	4. ITS-UCG 7206
Phaethornis ruber (Linnaeus, 1758)	rabo-branco-rubro	R		**1.** MZUSP 52433
Phaethornis pretrei (Lesson & Delattre, 1839)	rabo-branco-acanelado	R		**1.** MZUSP 52431
Campylopterus largipennis (Boddaert, 1783)	asa-de-sabre-cinza	R		**1.** MZUSP 52434
Eupetomena macroura (Gmelin, 1788)	beija-flor-tesoura	R		**1.** MPEG 20699; MZUSP 52435-437
Anthracothorax nigricollis (Vieillot, 1817)	beija-flor-de-veste-preta	R		**1.** MZUSP 52469-472
Chrysolampis mosquitus (Linnaeus, 1758)	beija-flor-vermelho	R		**1.** MPEG 20692-694, 20698; MZUSP 52474, 52484; **3.** MOG 4784*
Chlorostilbon notatus (Reich, 1793) #	beija-flor-de-garganta-azul	R		**1.** MPEG 20691, 20697, 20700; MZUSP 32465, 52463, 52473
Amazilia versicolor (Vieillot, 1818)	beija-flor-de-banda-branca	R		**1.** MZUSP 52451
Amazilia fimbriata (Gmelin, 1788)	beija-flor-de-garganta-verde	R		**1.** MPEG 20696; MZUSP 52438-460, 70007; **4.** MOG 8004; MZJH 1139
Heliomaster longirostris (Audebert & Vieillot, 1801)	bico-reto-cinzento	R		**1.** MOG 260*, 1140; MPEG 20695, 22031; MZUSP 52485-489
Trogoniformes A. O. U., 1886				
Trogonidae Lesson, 1828				
Trogon melanurus Swainson, 1838	surucuá-de-cauda-preta	R		**1.** COEBD 2612; LSUMZ 33585; MPEG 20657; MZUSP 52500-504; **2.** MOG 4755
Trogon viridis Linnaeus, 1766	surucuá-grande-de-barriga-amarela	R		**1.** KUNHM 52691; MPEG 20654; MPEG 21917; MZUSP 52490-499, 52509; USNM 516014
Trogon surrucura Vieillot, 1817 @	surucuá-variado	R		**1.** MFM 69.24.1
Trogon ramonianus Deville & DesMurs, 1849 #	surucuá-pequeno	R		**1.** MPEG 21949
Trogon curucui Linnaeus, 1766	surucuá-de-barriga-vermelha	R		**1.** CAS 70452; KUNHM 52690; MPEG 20655-656; MZUSP 52505-508, 66963, 69963
Coraciiformes Forbes, 1844				
Alcedinidae Rafinesque, 1815				
Chloroceryle amazona (Latham, 1790)	martim-pescador-verde	R		**1.** FMHN 295601; MPEG 21981; MZUSP 52510-513

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Chloroceryle americana (Gmelin, 1788)	martim-pescador-pequeno	R		**1.** FMHN 295603-04; MZUSP 52514-518, 69965
Momotidae Gray, 1840				
Momotus momota (Linnaeus, 1766)	udu-de-coroa-azul	R		**1.** MOG 277*, 1164*; MFM 69.17.1; MPEG 20647; MZUSP 52521-524, 52528, 68928-929
Galbuliformes Fürbringer, 1888				
Galbulidae Vigors, 1825				
Brachygalba lugubris (Swainson, 1838)	ariramba-preta	R		**1.** FMHN 295615
Galbula ruficauda Cuvier, 1816	ariramba-de-cauda-ruiva	R		**1.** COEBD 2624; FMHN 295622; MPEG 20658-659, 22059; MZUSP 52542, 52544, 52556, 52561, 56547, 69967; **4.** MOG 4759*; **12.** MPEG 34657
Galbula dea (Linnaeus, 1758) #	ariramba-do-paraíso	R	Ea	**1.** ITS-UCG 279, 7569
Bucconidae Horsfield, 1821				
Notharchus hyperrhynchus (Sclater, 1856) #	macuru-de-testa-branca	R		**1.** MOG 1180
Notharchus tectus (Boddaert, 1783)	macuru-pintado	R		**1.** MOG 289*; MPEG 21859; MZUSP 65903
Bucco tamatia Gmelin, 1788	rapazinho-carijó	R	Ea	**1.** MPEG 20670, 21858; MZUSP 52560-567; **12.** MPEG 34661
Nystalus striolatus (Pelzeln, 1856) #	rapazinho-estriado	R		**8.** MPEG 34649
Nystalus chacuru (Vieillot, 1816)	joão-bobo	R		**11.** MOG 3768
Nystalus maculatus (Gmelin, 1788)	rapazinho-dos-velhos	R		**1.** LSUMZ 32270; MZUSP 52565, 52568, 52571
Nonnula rubecula (Spix, 1824) #	macuru	R		**1.** ITS-UCG 297
Monasa nigrifrons (Spix, 1824)	chora-chuva-preto	R		**1.** MPEG 20664-666; MZUSP 52577, 52580-584; **4.** MOG 4753*; **13.** MPEG 34654
Chelidoptera tenebrosa (Pallas, 1782)	urubuzinho	R		**1.** FMHN 295642; MOG 8611*; MPEG 20662, 21864; MZUSP 52591-597
Piciformes Meyer & Wolf, 1810				
Ramphastidae Vigors, 1825				
Ramphastos toco Statius Muller, 1776	tucanuçu	R		**1.** MOG 9633*; **13.** MPEG 34656
Ramphastos tucanus Linnaeus, 1758	tucano-grande-de-papo-branco	R		**1.** HNHM 66.72.1; MPEG 21980, 21985
Ramphastos vitellinus Lichtenstein, 1823	tucano-de-bico-preto	R		**1.** HNHM 66.71.1; MOG 308*, 1192*, 2410*, 5079*; MPEG 20634, 21993; MZUSP 52603-606
Selenidera gouldii (Natterer, 1837) #	saripoca-de-gould	R	Ea	**1.** MOG 317*, 1198*
Pteroglossus viridis (Linnaeus, 1766) @	araçari-miudinho	R	Ea	**1.** MOG 5062*
Pteroglossus inscriptus Swainson, 1822	araçari-miudinho-de-bico-riscado	R		**1.** MOG 315*, 1218, 2408*; MPEG 20635, 21987; MZUSP 52613-616, 68976-979
Pteroglossus aracari (Linnaeus, 1758)	araçari-de-bico-branco	R		**1.** LACM 45983; MOG 1215*, 5060*, 6266*; MPEG 20633, 21979; MZUSP 52609-611, 68980
Pteroglossus castanotis Gould, 1834 @	araçari-castanho	R		**1.** HNHM 66.73.1
Picidae Leach, 1820				
Picumnus albosquamatus d'Orbigny, 1840	pica-pau-anão-escamado	R		**1.** MPEG 20630
Melanerpes candidus (Otto, 1796)	birro, pica-pau-branco	R		**1.** MPEG 20628; MZUSP 52618
Melanerpes cruentatus (Boddaert, 1783)	benedito-de-testa-vermelha	R		**1.** MOG 319*; MPEG 20629; MZUSP 52620
Veniliornis affinis (Swainson, 1821)	picapauzinho-avermelhado	R		**1.** MPEG 21852
Veniliornis passerinus (Linnaeus, 1766)	picapauzinho-anão	R		**1.** MZUSP 52640-641; **3.** MOG 4766*
Piculus flavigula (Boddaert, 1783)	pica-pau-bufador	R		**1.** MOG 323; MPEG 21846
Colaptes melanochloros (Gmelin, 1788)	pica-pau-verde-barrado	R		**1.** MPEG 20626
Colaptes campestris (Vieillot, 1818)	pica-pau-do-campo	R		**1.** MZUSP 62617, 72198
Celeus elegans (Statius Muller, 1776) #	pica-pau-chocolate	R	Ea	**1.** MOG 327*; MPEG 21847-848

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Celeus flavescens (Gmelin, 1788)	pica-pau-de-cabeça-amarela	R		**1.** MPEG 20624, 21850; USNM 516031
Celeus flavus (Statius Muller, 1776)	pica-pau-amarelo	R		**1.** LSUMZ 32274; MMGY No 87.3.21; MOG 327*; MPEG 21849; MZUSP 52624
Dryocopus lineatus (Linnaeus, 1766)	pica-pau-de-banda-branca	R		**1.** HNHM 66.82.1; MPEG 20625; MZUSP 52925-929, 65323
Campephilus rubricollis (Boddaert, 1783)	pica-pau-de-barriga-vermelha	R	Ea	**1.** MOG 330*, 5347*; MPEG 20631, 21851
Campephilus melanoleucos (Gmelin, 1788)	pica-pau-de-topete-vermelho	R		**1.** KUNHM 52339; MPEG 20632; MZUSP 52635-638
Passeriformes Linnaeus, 1758				
Thamnophilidae Swainson, 1824				
Taraba major (Vieillot, 1816)	choró-boi	R		**1.** FMHN 295699; MNHN 447-449, 490, 584; MPEG 20740, 22002; MZUSP 52668-670, 69010
Sakesphorus luctuosus (Lichtenstein, 1823)	choca-d'água	R	Ebr, Ea	**1.** FMHN 344462; LSUMZ 67246; MNHN 480-483; MOG 381*, 5379*; MPEG 20747; MZUSP 52671-674, 66057
Thamnophilus doliatus (Linnaeus, 1764)	choca-barrada	R		**1.** MNHN 484; MPEG 20743; MZUSP 52675-677; **3.** MOG 4777
Thamnophilus torquatus Swainson, 1825	choca-de-asa-vermelha	R		**1.** LSUMZ 63532; MPEG 21994; MZUSP 68487
Thamnophilus palliatus (Lichtenstein, 1823) #	choca-listrada	R		**1.** ITS-UCG 383; **8.** MPEG 34722
Thamnophilus amazonicus Sclater, 1858	choca-canela	R	Ea	**1.** MZUSP 52686; **12.** MPEG 34750
Dysithamnus mentalis (Temminck, 1823)	choquinha-lisa	R		**5.** MPEG 34743; **6.** MPEG 34757; **12.** MPEG 34708
Thamnomanes caesius (Temminck, 1820) #	ipecuá	R		**6.** MPEG 34758
Myrmotherula multostriata Sclater, 1858	choquinha-estriada-da-amazônia	R		**1.** MOG 394; MZUSP 52687, 66093
Myrmotherula axillaris (Vieillot, 1817)	choquinha-de-flanco-branco	R	Ea	**1.** MPEG 21982; MZUSP 52688; **4.** MOG 7976; **6.** MPEG 34756
Herpsilochmus atricapillus Pelzeln, 1868	chorozinho-de-chapéu-preto	R		**3.** LSUMZ 50245
Formicivora grisea (Boddaert, 1783)	papa-formiga-pardo	R		**1.** MNHN 485; MPEG 20746, 22003; MZUSP 52689-693, 66094; **6.** MPEG 34753; **12.** MPEG 34748
Cercomacra ferdinandi Snethlage, 1928 #	chororó-de-goiás	R	Ebr, Ec, Vul[1,2]	**1.** MPEG 20552-553; MZUSP 52750-751, 64906; **5.** MPEG 34740
Pyriglena leuconota (Spix, 1824) #	papa-taoca	R		**1.** MPEG 21978
Myrmoborus leucophrys (Tschudi, 1844) #	papa-formiga-de-sobrancelha	R		**1.** MOG 412
Hypocnemis striata (Spix, 1825) #	cantador-estriado	R	Ebr, Ea	**1.** ITS-UCG 5568; MOG 417
Hypocnemoides maculicauda (Pelzeln, 1868)	solta-asa	R	Ea	**1.** MPEG 20744; **8.** MPEG 34760-761
Hylophylax naevius (Gmelin, 1789) #	guarda-floresta	R	Ea	**1.** MOG 431
Willisornis poecilinotus (Cabanis, 1847) #	rendadinho	R	Ea	**5.** MPEG 34741; **6.** MPEG 34754; **12.** MPEG 34752
Formicariidae Gray, 1840				
Formicarius colma Boddaert, 1783	galinha-do-mato	R		**1.** MNHN 479, 587; MOG (ZooGoiânia) 425; MPEG 20745, 21920; MZUSP 52694-698, 69019-020; **12.** MPEG 34689
Formicarius analis (d'Orbigny & Lafresnaye, 1837) #	pinto-do-mato-de-cara-preta	R		**1.** MOG 1373*; MZUSP 52699
Sclerurus mexicanus Sclater, 1857 #	vira-folha-de-peito-vermelho	R		**6.** MPEG 34759
Dendrocolaptidae Gray, 1840				
Sittasomus griseicapillus (Vieillot, 1818)	arapaçu-verde	R		**1.** MZUSP 52658, 72380; **13.** MPEG 34764
Dendrocolaptes certhia (Boddaert, 1783)	arapaçu-barrado	R	Ea	**1.** MZUSP 52647; **8.** MPEG 34762
Dendroplex picus (Gmelin, 1788)	arapaçu-de-bico-branco	R		**1.** MOG 1272*; MZUSP 52652, 52653
Xiphorhynchus spixii (Lesson, 1830) #	arapaçu-de-spix	R	Ea	**12.** MPEG 34749
Xiphorhynchus guttatus (Lichtenstein, 1820)	arapaçu-de-garganta-amarela	R	Ea	**1.** MZUSP 52654-655

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Lepidocolaptes angustirostris (Vieillot, 1818)	arapaçu-de-cerrado	R		**1.** UMNZ 215373
Furnariidae Gray, 1840				
Furnarius figulus (Lichtenstein, 1823)	casaca-de-couro-da-lama	R	Ebr	**1.** MOG 359*
Synallaxis rutilans Temminck, 1823 #	joão-teneném-castanho	R	Ea	**1.** MOG 364
Synallaxis gujanensis (Gmelin, 1789) #	joão-teneném-becuá	R	Ea	**1.** MZUSP 52661
Synallaxis scutata Sclater, 1859	estrelinha-preta	R		**1.** MOG 363*
Cranioleuca vulpina (Pelzeln, 1856)	arredio-do-rio	R		**1.** MPEG 20505-506; MZUSP 52662-663
Certhiaxis cinnamomeus (Gmelin, 1788)	curutié	R		**1.** MZUSP 72387
Automolus rufipileatus (Pelzeln, 1859) #	barranqueiro-de-coroa-castanha	R		**1.** MOG 1301
Xenops minutus (Sparrman, 1788)	bico-virado-miúdo	R		**5.** MPEG 34742; **6.** MPEG 34755; **12.** MPEG 34751
Xenops rutilans Temminck, 1821	bico-virado-carijó	R		**1.** MPEG 21856
Tyrannidae Vigors, 1825				**8.** MPEG 34721
Mionectes oleagineus (Lichtenstein, 1823)	abre-asa	R		**1.** MZUSP 70141; **12.** MPEG 34693
Corythopis torquatus (Tschudi, 1844)	estalador-do-norte	R	Ea	**12.** MPEG 34707
Hemitriccus striaticollis (Lafresnaye, 1853)	sebinho-rajado-amarelo	R		**1.** MPEG 20717, 25623-624; MZUSP 52834-837; **4.** MZJH 1416
Hemitriccus margaritaceiventer (d'Orbigny & Lafresnaye, 1837)	sebinho-de-olho-de-ouro	R		**1.** MZUSP 52838-839
Poecilotriccus sylvia (Desmarest, 1806) #	ferreirinho-da-capoeira	R		**1.** MOG 546*; MPEG 25616; **4.** MOG 5371
Todirostrum maculatum (Desmarest, 1806)	ferreirinho-estriado	R	Ea	**1.** MPEG 20640, 20668-69; MUZSP 52831-833; **5.** MPEG 34688
Todirostrum cinereum (Linnaeus, 1766)	ferreirinho-relógio	R		**1.** LACM 45991; MPEG 22055; MZUSP 52828-830
Phyllomyias fasciatus (Thunberg, 1822)	piolhinho	R		**1.** MZUSP 52852
Tyrannulus elatus (Latham, 1790) #	maria-te-viu	R		**1.** MZUSP 52851
Myiopagis gaimardii (d'Orbigny, 1839)	maria-pechim	R		**1.** MZUSP 52846
Myiopagis viridicata (Vieillot, 1817)	guaracava-de-crista-alaranjada	R		**1.** LACM 45993; MZUSP 52847; **13.** MPEG 34696
Elaenia flavogaster (Thunberg, 1822)	guaracava-de-barriga-amarela	R		**1.** MPEG 20713, 22060; MZUSP 52979-985
Elaenia cristata Pelzeln, 1868	guaracava-de-topete-uniforme	R		**1.** MPEG 22030; MZUSP 52989-994; **3.** MMGY No 88.1.17; MOG 4810*, 4811*
Elaenia chiriquensis Lawrence, 1865	chibum	R		**1.** MPEG 20719, 20722, 22061, 22066; MZUSP 68479
Camptostoma obsoletum (Temminck, 1824)	risadinha	R		**1.** MZUSP 52853-854
Serpophaga hypoleuca Sclater & Salvin, 1866 #	alegrinho-do-rio	R	Ea	**1.** MZUSP 70528
Sublegatus modestus (Wied, 1831)	guaracava-modesta	R		**1.** MZUSP 52856, 70520
Inezia subflava (Sclater & Salvin, 1873)	amarelinho	R		**1.** MPEG 20715, 34687; MZUSP 52841-842
Tolmomyias sulphurescens (Spix, 1825)	bico-chato-de-orelha-preta	R		**1.** MPEG 21821; MZJH 1440
Tolmomyias poliocephalus (Taczanowski, 1884) #	bico-chato-de-cabeça-cinza	R		**5.** MPEG 34684
Tolmomyias flaviventris (Wied, 1831)	bico-chato-amarelo	R		**11.** MMGY No 87.3.121
Platyrinchus mystaceus Vieillot, 1818	patinho	R		**1.** MZUSP 52825
Onychorhynchus coronatus (Statius Muller, 1776) #	maria-leque	R	Ea	**1.** MOG 535, 14099A
Myiophobus fasciatus (Statius Muller, 1776)	filipe	R		**1.** MPEG 20712; MZUSP 52824
Lathrotriccus euleri (Cabanis, 1868)	enferrujado	R		**4.** MZJH 1419
Cnemotriccus fuscatus (Wied, 1831)	guaracavuçu	R		**1.** MOG 528; MZUSP 52818
Pyrocephalus rubinus (Boddaert, 1783)	príncipe	R		**1.** MZUSP 52758, 70118
Knipolegus poecilocercus (Pelzeln, 1868) #	pretinho-do-igapó	R	Ea	**1.** MPEG 20645; MZUSP 52820
Fluvicola albiventer (Spix, 1825)	lavadeira-de-cara-branca	R		**1.** MPEG 20734; MZJH 1412; MZUSP 52756-757
Fluvicola nengeta (Linnaeus, 1766) #	lavadeira-mascarada	R		**1.** ITS-UCG 502
Legatus leucophaius (Vieillot, 1818)	bem-te-vi-pirata	R		**1.** MPEG 20730-732, 22029; MZUSP 52782-784

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Myiozetetes cayanensis (Linnaeus, 1766)	bentevizinho-de-asa-ferrugínea	R		**1.** MPEG 22037; MZJH 1453; MZUSP 52801-804
Myiozetetes similis (Spix, 1825)	bentevizinho-de-penacho-vermelho	R		**1.** MZUSP 52805; **3.** MOG 4770*
Myiozetetes luteiventris (Sclater, 1858) #	bem-te-vi-barulhento	R	Ea	**4.** MOG 518
Pitangus sulphuratus (Linnaeus, 1766)	bem-te-vi	R		**1.** MPEG 22036; MZUSP 52807-810; **4.** MOG 4787*
Philohydor lictor (Lichtenstein, 1823)	bentevizinho-do-brejo	R		**1.** LSUMZ 32290; MOG 521; MPEG 22042
Myiodynastes maculatus (Statius Muller, 1776)	bem-te-vi-rajado	R		**1.** MPEG 20727, 22032; MZUSP 52785-789, 70049
Megarynchus pitangua (Linnaeus, 1766)	neinei	R		**1.** MPEG 20723-724, 22050, 22053; MZUSP 52795-800
Tyrannopsis sulphurea (Spix, 1825)	suiriri-de-garganta-rajada	R		**1.** MZUSP 52806
Empidonomus varius (Vieillot, 1818)	peitica	R		**1.** MPEG 20728-729, 22041, 22057; MZUSP 52778-779
Griseotyrannus aurantioatrocristatus (d'Orbigny & Lafresnaye, 1837)	peitica-de-chapéu-preto	R		**1.** MPEG 20733, 22039, 22058, 22062; MZUSP 52780; **13.** MPEG 34695
Tyrannus albogularis Burmeister, 1856	suiriri-de-garganta-branca	R		**1.** MPEG 22054; MZUSP 52761,
Tyrannus melancholicus Vieillot, 1819	suiriri	R		**1.** HNHM 66.51.1; MPEG 20725-726; MZUSP 52762-775, 70078-080; **11.** MOG 3988*
Tyrannus savana Vieillot, 1808	tesourinha	R		**1.** MPEG 20716
Casiornis fuscus Sclater & Salvin, 1873	caneleiro-enxofre	R	Ebr	**1.** UMNZ 215405; MZUSP 52704-707
Myiarchus ferox (Gmelin, 1789)	maria-cavaleira	R		**1.** MZUSP 52814-815, 70167
Attila cinnamomeus (Gmelin, 1789) #	tinguaçu-ferrugem	R	Ea	**1.** LSUMZ 32289, 67382; MPEG 21924; MZUSP 52702
Attila spadiceus (Gmelin, 1789) #	capitão-de-saíra-amarelo	R		**1.** MOG 1393
Cotingidae Bonaparte, 1849				
Cotinga cotinga (Linnaeus, 1766) #	anambé-de-peito-roxo	R	Ea	**1.** LSUMZ 51223; MNHN 444, 627; MOG 447*, 2421*; MPEG 20638; MZUSP 52700, 68652-653; **2.** MOG 4756*
Cotinga cayana (Linnaeus, 1766) #	anambé-azul	R	Ea	**1.** MOG 448, 1390, 2417; MPEG 21996; MZJH 1478
Lipaugus vociferans (Wied, 1820)	cricrió	R		**1.** MOG 458; MPEG 20639; MZUSP 52709-710; **2.** MZJH 1482
Gymnoderus foetidus (Linnaeus, 1758)	anambé-pombo	R	Ea	**1.** MNHN 435; MOG 471; MPEG 20637; MZUSP 52729-731
Querula purpurata (Statius Muller, 1776)	anambé-una	R		**1.** KUNHM 52694; MOG 1381*, 5334*; MPEG 20636; 52724-728
Cephalopterus ornatus Geoffroy Saint-Hilaire, 1809 #	anambé-preto	R		**1.** MOG 469
Pipridae Rafinesque, 1815				
Neopelma pallescens (Lafresnaye, 1853)	fruxu-do-cerradão	R		**1.** MMGY No 88.1.34; MOG 489*, 1453*; MPEG 20718; MZUSP 52749, 68517-518; **6.** MPEG 34673
Tyranneutes stolzmanni (Hellmayr, 1906)	uirapuruzinho	R		**1.** MOG 482
Lepidothrix nattereri (Sclater, 1865) @	uirapuru-de-chapéu-branco	R	Ea	**2.** MOG 5525*
Manacus manacus (Linnaeus, 1766)	rendeira	R		**1.** MOG 486*, 1447; MPEG 20643, 22047; MZUSP 52741-747, 69048; **2.** MOG 4764; **4.** MZJH 1466
Chiroxiphia pareola (Linnaeus, 1766)	tangará-falso	R		**1.** FMHN 344699; LSUMZ 65065-066; MNHN 629; MOG 485, 1444*, 2429*, 4939*; MFM 69.38.1; MPEG 20642; MZJH 1468; MZUSP 52738-740, 68516, 69042-047; **2.** MOG 4763; **5.** MPEG 34685; **8.** MPEG 34675; **12.** MPEG 34692;
Xenopipo atronitens Cabanis, 1847 #	pretinho	R	Ea	**1.** MZUSP 51737, **12.** MPEG 34691; **8.** MPEG 34674

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Pipra fasciicauda Hellmayr, 1906	uirapuru-laranja	R		**1.** MNHN 628; MOG 475*; MFM 69.37.1; MPEG 20644; MZUSP 52732-735
Pipra rubrocapilla Temminck, 1821 #	cabeça-encarnada	R		**1.** MOG 1437*, 2693*; MZJH 1474; MZUSP 52736
Tityridae Gray, 1840				
Schiffornis turdina (Wied, 1831) #	flautim-marrom	R	Ebr	**1.** MZUSP 52748; **5.** MPEG 34686; **12.** MPEG 34690
Iodopleura isabellae Parzudaki, 1847 #	anambé-de-coroa	R	Ea	**1.** ITS-UCG 5363; LSUMZ 67375; MOG 451*, 5561; MFM 69.53.1; MPEG 20646: MZUSP 52701
Tityra inquisitor (Lichtenstein, 1823)	anambé-branco-de-bochecha-parda	R		**1.** MNHN 439, 440; MZUSP 52722
Tityra cayana (Linnaeus, 1766)	anambé-branco-de-rabo-preto	R		**1.** MNHN 437
Tityra semifasciata (Spix, 1825)	anambé-branco-de-máscara-negra	R		**1.** LSUMZ 67421; MOG 6569*; MPEG 20641, 21995; **1.** MZUSP 52720-721, 72268-269
Pachyramphus viridis (Vieillot, 1816)	caneleiro-verde	R		MZUSP 70173
Pachyramphus rufus (Boddaert, 1783) #	caneleiro-cinzento	R		**1.** LSUMZ 67415; MZUSP 52719
Pachyramphus polychopterus (Vieillot, 1818)	caneleiro-preto	R		**1.** LACM 45465; MNHN 445; MZUSP 52711
Pachyramphus validus (Lichtenstein, 1823)	caneleiro-de-chapéu-preto	R		**1.** MNHN 443
Vireonidae Swainson, 1837				
Cyclarhis gujanensis (Gmelin, 1789)	pitiguari	R		**1.** MZUSP 52913-914; **13.** MPEG 34709
Vireo olivaceus (Linnaeus, 1766)	juruviara	R		**1.** MPEG 20689, 20690; MZUSP 52915-916, 69053-054
Hylophilus semicinereus Sclater & Salvin, 1867	verdinho-da-várzea	R	Ea	**1.** MZUSP 52918
Corvidae Leach, 1820				
Cyanocorax cristatellus (Temminck, 1823)	gralha-do-campo	R	Ec	**13.** MPEG 34711
Cyanocorax cyanopogon (Wied, 1821)	gralha-cancã	R	Ebr	**1.** LACM 45471; MPEG 20608, 21934; MZUSP 52865-868, 68566; **13.** MPEG 34710
Hirundinidae Rafinesque, 1815				
Pygochelidon melanoleuca (Wied, 1820)	andoriha-de-coleira	R		**1.** MPEG 22063, 22064
Stelgidopteryx ruficollis (Vieillot, 1817)	andorinha-serradora	R		**1.** FMHN 295827; MZUSP 52861
Progne tapera (Vieillot, 1817)	andorinha-do-campo	R		**1.** MZUSP 52857-859
Tachycineta albiventer (Boddaert, 1783)	andorinha-do-rio	R		**1.** MPEG 21913, 22052, 22056, 22065; MZUSP 52862-863
Troglodytidae Swainson, 1831				
Troglodytes musculus Naumann, 1823	corruíra	R		**1.** MZUSP 52876
Pheugopedius genibarbis (Swainson, 1838)	garrinchão-pai-avô	R		**1.** MPEG 20751, 21927-928; MZUSP 52872-873
Cantorchilus leucotis (Lafresnaye, 1845)	garrinchão-de-barriga-vermelha	R		**1.** MPEG 20750; MZUSP 52871
Donacobiidae Aleixo & Pacheco, 2006				
Donacobius atricapilla (Linnaeus, 1766)	japacanim	R		**1.** MZJH 1484; MPEG 21916, 21933; MZUSP 52880-881
Polioptilidae Baird, 1858				
Polioptila dumicola (Vieillot, 1817)	balança-rabo-de-máscara	R		**1.** MPEG 21915, 21918; MZUSP 52909-910
Turdidae Rafinesque, 1815				
Catharus fuscescens (Stephens, 1817)	sabiá-norte-americano	VN		**1.** MOG 604
Turdus rufiventris Vieillot, 1818	sabiá-laranjeira	R		**3.** LSUMZ 32975
Turdus leucomelas Vieillot, 1818	sabiá-barranco	R		**1.** MZUSP 52904-908, 70421; **13.** MPEG 34694
Turdus fumigatus Lichtenstein, 1823	sabiá-da-mata	R		**1.** MZUSP 52883
Turdus amaurochalinus Cabanis, 1850	sabiá-poca	R		**1.** MZUSP 52884; **2.** MMGY No 88.1.14; **11.** MOG 4620*
Turdus albicollis Vieillot, 1818 #	sabiá-coleira	R		**1.** MOG 598

Ordem/Família/Espécie	Nome Popular (CBRO 2009)	Status migratório	Status de ameaça e distribuição	Registros e Localidades
Mimidae Bonaparte, 1853				
Mimus saturninus (Lichtenstein, 1823)	sabiá-do-campo	R		**1.** MZUSP 52877, 70371
Coerebidae d'Orbigny & Lafresnaye, 1838				
Coereba flaveola (Linnaeus, 1758)	cambacica	R		**1.** MPEG 20686, 21867; MZUSP 52967-968, 69069-070; USNM 516101
Thraupidae Cabanis, 1847				
Saltator grossus (Linnaeus, 1766) #	bico-encarnado	R		**1.** MOG 717, 1846, 5115*; MPEG 21922, 21950
Saltator maximus (Statius Muller, 1776)	tempera-viola	R		**1.** MPEG 20736, 22001; MZUSP 53108-112
Saltator coerulescens Vieillot, 1817	sabiá-gongá	R		**1.** MPEG 21973, 21998; MZUSP 53114-116; **3.** MOG 4774, 5463*
Schistochlamys ruficapillus (Vieillot, 1817)	bico-de-veludo	R	Ebr	**1.** MPEG 20681; MZUSP 53106-107, 65832, 65831, 70442
Neothraupis fasciata (Lichtenstein, 1823)	cigarra-do-campo	R	Ec	**1.** MZUSP 53104
Nemosia pileata (Boddaert, 1783)	saíra-de-chapéu-preto	R		**1.** MPEG 20684; MZUSP 53099-100
Thlypopsis sordida (d'Orbigny & Lafresnaye, 1837)	saí-canário	R		**1.** MZUSP 53103
Tachyphonus luctuosus d'Orbigny & Lafresnaye, 1837	tem-tem-de-dragona-branca	R		**1.** MOG(ZooGoainia) 674; MOG 1731*
Tachyphonus rufus (Boddaert, 1783)	pipira-preta	R		**1.** MZUSP 53091-094
Ramphocelus carbo (Pallas, 1764)	pipira-vermelha	R		**1.** MPEG 20678-680, 21986, 21990; MZUSP 53077-089, 70458-459; **3.** MOG 4758*, **4.** MOG 4757*
Thraupis episcopus (Linnaeus, 1766) #	sanhaçu-da-amazônia	R		**1.** MZJH 5157; MPEG 20676-677; MZUSP 53063-069
Thraupis palmarum (Wied, 1823)	sanhaçu-do-coqueiro	R		**1.** MPEG 20675, 21984, 21989,21991; MZUSP 53072-076, 69085
Tangara mexicana (Linnaeus, 1766) #	saíra-de-bando	R	Ea	**1.** MOG 652; MPEG 20682; MZUSP 53054, 65820, 66095-096
Tangara schrankii (Spix, 1825) @	saíra-ouro	R	Ea	**1.** MOG 9215*
Tangara cayana (Linnaeus, 1766)	saíra-amarela	R		**1.** MPEG 20683, MZUSP 53055-060, 65821
Tangara cyanicollis (d'Orbigny & Lafresnaye, 1837)	saíra-de-cabeça-azul	R		**1.** MOG 648*
Tersina viridis (Illiger, 1811)	saí-andorinha	R		**1.** MPEG 20749, 22051; MZUSP 53046, 70496-506;
Dacnis lineata (Gmelin, 1789) #	saí-de-máscara-preta	R		**1.** MOG 619
Dacnis flaviventer d'Orbigny & Lafresnaye, 1837 #	saí-amarela	R	Ea	**1.** MOG 618
Dacnis cayana (Linnaeus, 1766)	saí-azul	R		**1.** COEBD 2640; LACM 46009; LSUMZ 67692-694; MZUSP 52960-966; **4.** MOG 4791*
Cyanerpes caeruleus (Linnaeus, 1758) #	saí-de-perna-amarela	R		**1.** MOG 1621
Cyanerpes cyaneus (Linnaeus, 1766)	saíra-beija-flor	R		**1.** COEBD 2644; COUFPE 389; FMHN 344881; HNHM 66.215.1; MOG 2312*, 6245*; MFM 69.47.1; MPEG 20667, 20670-672, 22004-005, 22033, 22035, 22049; MZJH 2084, 2086; MZUSP 52919-959, 69072; USNM 516104
Chlorophanes spiza (Linnaeus, 1758) #	saí-verde	R		**1.** ITS-UCG 613
Hemithraupis guira (Linnaeus, 1766)	saíra-de-papo-preto	R		**1.** MZUSP 53101
Emberizidae Vigors, 1825				
Zonotrichia capensis (Statius Muller, 1776)	tico-tico	R		**1.** MZUSP 53141
Ammodramus humeralis (Bosc, 1792)	tico-tico-do-campo	R		**5.** MPEG 34720
Volatinia jacarina (Linnaeus, 1766)	tiziu	R		**1.** MPEG 20737; MZUSP 53126-128, 69061
Sporophila nigricollis (Vieillot, 1823)	baiano	R		**1.** MCZ 262752

Ordem/Família/Espécie	Nome Popular (CBRO 2009)	Status migratório	Status de ameaça e distribuição	Registros e Localidades
Sporophila angolensis (Linnaeus, 1766)	curió	R		**1.** MOG 9193*, 9200*-01*, 9203*-04*-05*, 9248*, 9250*; MPEG 21929; MZJH 1803, 1620; MZUSP 53125, 70698-699
Arremon taciturnus (Hermann, 1783)	tico-tico-de-bico-preto	R		**1.** MZUSP 53136; **5.** MPEG 34719
Charitospiza eucosma Oberholser, 1905	mineirinho	R	Ec	**1.** FMHN 295913; MPEG 28355-356; MZUSP 53129; UNMZ 215416
Coryphospingus pileatus (Wied, 1821)	tico-tico-rei-cinza	R		**1.** MOG 749; MPEG 20752, 21912-914, 21921, 21926; MZUSP 53134-135, 70697
Paroaria gularis (Linnaeus, 1766)	cardeal-da-amazônia	R		**1.** MOG 721; MPEG 20673-674, 21974-975; MZUSP 53117-122
Paroaria baeri Hellmayr, 1907 @	cardeal-de-goiás	R	Ebr, Ec	**1.** MOG 1863*, 4937*
Cardinalidae Ridgway, 1901				
Granatellus pelzelni Sclater, 1865	polícia-do-mato	R	Ea	**1.** MOG 626, 1632; MZUSP 52970
Cyanoloxia cyanoides (Lafresnaye, 1847)	azulão-da-amazônia	R		**1.** MZUSP 53123, 72743; **8.** MPEG 34723
Parulidae Wetmore, Friedmann, Lincoln, Miller, Peters, van Rossem, Van Tyne & Zimmer 1947				
Basileuterus hypoleucus Bonaparte, 1830	pula-pula-de-barriga-branca	R		**3.** KUNHM 52722
Icteridae Vigors, 1825				
Psarocolius viridis (Statius Muller, 1776) #	japu-verde	R	Ea	**1.** MOG 689, 5117*; MZUSP 52997; **14.** MOG 2714
Psarocolius decumanus (Pallas, 1769)	japu	R		**1.** LSUMZ 67728; MOG 5325*; MZUSP 69163-165
Psarocolius bifasciatus (Spix, 1824) #	japuaçu	R	Ea	**1.** LSUMZ 64944, 67722; MOG 687, 2407*; MZUSP 52996, 64230
Cacicus cela (Linnaeus, 1758)	xexéu	R		**1.** MPEG 20710, 20708-709; MZUSP 53003-53026, 70987; USNM 516112
Icterus cayanensis (Linnaeus, 1766)	encontro	R		**1.** MPEG 21863; MZUSP 53035-037, 66046-047, 69178-179
Gnorimopsar chopi (Vieillot, 1819)	graúna	R		**7.** MOG 4749*
Agelasticus cyanopus (Vieillot, 1819)	carretão	R		**1.** MOG 702*
Chrysomus ruficapillus (Vieillot, 1819)	garibaldi	R		**1.** MZJH 1786
Molothrus oryzivorus (Gmelin, 1788)	iraúna-grande	R		**1.** MOG 694*; MZUSP 53030
Molothrus bonariensis (Gmelin, 1789)	vira-bosta	R		**1.** LSUMZ 32303; MOG 1790*; MPEG 20701; MZUSP 53031-033
Sturnella militaris (Linnaeus, 1758) #	polícia-inglesa-do-norte	R		**1.** MZUSP 53044
Fringillidae Leach, 1820				
Euphonia chlorotica (Linnaeus, 1766)	fim-fim	R		**1.** LSUMZ 67777; MPEG 20687, 21866; MZUSP 53047-048
Euphonia violacea (Linnaeus, 1758)	gaturamo-verdadeiro	R		**1.** MOG 1647*; MZUSP 53049-052; **4.** MOG 4765*, 5477
Euphonia minuta Cabanis, 1849 #	gaturamo-de-barriga-branca	R		**1.** MZUSP 65902
Passeridae Rafinesque, 1815				
Passer domesticus (Linnaeus, 1758)	pardal	R		**1.** MZUSP 66028

A elaboração de uma curva de acumulação de espécies de aves para Araguatins, considerando as diferentes espécies coletadas anualmente por JH, ao longo da década de 1960, demonstra uma tendência estabilizadora na riqueza de espécies de aves (Figura 2). Indiretamente, esta tendência estabilizadora poderia indicar que os valores de riqueza de aves alcançados por Olmos *et al.* (2004) e aquele constatado para Araguatins representariam, ou no mínimo estariam muito próximos, da riqueza máxima de aves para cada uma dessas regiões. Todavia, essa tendência não é verdadeira.

Como todas essas localidades partilham ambientes ombrófilos semelhantes, a ocorrência das espécies ausentes nas coleções de JH e presentes nas listagens de Olmos *et al.* (2004) é no mínimo previsível também em Araguatins, presumindo-se, portanto, em uma riqueza de aves superior que as 297 espécies compiladas (Tabela 1). O mesmo ocorre para algumas das espécies coletadas por

Manoel Santa-Brígida em Ananás, Couto de Magalhães e Xambioá cujas coletas também não foram realizadas por J. Hidasi em Araguatins (Tabela 1). Não diferentemente, espécies coletadas por JH e MSB não foram detectadas por Olmos *et al.* (2004), que devido ao curto intervalo de tempo consequente do método de Avaliação Ecológica Rápida empregado, não detectaram uma riqueza ainda maior de espécies de aves em ambos remanescentes amostrados.

O registro de somente três espécies migrantes neárticas, *Pluvialis dominica* (MZUSP 52209-210), *Calidris fuscicollis* (MZUSP 52214-220) e *Catharus fuscencens* (MOG 604), são também uma outra evidência da existência de uma maior riqueza de aves na região. O registro de pelo menos mais oito espécies migrantes neárticas para a planície do Araguaia, destaque para os milhares de indivíduos de *Progne subis* (Olmos e Pacheco 2008, Pinheiro e Dornas 2009a), colocam o rio Araguaia como uma importante rota migratória para as espécies migratórias neárticas (Dornas e Pinheiro, no prelo). Esta condição ratifica, portanto, uma riqueza ainda maior de espécies migrantes neárticas dentro dos limites amazônicos do Tocantins.

Por outro lado, se as demais localidades alvos de coletas de JH e MSB apresentam pouca representatividade quantitativa da riqueza de aves comparadas à Araguatins, do ponto de vista qualitativo, muitas dessas localidades se igualam em importância a esta última. O aumento da distribuição geográfica de várias espécies para o interior dos limites do estado do Tocantins constitui uma das principais consequências das coletas de aves de JH e MSB nas demais localidades extra-Araguatins.

Levando-se em conta o histórico de amostragem ornitológica no Tocantins (Dornas 2009), as coletas de JH e MSB na Amazônia tocantinense representam os primeiros registros no estado para a maioria das espécies de aves com centro de distribuição amazônico. Ademais, muito desses primeiros registros constituem também os únicos para a Amazônia tocantinense e consequentemente para o estado do Tocantins como verificado, por exemplo, para *Touit hueti, Nystalus striolatus* e *Xyphorynchus spixii* dentre outros, cujas considerações seguem mais adiante.

Espécies Endêmicas

As aves endêmicas à Amazônia estão compartimentalizadas em diferentes áreas de endemismos, cujos limites são as calhas de alguns grandes rios amazônicos (Cracraft 1985, Haffer 1992, Stotz *et al.* 1996). Pelo menos nove áreas de endemismo com suas respectivas espécies endêmicas são apresentadas por Cracraft (1985). Por sua vez, Stotz *et al.* (1996) listam as aves endêmicas da Amazônia diferenciando-as por regiões e sub-regiões zoogeográficas. Deste modo, seguindo Stotz *et al.* (1996), 40 seriam as espécies endêmicas amazônicas compiladas para a Amazônia tocantinense através das coletas de JH e MSB (Tabela 1).

O interflúvio Tocantins-Araguaia não é considerado uma área de endemismo amazônico, mas a Amazônia tocantinense, nele inserido, localiza-se tangente as áreas de endemismos Pará (hoje denominada Xingu) e Belém (Cracraft 1985). Dentre as espécies de aves listadas como endêmicas para estes duas áreas de endemismo (Cracraft 1985), *Nonnula rubbecula, Serpophaga hypoleuca, Psarocolius bifasciatus* (endemismos Pará) e *Ortalis superciliares, Nystalus sriolatus* (endemismos Belém), possuem registros de coletas para a Amazônia tocantinense (Tabela 1).

Em outras palavras, espécies endêmicas das áreas de endemismo Xingu e Pará, consideradas alopátricas, devido ao isolamento proporcionado pelo rio Tocantins à jusante de sua foz com rio Araguaia, estão estabelecendo contatos no interflúvio Tocantins-Araguaia. A diminuição da força de barreira geográfica de um rio amazônico é percebida à medida que se segue à montante na sua calha (Sick 1967, Haffer 1992) e justamente, situação que parece ocorrer no rio Tocantins à montante de sua foz com o rio Araguaia, assim como também para todo o rio Araguaia. Porém, vale ressaltar que essa perda de força de um rio como barreira geográfica é refletida de forma diferente para cada uma das espécies de aves (Sick 1967, Haffer 1992).

No que se referem às espécies endêmicas ao bioma Cerrado (Silva 1997, Cavalcanti 1999, Silva e Santos 2005), cinco foram as espécies compiladas, sendo todas elas de ampla ou considerável distribuição geográfica no bioma: *Penelope ochrogaster, Cercomacra ferdinandi, Cyanocorax cristatellus, Neothraupis fasciata e Charitospiza eucosma.* A exceção das duas primeiras espécies, associadas às mata ciliares e de galeria e/ou cerradões e matas semideciduas (Silva 1997, Olmos *et al.* 2006, Pinheiro e Dornas 2009a), a presença das outras três especies endêmicas do Cerrado se deve a existência de populações dessas espécies mencionadas nas Chapadas do Meio Norte, entre os municípios de Ananás e Araguatins (Olmos *et al.* 2004).

Essa condição limítrofe da Amazônia tocantinense junto ao Cerrado promove uma ocorrência quase que sintópica das espécies endêmicas de ambas os biomas, nitidamente verificada em Araguatins, onde JH coletou exemplares de *Charitospiza eucosma* e *Neothraupis fasciata,* ambas endêmicas ao Cerrado, assim como exemplares de *Cotinga cotinga* e *Iodopleura isabelle,* endêmicas à Amazônia (Tabela 1). Certamente, essa situação persistirá para todo limite leste da Amazônia tocantinense, onde há um constante empareamento com o bioma Cerrado, no entanto a intensidade desta sobreposição tende a diminuir à medida que os dois biomas se afastam (Silva 1996, Dornas 2009).

Considerando os limites políticos, nenhuma das espécies compiladas representa um endemismo

tocantinense, mesmo porque *Synallaxis simoni,* único endemismo tocantinense aparente, está restrito ao vale do Araguaia, na Ilha do Bananal (Silva 1997, Silva e Bates 2002). Contudo, em nível de Brasil, verificou-se que 13 espécies compiladas constituem endemismos brasileiros (Sick 1997, CBRO 2009) (Tabela 1).

Espécies com distribuição geográfica incompatíveis

Das 328 espécies compiladas, sete tiveram consideradas suas distribuições geográficas improváveis ou incompatíveis com a região da Amazônia tocantinense. Cinco delas, *Trogon surrucura* (MFM 69.24.1), *Pteroglossus viridis* (MOG 5062*), *Pteroglossus castanotis* (HNHM 66.73.1), *Tangara schrankii* (MOG 9215*) e *Paroaria baeri* (MOG 1863*, 4937*) foram assinaladas para a região de Araguatins enquanto outras duas espécies, *Brotogeris versicolurus* (MOG 7222*) e *Lepidothrix nattereri* (MOG 5525*), foram registradas para Tocantinópolis e Axixá do TO, respectivamente.

Nenhum destes espécimes coletados por JH e tombados no MOG foram examinados durante a visita, pois não foram encontrados dentre os espécimes armazenados na coleção do MOG, fato que se ocorrido, poderia revelar eventuais equívocos de identificação como verificado para *Paroaria baeri.*

O espécime MOG 721 de *Paroaria gularis* (Tabela 1), estava tombado como um indivíduo de *P. baeri,* sendo a correta identificação deste espécime confirmada somente após o exame desta pele durante a visita à coleção do MOG. Certamente, esta confusão de identificação serve de referência para os outros dois espécimes de *P. baeri* (MOG 1863*, 4937*) não encontrados oriundos de Araguatins.

Além disso, *P. baeri* é uma espécie considerada endêmica do vale do rio Araguaia (Silva e Bates 2002, Silva e Santos 2005) com os registros mais setentrionais da espécie concentrados no Parque Estadual do Cantão (Dornas 2008, Pinheiro e Dornas 2009a, 2009b). A ocorrência de *P. baeri* no baixo Araguaia deve ser considerada descartada a princípio, pois estudos nessa região do rio Araguaia não encontraram a espécie (Olmos *et al.* 2004, autores dados não publicados).

Possíveis falhas de identificação também parecem ser as melhores explicações para justificar a presença de *Brotogeris versicolurus, Pteroglossus viridis, Lepidothrix nattereri* dentre as espécies compiladas para Amazônia tocantinense. A primeira espécie ocorre ao longo da calha do rio Amazonas se expandido para o litoral leste do Pará e para o Amapá, não ocorrendo na região norte do Tocantins (Sick 1997, Sigrist 2006). Certamente o espécime de Araguatins (MOG 7222*) se refere a um indivíduo de *Brotogeris chiriri,* que durante as coletas de JH, na década de 1960, era reconhecida em nível subespecífico, sendo denominada como *B. versicolurus chiriri* (Pinto 1978).

Já *Pteroglossus viridis* tem ocorrência restrita ao norte do rio Amazonas atingindo os estados do Pará, Amazonas e Roraima e as Guianas, devendo ter sido confundido por JH com *Pteroglossus inscriptus,* espécie muito semelhante (Sick 1997, Erize *et al.* 2006) e substituto geográfico de *P. viridis* na Amazônia meridional (Sick 1997). Além disso, existe também a possibilidade de equívocos na nomeclatura do espécime, pois *P. inscriptus* durante a década de 1960 era tratado como subespécie de *P. viridis,* portanto *P. v. inscriptus* (Pinto 1978).

Por sua vez, *Lepidothrix nattereri* ocorre na porção ocidental da Amazônia, entre os rios Madeira e Tapajós, alcançando o alto rio Xingu (Ridgely e Tudor 1994, Sick 1997, Sigrist 2006). Neste caso, JH muito provavelmente confundiu a espécie com *Lepidothrix iris,* devido a grande semelhança morfológica entre ambas (Ridgely e Tudor 1994, Sick 1997, Sigrist 2006).

Esse provável equívoco torna-se mais evidente quando verificado que a distribuição geográfica de *L. iris* procede ao longo da bacia do rio Xingu e no baixo rio Tocantins, tendo como exemplo, registros confirmados para região da Serra dos Carajás e rio Itacaúnas, próximos a Marabá, extremo leste do Pará (Pacheco *et al.* 2007). Deste modo, apesar do equívoco na identificação deste espécime, muito provavelmente JH tenha coletado em Axixá do TO o primeiro e único indivíduo de *L. iris* para o estado do Tocantins. Este suposto indivíduo ampliaria a distribuição geográfica da espécie para a margem leste do rio Araguaia, onde nunca a mesma havia sido registrada, e de agora em diante, passa a ser um cobiçado espécime, necessitando ser encontrado para que se confirmem essas presunções.

No que se refere a *Tangara schrankii,* uma confusão na identificação da espécie não seria a justificativa mais acertada para essa suposta ocorrência em Araguatins. Além de a plumagem apresentar coloração bem distinta às

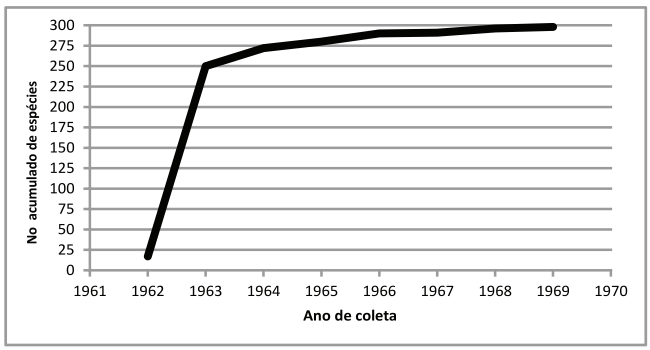

FIGURA 2: Curva acumulativa de espécies de aves coletadas na década de 1960 por J. Hidasi em Araguatins. Tendência estabilizadora é detectada no fim da década.
FIGURE 2: Acumulated curve of species of birds colected in the 1960s by José Hidasi in Araguatins. The stabilizing tendency is detected by the end of the decade.

demais espécies de *Tangara* sp. (Sick 1997, Sigrist 2006), não existe um substituto geográfico de *Tangara* sp. na porção leste da Amazônia, cuja eventual semelhança de plumagem poderia ser confundida, como verificado para *L. nattereri* e *L. iris*. De qualquer modo, um erro de identificação não deve ser definitivamente descartado.

Outra possibilidade seria um eventual erro de etiquetagem do espécime (MOG 9215*). JH efetuou coletas de aves nos estados de Roraima, Rondônia e Acre (Perotti 2006), onde a ocorrência *T. schrankii* é conhecida (Naka *et al.* 2006; Guilherme 2007; Whittaker 2009). Desafortunadamente, um erro de localização na etiquetagem pode ter ocorrido, posteriormente, nas dependências do MOG, embora JH tenha sempre demonstrado constante preocupação pelo zelo do material por ele coletado (J. Hidasi, comunicação pessoal e observação dos autores).

Por outro lado, redimindo eventuais erros de etiquetagem ou identificação, a condição de uma possível extensão na distribuição geográfica desta espécie ficaria em evidência. A descoberta de espécies do centro e do oeste da Amazônia ao longo do oeste do estado Tocantins poderia apoiar essa condição (Pinheiro e Dornas 2009b). Entretanto a distribuição geográfica de *T. schrankii* é atualmente conhecida somente para a Amazonia ocidental, sendo o rio Tapajós o seu limite mais oriental (Ridgely e Tudor 1994, Sick 1997, Sigrist 2006).

Essa distribuição geográfica, na qual a calha do rio Tapajós compreende o limite oriental de ocorrência da espécie é reforçada, principalmente, se levado em conta que os vários inventários ornitológicos realizados entre os interfluvios Tapajós-Xingu e Xingu-Araguaia-Tocantins não detectaram a espécie (Aleixo *et al.* 2000; Silveira e H'orta 2002, Olmos *et al.* 2004, Silveira e Pinto 2004, Pacheco e Olmos 2005, Pacheco *et al.* 2007, Vasconcelos *et al.* 2007). Mais adiante, quando apresentados os registros notáveis, percebe-se que várias espécies com distribuições geográficas amazônicas assinaladas para Araguatins, tiveram também registros recentes efetuados entre os interflúvios Tapajós-Xingu ou Xingu-Araguaia-Tocantins, dando mais legitimidade a presença destas espécies na região amazônica do Tocantins. Deste modo, sugere-se que a ocorrência de *T. schrankii* em Araguatins deva ser inicialmente descartada, pelo menos até o momento no qual o espécime testemunho for encontrado, quando seu resurgimento certamente será altamente esclarecedor, ou mesmo caso seja efetuado um registro legítimo da espécie no extremo leste amazônico.

Com relação aos espécimes depositados na Hungria (HNHM e MFM), os mesmos também não foram examinados, pois os registros foram solicitados diretamente aos curadores responsáveis. Muito provavelmente, os espécimes de *Trogon surrucura* (MFM 69.24.1) e *Pteroglossus castanotis* (HNHM 66.73.1) oriundos de Araguatins tenham sido identificados de forma errônea, sendo estes espécimes confundidos com espécies muito semelhantes como *Trogon curucui* e *Pteroglossus aracari* respectivamente (Sick 1997, Erize *et al.* 2006, Sigrist 2006). Essa colocação apóia-se nas distribuições geográficas de *T. surrucura* e *P. castonotis* que não abrangem a região norte do estado (Sick 1997, Sigrist 2006), sendo as ocorrências dessas espécies no Tocantins verificadas, não mais que, no extremo sul do estado (Pacheco e Olmos 2006). Deste modo, um exame dos espécimes depositados nas coleções húngaras deve, com certeza, confirmar esta suposição.

Registros notáveis

A compilação das aves demonstrou haver pelo menos 62 espécies de aves com distribuição amazônica (Ridgely e Tudor 1989, 1994, Sick 1997, Sigrist 2006, Ridgely *et al.* 2007) que são dignas do título de registro notável (Tabela 1). A relevante ampliação de suas ocorrências geográficas para o extremo leste Amazônico, fazendo de Araguatins localidade limítrofe da distribuição geográfica de várias dessas espécies representa a grande importância destes registros históricos. Inclusive destas 62 espécies, 19 estão representadas como os primeiros e únicos registros para o estado do Tocantins (Dornas 2009). As 19 espécies são:

Tinamus major

O registro da espécie para Araguatins (MOG 3) é o único para o Tocantins e representa ser o mais meridional em termos amazônicos. Este avantajado tinamídeo tem ampla distribuição na Amazônia brasileira (Borges *et al.* 2001, Silveira e d'Horta 2002, Naka *et al.* 2006), sendo a ocorrência da espécie para a Serra do Carajás, no leste do Pará (Pacheco *et al.* 2007) forte indicativo da possibilidade de futuros registros nas matas ciliares e remanescentes florestais ao longo do rio Araguaia na sua margem tocantinense, uma vez que a espécie tem como habitat preferencial as matas-de-várzea (Magalhães 1994).

Tinamus guttatus

Presente na Amazônia, porém distribuída em área menor que a precedente. No Tocantins esta espécie possui evidências de coleta realizadas por JH em Araguatins a partir do tombamento junto ao acervo da coleção (MOG 7788*), contudo sua pele não foi encontrada em visita ao MOG. Este espécime representa o registro mais meridional de *T. guttatus* na Amazônia e sua ocorrência em Araguatins é reforçada pelo registro da espécie na Serra dos Carajás (Pacheco *et al.* 2007).

Crypturellus variegatus

Espécie que apresenta larga distribuição na Amazônia e uma população disjunta na Mata Atlântica. Os

espécimes coletados em Araguatins por JH (MOG 6, 8174) representam uma ampliação na área de ocorrência da espécie na porção meridional da Amazônia (Sigrist 2006, Nature-Serve 2007a).

Porzana flaviventer

Ralídeo distribuído do México até a Argentina tem ocorrência pontual em alguns estados no Brasil (Sick 1997, Bencke 2001, Sigrist 2006, Krabbe 2007, Rupp *et al.* 2008, Farias e Pereira 2009). O único registro da espécie no Tocantins, em Araguatins (MOG 105), preenche uma lacuna geográfica da distribuição deste taxón refletindo na provável ocorrência de *P. flaviventer* na porção Central do Brasil (Sick, 1997, Erize *et al.* 2006, Nature--Serve 2007b).

Touit huetii

Psitacídeo de pequeno porte com distribuição disjunta por diferentes regiões da Amazônia (Sigrist 2006). No Brasil sua ocorrência é assinalada para diversas regiões do Pará (Sick 1957, Pacheco *et al.* 2007), Amazonas (Borges 2007, Whittaker 2009), Roraima (Naka *et al.* 2006) e Mato Grosso (Lees *et al.* 2008). Registrado no Tocantins, exclusivamente, por meio das coletas de JH em Araguatins (MNHN 499; MPEG 20595, 27839; MZUSP 51419, 65097, 72239), caracterizando a região como limite leste de ocorrência da espécie na Amazônia.

Deroptyus accipitrinus

Chamativa espécie de papagaio devido ao cocar de penas no pescoço, perceptíveis quando eriçadas, ocorre por toda Amazônia, exceto nas porções mais ocidentais, em regiões de Rondônia, sul do Amazonas e estado do Acre (Sick 1997, Sigrist 2006). No Tocantins, os registros de *D. acciptrinus* foram efetuados por JH em Araguatins (MOG 199, 2655; MPEG 20585; MZJH 810, MZUSP 52418). Após mais de 30 anos, novos registros deste papagaio foram realizados na região norte do Tocantins (autores, dados não publicados).

Galbula dea

Maior espécie dentre as arirambas (Galbulidae), apresenta distribuição geográfica por toda a Amazônia (Sick 1997, Erize *et al.* 2006, Sigrist 2006). No Tocantins, *G. dea* foi unicamente registrada em Araguatins (ITS-UCG 279, 7569), coleta que insere a margem leste do rio Araguaia na área de ocorrência da espécie. Futuros novos registros na Amazônia tocantinense são apoiados pelos registros na Serra dos Carajás (Pacheco *et al.* 2007) e zona urbana de Marabá (Vasconcelos *et al.* 2007), ambas regiões no extremo leste do Pará.

Nystalus striolatus

Buconídeo separado em duas populações disjuntas, uma na Amazônia oriental e outra na Amazônia ocidental (Sick 1997, Erize *et al.* 2006, Sigrist 2006). No Tocantins seu registro era exclusivo ao espécime MPEG 34649 coletado, em 1983, por MSB nas matas do posto indígena Xambioá, as margens do rio Araguaia, no município de Santa Fé do Araguaia. Novos registros da espécie ocorreram em outras regiões do norte do Tocantins (autores, dados não publicados) após 26 anos.

Thamnophilus palliatus

Sua ocorrência é conhecida pelas populações disjuntas da Amazônia e da Mata Atlântica (Ridgely e Tudor 1994, Sigrist 2006). No Brasil as populações da espécie diferem entre aquelas do alto rio Madeira e Guaporé na Amazônia ocidental, do rio Tapajós no Pará ao Maranhão e Piauí e aquelas ao longo da Mata Atlântica entre o nordeste e o Estado do Rio de Janeiro (Sick 1997). No Tocantins, *T. palliatus* é confirmada pelo único espécime (ITS-UCG 383), um macho coletado por JH em Araguatins. Apoiando-se a este espécime tocantinense é possível suspeitar que *T. palliatus* ocorreria, de forma restrita e talvez em baixas densidades, ao longo da vegetação marginal do lado tocantinense dos rios Araguaia e Tocantins. Tal presunção se suporta no fato de que as margens paraenses e maranhenses dos rios Araguaia e Tocantins desenham justamente o contorno do limite de distribuição das populações da Amazônia oriental, que se estendem para o interior do Maranhão e Piauí (Ridgely e Tudor 1994). Inventários no interior do interflúvio Araguaia-Tocantins, na porção norte do estado, não detectaram a espécie (Olmos *et al.* 2004, observação pessoal dos autores) o que reforça essa suspeita.

Pyriglena leuconota

Com uma distribuição disjunta na América do Sul (Ridgely e Tudor 1994), no Brasil são encontradas populações distintas da espécie no Pantanal, do centro-leste do Pará até Maranhão e Piauí e na Mata Atlântica nordestina (Sick 1997). No Tocantins é representado por um único espécime macho (MPEG 21978) da forma nominal, coletado por JH, em Araguatins. As formações florestais próximas às margens do rio Araguaia são os locais mais indicados para registros recentes da espécie, entretanto, a ocorrência de *P. leuconota* em manchas de florestais semideciduais no Piauí (Olmos e Brito 2007) apóiam a presença da espécie em remanescentes florestais semideciduais do interflúvio Tocantins-Araguaia, embora estudos em remanescentes dessa natureza na região não a tenham constatado (Olmos *et al.* 2004).

Myrmoborus leucophrys

De ampla distribuição amazônica tem como limite de distribuição geográfica o interflúvio Xingu-Araguaia (Ridgely e Tudor 1994, Sick 1997). A coleta de um indivíduo macho para Araguatins (MOG 412), único para o Tocantins, representa uma ampliação na área de ocorrência da espécie para a margem leste do rio Araguaia.

Hypocnemis striata

Recentemente descrita devido à elevação das diferentes raças geográficas de *Hypocnemis cantator* existentes na Amazônia em espécies válidas (Isler *et al.* 2007). Após o novo desenho da distribuição geográfica do complexo *H. cantator,* o interflúvio Xingu-Araguaia tornou-se limite de ocorrência de *H. striata affinis,* umas das quatro subespécies dessa nova espécie. A presença de *H. striata* no Tocantins resulta somente da coleta de dois machos (ITS--UCG 5568; MOG 417) em Araguatins por JH. Estes dois espécimes estendem, portanto, a área de ocorrência da *H. striata* para Amazônia tocantinense.

Hylophylax naevius

Encontrada em toda Amazônia (Ridgely e Tudor 1994, Sick 1997) assim como as duas espécies anteriores, tem o interflúvio Xingu-Araguaia como limite leste de sua distribuição geográfica. No Tocantins a única evidência da espécie é uma fêmea (MOG 431) coletada por JH, em Araguatins, ampliando a área de ocorrência de *H. naevius* para o lado tocantinense do rio Araguaia.

Xiphorhynchus spixii

Em consequência das divergências taxonômicas no complexo *X. spixii/elegans/juruanus* a distribuição geográfica da espécie na Amazônia é variável, sendo o fato de maior certeza, apenas a ocorrência de *X. spixii* entre a margem direita do rio Tapajós e o oeste do Maranhão (Ridgely e Tudor 1994, Sick 1997, Raposo e Höfling 2003). No estado do Tocantins, *X. spixii* foi documentada por MSB através da coleta de dois exemplares machos, um na Fazenda Farol dos Trópicos em Couto de Magalhães (MPEG 34749); e outro no posto indígena Xambioá, em Santa Fé do Araguaia (MPEG 34762). Esses dois espécimes eram os únicos para o estado, porém o registro recente da espécie foi efetuado no norte do Tocantins (autores, dados não publicados).

Synallaxis rutilans

De ampla distribuição na Amazônia, possui inúmeras raças geográficas (Ridgely e Tudor 1994, Sigrist 2006), das quais *S. r. omissa,* reconhecida como espécie plena (Stopligia e Raposo 2008), está restrita à Amazônia a leste do rio Tocantins entre o leste do Pará e oeste do Maranhão. No Tocantins, *S. rutilans* está representado por único exemplar (MOG 364) coletado por JH em Araguatins, cuja plumagem não coincide com *S. r. omissa*. A documentação amplia a área de ocorrência da espécie, alcançando a margem leste do rio Araguaia.

Onychorhynchus coronatus

Espécie singular devido ao penacho na cabeça quase sempre inconspícuo e quando eriçado, adquire formato de leque (Ridgely e Tudor 1994, Sick 1997). De ampla distribuição pela Amazônia (Sigrist 2006), em alguns casos é associada à Mata Atlântica devido ao seu congênere, *O. swainsoni* (Stotz *et al.* 1996, Silveira e Olmos 2007, Birdlife 2009a) que é por vezes considerado uma subespécie de *O. coronatus* (Ridgely e Tudor 1994). Os espécimes MOG 535 e MOG 14099A, ambos machos, coletados em Araguatins, representam os primeiros registros no Tocantins. Um novo registro da espécie após mais de 40 anos foi efetuado no norte do Estado (autores, dados não publicados).

Cephalopterus ornatus

Espécie inconfundível devido ao vultoso penacho--chápeu na cabeça e o grande pendão junto ao peito (Ridgely e Tudor 1994, Sick 1997). De ampla distribuição na Amazônia, é ausente no nordeste e sudeste amazônicos, exceto na bacia do rio Xingu (Ridgely e Tudor 1994, Sick 1997, Nature-Serve 2007c). A documentação da espécie no estado do Tocantins (MOG 469) amplia a distribuição geográfica de *C. ornatus* para bacia do rio Araguaia e leste amazônico. Contudo, do único espécime testemunho até então, apenas a cabeça tem origem em Araguatins. Um morador ribeirinho do rio Araguaia, dias antes de ser surpreendido por JH, havia caçado e comido a ave, da qual somente a cabeça tinha restado com integridade para compor a coleção do MOG; anos depois, JH costurou a esta cabeça outro corpo, ganhando por ribeirinhos em Rondônia (J. Hidasi, comunicação pessoal). Após mais de 40 anos, um novo registro da *C. ornatus* foi conduzido para o rio Araguaia no norte do Tocantins (autores e colaboradores, dados não publicados).

Dacnis flaviventer

Espécie amazônica conhecida entre a margem sul do rio Amazonas, bacia oeste do rio Xingu e os extremos sudoeste e noroestes amazônicos (Ridgely e Tudor 1989). Um macho (MOG 618) coletado em Araguatins representa o único registro no Tocantins além de uma expressiva ampliação na distribuição geográfica da espécie. Nenhum outro registro de *D. flaviventer* foi verificado

para o interflúvio Xingu-Araguaia (Pacheco *et al.* 2007, Vasconcelos *et al.* 2007), todavia a veracidade deste registro de JH fica sugestionado quando verificado que várias são as espécies com centro de distribuição amazônica que sofreram, recentemente, significativos aumentos em suas áreas de ocorrência depois de registradas em localidades do lado tocantinense do rio Araguaia, são elas: *Hemitriccus minimus, Heterocercus linteatus, Xenopipo atronitens Micrastur mintoni, Grallaria varia* e *Rhytipterna immunda* (Olmos *et al.* 2004, Pinheiro e Dornas 2009b).

Chlorophanes spiza

Seguidora de bandos mistos, a espécie possui populações na Mata Atlântica e a Amazônia (Ridgely e Tudor 1989). A coleta única de um macho em Araguatins (ITS-UCG 613) amplia a ocorrência de *C. spiza* para além do interflúvio Xingu-Araguaia, alcançando limites do norte do Tocantins.

Penelope ochrogaster

Cracídeo de ocorrência restrita ao bioma Cerrado (Silva 1995, 1997, Silva e Santos 2005) e vulnerável de extinção (Machado *et al.* 2005, IUCN 2009). As maiores populações no estado do Tocantins são conhecidas no rio Paranã, região sudeste (Pacheco e Olmos 2006) e Parque Estadual do Cantão (Buzzeti 2004, Pinheiro e Dornas 2009a). A ocorrência da espécie na região centro-sul do estado é bem conhecida (Olmos 2003, Lopes e Braz 2007, Pinheiro *et al.* 2008, região de Peixe, observação pessoal dos autores), enquanto isso, na porção norte do Tocantins sua ocorrência ainda carece de documentação convincente. Olmos *et al.* (2004) relatam a gravação das vocalizações de supostos *P. ochrogaster,* mas advertem a necessidade de registros visuais. TD visualizou e gravou a vocalização de alguns indivíduos em remanescentes de floresta ombrófila em Wanderlândia e Angico, norte do Tocantins, mas não o suficiente para uma diagnose precisa. A coleta de um indivíduo em Araguatins, por JH (MOG 91*) poderia sanar as dúvidas existentes caso o espécime tivesse sido encontrado durante visita a coleção em Goiânia. A presença de *P. ochrogaster* é de fato notória em Araguatins, refletindo em uma considerável extensão para norte na área de ocorrência da espécie, condição aqui suportada pela admitida distribuição geográfica da espécie no bioma Cerrado. Entretanto, no leste do Pará e oeste do Maranhão a espécie de ocorrência comprovada é *P. pileata* (Silveira e Pinto 2004, Oren 2006, Pacheco *et al.* 2007, Birdlife 2009b), situação essa que, somada a coleta de indivíduo também de *P. pileata* no rio Caiapó, oeste do Tocantins por Herculano Alvarenga (Sick 1997), tornaria no mínimo intrigante a definição de qual espécie de jacu ocuparia porção norte do estado do Tocantins. Deste modo, estudos na bacia do Araguaia e Tocantins são fortemente indicados para elucidar essa interrogação na verdadeira distribuição de *P. ochrogaster* e *P. pileata* nessa zona de tensão entre as duas espécies.

Anodorhynchus hyacinthinus

Este psitacídeo é classificado como em perigo de extinção (MMA 2003) e globalmente vulnerável de extinção (IUCN 2009). No Brasil é encontrada em três diferentes populações, uma amazônica, outra no Pantanal e uma terceira na região 'dos Gerais', que inclui partes dos estados do Piauí, Maranhão, Bahia e o leste do Tocantins. A compilação de registros no Tocantins (Dornas *et al.* em preparação) mostra a ocorrência maciça de *A. hyancinthinus* em três regiões do leste do estado: baixo rio Paranã, Jalapão e Terra indígena Kraô e entorno, mostrando uma predominância da população 'das Gerais' no Tocantins, porém, há registros pontuais ao longo da calha do rio Araguaia. Um destes registros, um espécime coletado em Araguatins (LSUMZ 65081) por JH representa o estabelecimento das populações amazônicas da espécie na calha norte do rio Araguaia. Embora registros recentes não tenham sido efetuados nessa porção do Tocantins, os sucessivos registros em localidades no extremo leste do Pará (Silveira e Pinto 2004, Pacheco *et al.* 2007, Presti *et al.* 2009), suportam a suspeita de que *A. hyacinthinus* ainda frequente remanescentes florestais no baixo Araguaia.

Fluvicola nengeta

Espécie tipicamente nordestina tem recentemente expandido sua área de ocorrência para sudeste e sul do Brasil (Willis 1991, Sick 1997, Sigrist 2006, Straube *et al.* 2007) alcançando Argentina e Paraguai (Krauczuk *et al.* 2003, Klavins e Bodrati 2007). O leste maranhense era apontado como limite de distribuição da espécie (Ridgely e Tudor 1989, Sigrist 2006), entretanto, um indivíduo coletado por JH em Araguatins (ITS-UCG 502), amplia de forma considerável a distribuição geográfica de *F. nengeta*. Registros mais recentes realizados em Itaguatins, nas margens do rio Tocantins (Olmos *et al.* 2004), reforçam o estabelecimento de *F. nengeta* no interflúvio Araguaia-Tocantins na porção norte do estado.

Catharus fuscencens

Migrante neártico, se estabelece no período de invernada na floresta amazônica, alcançando o Pantanal (Rapolle *et al.* 1993, Ridgely e Tudor 1989, Sick 1997). Registros extra-amazônicos mais recentes têm mostrado a chegada da espécie no Cerrado (Pinheiro 2004, Lopes *et al.* 2009) onde adentra através das matas ciliares dos grandes rios e das matas de galerias dos afluentes (Sick 1997, Sigrist 2006). No Tocantins, um macho foi coletado (MOG 604) em Araguatins, em novembro de 1968,

período correspondente ao inverno na América do Norte, colocando o rio Araguaia como rota migratória da espécie e caminho para regiões mais centrais do Brasil.

Turdus rufiventris

Turdídeo de ampla distribuição no Brasil, exceto para as regiões amazônicas (Ridgely e Tudor 1989). No Tocantins os registros até então conhecidos não ultrapassam os limites centrais do estado (Pinheiro 2004, Pacheco e Olmos 2006, Lopes e Braz 2007), entretanto, a coleta de um indivíduo (LSUMZ 32975), para São Miguel do Tocantins, antiga Bela Vista do Tocantins, representa o registro mais ao noroeste da espécie. Todavia, um importante esclarecimento deve ser notificado a fim de evitar equívocos sobre a localidade mencionada e dúvidas quanto à veracidade do registro. O município de Bela Vista, ao sul de Goiânia, no Estado de Goiás, foi alvo de coletas de JH na década de 1960, porém, não se trata da mesma localidade mencionada anteriormente. Toda coleta de JH em Bela Vista do Tocantins era assinalada na etiqueta do espécime como "Bela Vista, rio Tocantins", menção a localização da pequena cidade junto às margens do rio Tocantins. Muito diferentemente de Bela Vista, em Goiás, que além de não receber nenhum complemento por JH na anotação da localidade nas etiquetas, se quer é margeada pelo rio Tocantins. A elucidação deste imbróglio somente foi esclarecida após compilação dos espécimes coletados por JH em visita as coleções do MZUSP, MPEG e MOG, onde neste último, foi possível inclusive dialogar sobre o assunto diretamente com JH.

Basileuterus hypoleucus

Com distribuição conhecida para a porção Central do Brasil, entre Goiás e Mato Grosso seguindo até São Paulo (Ridgely e Tudor 1989, Sigrist 2006), novos registros da espécie para a região sudeste do Tocantins (Pacheco e Olmos 2006) e Serra do Lajeado, na região de Palmas (Pinheiro 2004), tem ampliado, de forma notória, a distribuição geográfica deste parulídeo. Apoiando-se nessas descobertas de *B. hypoleucus* para o Tocantins, o espécime coletado por JH em São Miguel do Tocantins (KUNHM 52722) amplia ainda mais ao norte a ocorrência da espécie no Cerrado. TD visualizou, em junho de 2009, em fragmento de floresta semidecidual em Angico (em linha reta menos de 100 km ao sul de São Miguel do Tocantins), dois *Basileuterus,* dos quais um era *B. culicivorus* legítimo e o outro, com peito e barrigas branco-acinzentadas, apontava para diagnose de um *B. hypoleucus.* Este registro visual dá mais consistência a essa amplitude setentrional consequente deste espécime de São Miguel do Tocantins. Mas em contrapartida, não houve detecções de *B. hypoleucus* em nenhuma das outras localidades amostradas nessa região (Olmos *et al.* 2004). De fato, a exame do espécime torna-se necessário, devido também, ao fato de Sick (1997) destacar a existência de formas intermediárias de *B. culicivorus* e *B. hypoleucus* no Cerrado.

Agelasticus cyanopus

Ocorre de forma disjunta no Brasil (Ridgely e Tudor 1989, Sick 1997, Nature-Serve 2007d) no norte da Amazônia, do centro-oeste onde no Pantanal parece abundante (Antas 2004) ao sul do Brasil, na porção leste do sudeste brasileiro e pontualmente na Bahia. O espécime coletado por JH (MOG 702*) em Araguatins preenche uma lacuna entre as populações do centro-oeste e norte do país. Caso o espécime tivesse sido encontrado, possíveis equívocos na identificação da espécie poderiam ser sanados, pois a fêmea apresenta plumagem de diagnose mais complexa quando comparado ao macho. Entretanto, a ocorrência de *A. cyanopus* no extremo norte do Tocantins é apoiada pelos registros fotográficos de uma fêmea, realizados por RTP em Lagoa da Confusão, no vale do rio Araguaia e também pelo registro visual de outra fêmea na foz do rio Côco, região do Cantão (registro posterior a Dornas e Pinheiro 2009a, 2009b). Ambas as evidências dos autores estão no limite da distribuição geográfica da população *A. cyanopus* do centro-oeste brasileiro (Ridgely e Tudor 1989, Sick 1997, Nature-Serve 2007d).

CONCLUSÃO

As espécies compiladas apresentadas neste estudo para Amazônia tocantinense demonstram o quanto essa pequena parcela da Amazônia brasileira inserida no estado do Tocantins é relevante para o conhecimento ornitológico nacional. Diante de toda a riqueza de aves apresentada e das inúmeras extensões de distribuição geográfica demonstradas, a realização de novos estudos de inventariamento ornitológicos deve ocorrer com mais frequências ao longo da Amazônia tocantinense.

Do ponto de vista taxonômico, a tendência é que estudos de revisões de diversos complexos dentro da Amazônia sejam realizados, o que pode acarretar na descrição de uma gama de novas espécies de aves para o Brasil (Silveira e Olmos 2007, Borges 2008). A listagem apresentada além de mostrar potenciais espécimes alvos destes estudos taxonômicos, demonstra o quanto é importante que estudos desta natureza, bem como inventários em geral, sejam realizados nos limites da Amazônia tocantinense, de modo que, a coleta de exemplares da avifauna local seja considerada.

Mais de 60 espécies amazônicas tiveram suas distribuições geográficas ampliadas após as coletas de JH e MSB em Araguatins e demais localidades entre 1960 e 1983, sendo que um vazio de estudos de quase 50 anos separam as novas descobertas ornitológicas na região

(Olmos *et al.* 2004, autores dados não publicados). O papel dos diversos interflúvios amazônicos como áreas de endemismos de aves na Amazônia credenciam o interflúvio Tocantins-Araguaia a possuir, eventualmente, um ou mais táxons restritos aos seus limites amazônicos. Consideração essa que, somente é possível de ser presumida, graças ao conhecimento histórico da existência de exemplares da fauna amazônica neste interflúvio. No entanto, refutar ou confirmar essas hipóteses e considerações somente será possível caso futuros estudos, dos mais diferentes aspectos da ornitologia, sejam direcionados para essa região da Amazônia.

Do ponto de vista da conservação, salvo algumas poucas espécies listadas (Tabela 1), praticamente nenhuma das espécies compiladas estão categorizadas em algum *status* de ameaça de extinção (MMA 2003, IUCN 2009). No entanto, a ausência de novos registros de uma série de espécies amazônicas, somente identificadas por JH e/ou MSB em média há 30 anos, é fator muito preocupante. O grande percentual de antropização da Amazônia tocantinense, algo entre 65 a 85%, torna a avifauna amazônica estabelecida no estado do Tocantins como potencial candidata a apresentar, em curto prazo, algum grau de ameaça de extinção a nível estadual. A ausência de registros recentes de *Tinamous major, Hylophilax naevius, Chlorophanes spiza* dentre outras compiladas, evidenciam bem essa situação.

Mais agravada torna-se este cenário quando verificado a inexistência de unidades de conservação de proteção integral nos limites da Amazônia tocantinense, refletindo numa maior fragilidade dessas espécies de sobreviverem na região. Os empreendimentos hidrelétricos, de silvicultura, pecuária e projetos de assentamentos rurais projetam a supressão de remanescentes de floresta ombrófilas, representando assim uma forte ameaça a avifauna amazônica regional, ainda que a legislaçao estadual exija a preservação de 80% da vegetação nativa das proporeidades rurais da região em reserva legal (SEPLAN 2008).

Por fim, mas de modo algum menos importante, essa compilação exalta a importância de Manoel Santa-Brígida e José Hidasi na ornitologia brasileira. Ambos são considerados excelentes taxidermistas, habilidade que lhes permitiram preparar peles impecáveis dos espécimes listados, dando 'sobrevida' a estes espécimes para realização de estudos na posteridade. Embora Manoel Santa-Brígida tenha coletado no estado do Tocantins apenas em 1983, seu trabalho de taxidermista e coletor na Amazônia perdurou por várias décadas enquanto lotado no Museu Paraense Emílio Goeldi, cuja contribuição foi inestimável para compor o reconhecido e expressivo acervo do museu. José Hidasi, por sua vez, coletou aves por mais de 50 anos, principalmente, entre os estados de Goiás e Tocantins, sendo deste último, o maior coletor de fauna na história. Se não fossem suas insistentes e duradouras coletas no Tocantins, pouco da história natural desta porção do território nacional seria conhecida na atualidade, de modo que, muito pouco, por exemplo, se conheceria da ornitologia brasileira na Amazônia tocantinense.

AGRADECIMENTOS

Os autores são gratos aos curadores Marcos Raposo – MNRJ, Alexandre Aleixo – MPEG, Luís Fábio Silveira – MZUSP e José Hidasi – MOG e ITS-UCG, por terem autorizado a visita a cada uma das instituições. Para cada uma dessas instituições somos gratos aos seus assistentes de coleções pelo acompanhamento e orientação. Também somos gratos aos curadores das coleções ornitológicas não visitadas pelo envio dos registros solicitados: Severino Mendes de Azevedo Júnior – COUFPE, Ana Espinosa – COEBD, Eric Pasquet – MNHN, Solti Béla – MMGY, Gábor Csehó – MFM e Tibor Fuisz – HNHM. TD é grato ao DAAD (Serviço Alemão de Intercambio Acadêmico) pela bolsa de mestrado concedida no programa de mestrado em Ciências do Ambiente pela Universidade Federal do Tocantins, a NGC (Neotropical Grassland Conservancy) e FAPTO (Fundação de Apoio a Pesquisa do Tocantins) por auxiliar nos gastos referente a viagens durante o período de visitação às coleções.

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INSTRUÇÕES AOS AUTORES

A *Revista Brasileira de Ornitologia* receberá contribuições originais relativas a qualquer aspecto da biologia das aves, enfatizando a documentação, a análise e a interpretação de estudos de campo e laboratório, além da apresentação de novos métodos ou teorias e revisão de idéias ou informações pré-existentes. A *Revista Brasileira de Ornitologia* tem interesse em publicar, por exemplo, estudos sobre a biologia da reprodução, distribuição geográfica, ecologia, etologia, evolução, migração e orientação, morfologia, paleontologia, sistemática, taxonomia e nomenclatura. Encoraja-se a submissão de análises de avifaunas regionais, mas não a de listas faunísticas de localidades. Trabalhos de caráter monográfico também poderão ser considerados para publicação.

Os trabalhos submetidos à *Revista Brasileira de Ornitologia* não podem ter sido publicados anteriormente ou estarem submetidos para publicação em outros periódicos ou livros. Serão avaliados os manuscritos originais escritos em português, espanhol ou inglês (preferencialmente), que devem ser gravados no formato do programa Microsoft Word, com fonte "Times New Roman" tamanho 12, espaço duplo, com alinhamento à esquerda. Os nomes científicos devem ser grafados em itálico e encoraja-se o uso da seqüência sistemática e da nomenclatura presente nas listas brasileira (http://www.cbro.org.br) ou sul-americana de aves (http://www.museum.lsu.edu/~Remsen/SACCBaseline), quando pertinente.

Submissão:

Os originais devem ser submetidos ao editor **preferencialmente** por correio eletrônico, mas também em CD (que não serão devolvidos) ou impressos (neste caso, três cópias do manuscrito completo, seguindo as normas acima).

O *título* (no idioma do texto) deve ser conciso e indicar claramente o assunto abordado no trabalho. Expressões genéricas como "contribuição ao conhecimento..." ou "notas sobre..." devem ser evitadas. O *nome* de cada autor deve ser escrito por extenso, acompanhado do endereço completo para correspondência (incluindo correio eletrônico). No caso de múltiplos autores, o autor para correspondência deve ser claramente indicado.

Resumo e *abstract* devem informar o objetivo e os resultados do trabalho, e não apenas relacionar os assuntos discutidos. Abaixo do nome do(s) autor(es), deve-se relacionar, na seguinte seqüência:

- **Português:** *abstract* em inglês, com *título* e *key-words; resumo* em português, sem *título* e com *palavras-chave;*
- **Inglês:** *resumo* em português, com *título* e *palavras-chave; abstract* em inglês, sem *título* com *key-words;*
- **Espanhol:** *resumo* em português, com *título* e *palavras-chave; abstract* em inglês, com *título* e *key-words.*

No caso de notas curtas, deve ser incluído apenas um *abstract* (trabalhos em português) ou um *resumo* (trabalhos em inglês ou espanhol), acompanhado de *palavras-chave* e *key-words.*

O manuscrito deverá apresentar uma breve introdução, descrição dos métodos incluindo a área de estudo, apresentação e discussão dos resultados, agradecimentos e referências. Conclusões poderão ser apresentadas depois da discussão ou junto com a mesma. As partes do manuscrito devem estar organizadas como segue:

- **Título** (do manuscrito, e os nomes e endereços dos autores, e somente isso)
- **Resumo / Abstract / Palavras-chave**
- **Introdução** (que começa em uma nova página, não havendo quebras de página com as seções seguintes)
- **Material e Métodos**
- **Resultados** (somente os resultados, em forma sucinta)
- **Discussão** (que opcionalmente pode ser seguido por **Conclusões,** mas, melhor incluir conclusões dentro da discussão)
- **Agradecimentos**
- **Referências**
- **Tabelas**
- **Legendas das Figuras**
- **Figuras** (cada uma em uma única página)

Cada **Tabela** deve vir em uma página, numerada em algarismos arábicos e acompanhada da sua respectiva legenda. A legenda da tabela deve ser parte da tabela, ocupando a primeira linha da tabela com as células mescladas. As **Legendas das figuras** também devem vir numeradas e cada **Figura** deve vir em uma página, também numerada em algarismos arábicos e de acordo com as suas respectivas legendas. **N.B.: Todas as legendas devem ser apresentadas em duplas, a primeira na língua do trabalho, e a segunda em inglês.**

Os diversos tópicos devem apresentar subtítulos apropriados quando for necessário. Todas as páginas devem ser numeradas no canto superior direito.

Devem-se usar as seguintes *abreviações:* h (hora), min (minuto), s (segundo), km (quilômetro), m (metro), cm (centímetro), mm (milímetro), ha (hectare), kg (quilograma), g (grama), mg (miligrama), todas com letras minúsculas e sem ponto. Use as seguintes *notações estatísticas:* P, n, t, r, F, G, U, x^2, gl (graus de liberdade), ns (não significativo), CV (coeficiente de variação), DP (desvio padrão), EP (erro padrão). Com exceção dos símbolos de temperatura e porcentagem (*e.g.,* 15°C, 45%), dê espaço entre o número e a unidade ou símbolo (*e.g.,* n = 12, P < 0,05, 25 min). Escreva em *itálico* palavras e expressões em latim (*e.g., et al., in vitro, in vivo, sensu*). Números de um a nove devem ser escritos por extenso, a menos que se refiram a uma medida (*e.g.,* quatro indivíduos, 6 mm, 2 min); de 10 em diante escreva em algarismos arábicos.

A *citação* de autores no texto deve seguir o padrão: (Pinto 1964) ou Pinto (1964); dois trabalhos do mesmo autor devem ser citados como (Sick 1985, 1993) ou (Ribeiro 1920a, b); autores diversos devem ser relacionados em ordem cronológica: (Pinto 1938, Aguirre 1976b); quando a publicação citada apresentar dois autores, ambos devem ser indicados: (Ihering e Ihering 1907), mas quando os autores são mais de dois, apenas

o primeiro é citado: (Schubart *et al.* 1965); nomes de autores citados juntos são unidos por "e", "y" ou "and" (nunca "&"), de acordo com o idioma do texto. Informações inéditas de terceiros devem ser creditadas à fonte pela citação das iniciais e sobrenome do informante acompanhada de abreviatura adequada da forma de comunicação, seguida de data: (H. Sick com. pess., 1989) ou V. Loskot (*in litt.* 1990); observações inéditas dos autores podem ser indicadas pela abreviatura: (obs. pess.); quando apenas um dos autores merecer o crédito pela observação inédita ou qualquer outro aspecto apontado no texto deve ser indicado pelas iniciais do seu nome: "... em 1989 A. S. retomou ao local...". *Manuscritos não publicados* (*e.g.,* relatórios técnicos, monografias de graduação) e *resumos de congressos* poderão ser citados apenas em casos excepcionais, quando absolutamente imprescindíveis e não houver outra fonte de informação.

A lista de *referências* no final do texto deverá relacionar todos e apenas os trabalhos citados, em ordem alfabética pelos sobrenomes dos autores. No caso de citações sucessivas, deve-se repetir o sobrenome do autor, como nos exemplos a seguir:

Ihering, H. von e Ihering, R. von. (1907). *As aves do Brazil.* São Paulo: Museu Paulista (Catálogos da Fauna Brasileira v. 1). 74

IUCN. (1987). A posição da IUCN sobre a migração de organismos vivos: introduções, reintroduções e reforços. http://iucn.org/themes/ssc/pubs/policy/index (acesso em 25/08/2005).

Novaes, F. C. (1970). *Estudo ecológico das aves em uma área de vegetação secundária no Baixo Amazonas, Estado do Pará.* Tese de doutorado. Rio Claro: Faculdade de Filosofia, Ciências e Letras de Rio Claro.

Remsen, J. V. e Robinson, S. K. (1990). A classification scheme for foraging behavior of birds in terrestrial habitats, p. 144-160. Em: M. L. Morrison, C. J. Ralph, J. Verner e J. R. Jehl Jr. (eds.). Avian foraging: theory, methodology, and applications. Lawrence: Cooper Ornithological Society (Studies in Avian Biology 13).

Ribeiro, A. de M. (1920a). A fauna vertebrada da ilha da Trindade. *Arq. Mus. Nac.* 22:169-194.

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Sick, H. (1985). *Ornitologia brasileira, uma introdução,* v. 1. Brasília: Editora Universidade de Brasília.

Notas de rodapé não serão aceitas; notas adicionais, quando absolutamente relevantes, poderão ser incluídas após as referências, com numeração correspondente às respectivas chamadas no texto, abaixo do subtítulo *notas.*

Ilustrações e tabelas. As ilustrações (fotografias, desenhos, gráficos e mapas), que serão chamadas de "figuras", devem ser numeradas com algarismos arábicos na ordem em que são citadas e que serão inseridas no texto.

As tabelas e figuras, que receberão numeração independente, devem vir no final do manuscrito, assim como todas as legendas das figuras, que devem ser apresentadas em folha separada (ver acima).

As chamadas no texto, para figuras e tabelas, devem seguir o padrão "(Figura 2)" ou "... na figura 2".

As tabelas devem ser encabeçadas por um título completo e prescindir de consulta ao texto, sendo auto-explicativas.

Para trabalhos em português os autores deverão fornecer versões em inglês das legendas das figuras e cabeçalhos de tabelas.

As *fotografias* devem ser em preto e branco, apresentando máxima nitidez.

Todas devem ser digitalizadas com 300 dpi, no tamanho mínimo de 12 x 18 cm, em *grayscale* e 8 bits.

No caso de só existirem fotografias coloridas, estas poderão ser convertidas para preto e branco.

No caso da publicação de fotografias ou pranchas coloridas, o(s) autor(es) deverão arcar com as despesas de gráfica.

Os autores não terão que arcar com os custos de impressão se a ilustração/fotografia for selecionada para a capa da revista.

Só serão aceitas ilustrações digitalizadas em formato tif ou jpeg.

Os *desenhos, gráficos* e *mapas* feitos em papel vegetal ou de desenho, a nanquim preto ou impressora a *laser,* **devem apresentar traços e letras de dimensões suficientes para que permaneçam nítidos e legíveis quando reduzidos para publicação.**

As escalas de tamanhos ou distâncias devem ser representadas por barras, e não por razões numéricas.

Desenhos, gráficos e *mapas* devem ser enviados nos arquivos originais, no programa em que foram gerados, além daqueles anexados ao texto. No caso de envio de arquivos de mais de 2 MB por e-mail, estes devem estar compactados (consulte diretamente o editor no caso de enviar arquivos maiores). Não será necessário comprimir o arquivo se o trabalho for enviado em CD.

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Prof. Dr. Luís Fábio Silveira
Departamento de Zoologia, Universidade de São Paulo
Caixa Postal 11.461, CEP 05422-970
São Paulo, SP, Brasil
Tel./Fax: (# 11) 3091-7575
E-mail: lfsilvei@usp.br

A carta de encaminhamento deverá mencionar o título do trabalho, nome dos autores, endereço e e-mail daquele com quem o editor manterá contato. Um aviso de recebimento dos originais será imediatamente remetido ao autor responsável pelos contatos com a Revista. Após a aceitação do trabalho, um arquivo já diagramado em formato PDF será enviado por e-mail a este autor para revisão, o qual deverá retomar ao editor em 72 horas. A correção da versão final enviada para publicação é de inteira responsabilidade dos autores. Os autores que dispõe de correio eletrônico receberão, sem ônus e por correio eletrônico, uma cópia em formato PDF do seu trabalho publicado. Separatas poderão ser adquiridas pelo(s) autor(es) mediante pagamento. Entre em contato com o editor caso tenha alguma dúvida com relação às regras para envio dos manuscritos.

INSTRUCCIONES A LOS AUTORES

La *Revista Brasileira de Ornitologia* recibirá contribuciones originales relacionadas con cualquier aspecto de la biología de las aves, enfatizando la documentación, análisis e interpretación de estudios de campo y laboratorio, presentación de nuevos métodos o teorías y revisión de ideas o informaciones preexistentes. La *Revista Brasileira de Ornitologia* tiene interés en publicar, por ejemplo, estudios sobre la biología de la reproducción, distribución geográfica, ecología, etología, evolución, migración y orientación, morfología, paleontología, sistemática, taxonomía y nomenclatura. También, puede presentarse análisis de avifauna regional, pero no puede ser solamente una lista faunística de localidades. Trabajos de carácter monográfico también podrán ser aceptados para publicación.

Los manuscritos submetidos para publicación en la *Revista Brasileira de Ornitologia* no pueden haber sido publicados anteriormente, o estar siendo considerados para publicación, en entero o en parte, en ningún otro periódico o libro. Los trabajos pueden ser escritos en portugués, español o inglés y deben ser grabados en formato del programa Microsoft Word, usando la fuente "Times New Roman", tamaño 12, espacio doble, alineado a la izquierda. Los nombres científicos deben ser escritos en itálico y seguir la secuencia sistemática y de la nomenclatura en la lista brasileña (http://www.cbro.org) o sur-americana de aves (http://www.museum.lsu.edu/~Remsen/SACCBaseline), cuando pertinente.

Submissión:

Los originales deben ser mandados al editor **preferentemente** por correo electrónico, en CD (que no será vuelto), o por copias impresas (en esto caso, se deben enviar tres copias del manuscrito completo).

El *título* (en el idioma del texto) debe ser conciso y delimitar claramente el asunto abordado en el trabajo. Expresiones genéricas como "contribuciones al conocimiento..." o "notas sobre..." deben ser evitadas. Debe ser escrito el *nombre* y *apellidos* completos de cada autor, acompañado de la dirección exacta para correspondencia, incluso correo electrónico, e indicar autor de comunicación cuando haya más que un autor.

Resumen y *Abstract* deben informar el objetivo y los resultados del trabajo y no limitarse únicamente a presentar los aspectos discutidos. Estos deben ser colocado debajo del nombre del(os) autor(es), de la siguiente forma dependiendo de la idioma:

- **Portugués:** *abstract* en inglés, con *título* y *key-words; resumen* en portugués, sin *título* y con *palabras-claves;*
- **Inglés:** *resumo* en portugués, con *título* y *palavras-chave; abstract* en inglés, sin *título* y *key-words;*
- **Español:** *resumo* en portugués, con *título* y *palabras-clave; abstract* en inglés, con *títulos* y *key-words.*

En el caso de notas cortas, debe ser incluido solamente un *abstract* (trabajo en portugués) o un *resumo* (trabajo en inglés o español), acompañado de *palabras-clave* y *key-words.*

El texto debe tener una introducción breve, descripción de los método incluyendo la área del estudio, resultados y su discusión, agradecimientos e referencias. Conclusiones pueden ser parte da la discusión, o seguir, opcionalmente, la discusión como una parte separada. Las partes del manuscrito deben estar organizadas como sigue:

- **Título** (del manuscrito, y los nombres y direcciones de los autores, y nada mas)
- **Resumo / Abstract / Palabras-claves**
- **Introducción** (que empieza en una nueva página)
- **Métodos** (estas partes siguen sin quebrar las páginas)
- **Resultados** (solamente los resultados mismos, en una forma sucinta)
- **Discusión** (que, opcionalmente, puede ser seguido por **Conclusiones,** pero mejor incluir conclusiones en la discusión)
- **Agradecimientos**
- **Referencias**
- **Tablas**
- **Leyendas de las Figuras**
- **Figuras**

Cada **Tabla** debe venir en una única página, numerada en dígitos arábicos y con su respectiva leyenda. La leyenda de la tabla debe ser parte de la tabla, ocupando la primera línea de la tabla con las células mezcladas. Las **Leyendas de las figuras** también deben venir numeradas y cada **Figura** debe venir en una única página, también numerada en dígitos arábicos y de acuerdo con sus respectivas leyendas. **N.B.: Todas las leyendas deben estar en dupla -la primera en la lengua del trabajo, y la segunda en inglés.**

Los diversos tópicos deben tener subtítulos apropiados cuando sea necesario. Todas las páginas deben estar numeradas en el rincón superior derecho.

Se deben usar las siguientes *abreviaciones:* h (hora), min (minuto), s (segundo), km (kilómetro), m (metro), cm (centímetro), mm (milímetro), ha (hectárea), kg (kilogramo), g (gramo), mg (milígramo), todas con letras minúsculas y sin punto. Use las siguientes *notaciones estadísticas:* P, n, t, r, F, G, U, x^2, gl (grados de libertad), ns (no significativo), CV (coeficiente de variación), DE (desviación estándar), EE (error estándar). Con excepción de los símbolos de temperatura y porcentaje (*e.g.,* 15°C, 45%), deje espacio entre el número y la unidad o símbolo (*e.g.,* n = 12, P < 0,05, 25 min). Escriba en *itálica* palabras y expresiones del latín (*e.g., et al., in vitro, in vivo, sensu*). Los números del uno al nueve deben ser escritos como texto, y del 10 en adelante en números arábicos.

Cuando sean *citados* autores en el texto, debe seguirse el modelo siguiente: (Pinto 1964) o Pinto (1964); dos trabajos del mismo autor deben ser citados como (Sick 1985, 1993) o (Ribeiro 1920a, b); autores diversos deben ser relacionados en orden cronológico: (Pinto 1938, Aguirre 1976b); cuando la publicación citada presenta dos autores, ambos deben ser indicados: (Ihering y Ihering 1907), pero cuando los autores son más de dos, solamente el primero se cita: (Schubart *et al.*

1965); nombres de autores citados juntos deben ser unidos por "e", "y", o "and" (nunca "&") de acuerdo con el idioma del texto. Informaciones inéditas de terceros deben ser reconocidas. Para citar la fuente, deben colocarse las iniciales del nombre y el apellido del informante, seguidos por las abreviaturas adecuadas de la forma de comunicación, y finalmente el año: (H. Sick com. per., 1989) o V. Loskot (*in litt.* 1990); observaciones inéditas de los autores pueden ser indicadas por las abreviaturas: (obs. per.); cuando solamente uno de los autores, merece el crédito por la observación inédita o cualquier otro aspecto descrito en el texto, debe ser indicado por las iniciales de su nombre: "... en 1989 A. S. regreso a la región...". *Manuscritos no publicados* (por ej. relatorios técnicos, monografias de graduación) y *resúmenes de congresos* podrán ser citados sólo en casos excepcionales, cuando imprescindibles y no halla otra fuente de información.

La lista de *referencias* al final del texto, deberá relacionar únicamente los trabajos citados, en orden alfabético de los apellidos de los autores. Las citaciones sucesivas deben ser substituidas por un trazo horizontal seguidas por el año de publicación entre paréntesis, como en los ejemplos siguientes:

Ihering, H. von e Ihering, R. von. (1907). *As aves do Brazil.* São Paulo: Museu Paulista (Catálogos da Fauna Brasileira v. 1). 74

IUCN. (1987). A posição da IUCN sobre a migração de organismos vivos: introduções, reintroduções e reforços. http://iucn.org/themes/ssc/pubs/policy/index (acesso em 25/08/2005).

Novaes, F. C. (1970). *Estudo ecológico das aves em uma área de vegetação secundária no Baixo Amazonas, Estado do Pará.* Tese de doutorado. Rio Claro: Faculdade de Filosofia, Ciências e Letras de Rio Claro.

Remsen, J. V. e Robinson, S. K. (1990). A classification scheme for foraging behavior of birds in terrestrial habitats, p. 144-160. Em: M. L. Morrison, C. J. Ralph, J. Verner e J. R. Jehl Jr. (eds.). Avian foraging: theory, methodology, and applications. Lawrence: Cooper Ornithological Society (Studies in Avian Biology 13).

Ribeiro, A. de M. (1920a). A fauna vertebrada da ilha da Trindade. *Arq. Mus. Nac.* 22:169-194.

Ribeiro, A. de M. (1920b). Revisão dos psittacídeos brasileiros. *Rev. Mus. Paul.* 12 (parte 2):1-82.

Sick, H. (1985). *Ornitologia brasileira, uma introdução,* v. 1. Brasília: Editora Universidade de Brasília.

Notas de pie de página no se aceptarán; notas adicionales cuando sean absolutamente relevantes podrán ser incluidas después de las referencias, con numeración correspondiente a las respectivas llamadas en el texto, debajo del subtítulo *notas.*

Ilustraciones y tablas. Las ilustraciones (fotografías, dibujos, gráficos y mapas) que serán llamados figuras, deberán ser numeradas con guarismos arábigos en el orden que son citados y serán introducidos en el texto.

Las tablas y las figuras recibirán enumeración independiente y deben aparecer al final del texto, así como todas las leyendas a las figuras, que se deben presentar en hojas separadas.

Las llamadas en el texto para figuras y tablas deben seguir el modelo: "(Figura 2)" o "… en la figura 2".

Las tablas deben ser encabezadas por un título completo, ser autos explicativas y no necesitar consultar el texto.

Todas las leyendas de las figuras deben ser reunidas en una hoja separada.

Para trabajos en español, los autores deberán proveer versiones en inglés de las leyendas de las figuras y títulos de tablas.

El texto dentro de las figuras debe ser legible cuando reducido por 60%.

Las *fotografías* deben estar en blanco y negro y presentar la claridad máxima.

En caso de existir solamente las fotografias del color, éstos se pueden convertir a blanco y negro.

Todas deben ser digitalizadas en 300 dpi, con tamaño mínimo de 12 x 18 centímetros, en escala de cinza, de 8 bits y gravadas en tif o en jpeg.

En los *dibujos,* los *gráficos* y los *mapas,* las escalas de tamaños o las distancias deben ser representadas por barras, no por cocientes numéricos.

Los dibujos y las letras deben tener dimensiones de modo que sigan siendo legibles cuando estén reducidos para la publicación.

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Caixa Postal 11.461, CEP 05422-970
São Paulo, SP, Brasil
Tel./Fax: (# 11) 3091-7575
E-mail: lfsilvei@usp.br

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Novaes, F. C. (1970). *Estudo ecológico das aves em uma área de vegetação secundária no Baixo Amazonas, Estado do Pará.* Tese de doutorado. Rio Claro: Faculdade de Filosofia, Ciências e Letras de Rio Claro.

Remsen, J. V. e Robinson, S. K. (1990). A classification scheme for foraging behavior of birds in terrestrial habitats, p. 144-160. Em: M. L. Morrison, C. J. Ralph, J. Verner e J. R. Jehl Jr. (eds.). Avian foraging: theory, methodology, and applications. Lawrence: Cooper Ornithological Society (Studies in Avian Biology 13).

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Ribeiro, A. de M. (1920b). Revisão dos psittacídeos brasileiros. *Rev. Mus. Paul.* 12 (parte 2):1-82.

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Caixa Postal 11.461, CEP 05422-970
São Paulo, SP, Brasil
Tel./Fax: (# 11) 3091-7575
E-mail: lfsilvei@usp.br

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Revista Brasileira de Ornitologia

Volume 19 – Número 2 – Junho 2011

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ISSN 0103-5657

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