ZOOLOGIA 31 (4): 343–360, August, 2014
http://dx.doi.org/10.1590/S1984-46702014000400006

Bird diversity in the Serra do Aracá region, northwestern Brazilian Amazon: preliminary check-list with considerations on biogeography and conservation

Sérgio Henrique Borges[1], Andrew Whittaker[2] & Ricardo Afonso Machado de Almeida[1]

[1] Fundação Vitória Amazônica. Rua Estrela D'Alva 146, Loteamento Parque Morada do Sol, Aleixo, 69060-093 Manaus, AM, Brazil. E-mail: sergio@fva.org.br
[2] Museu Paraense Emílio Goeldi. Caixa Postal 399, 66040-170 Belém, PA, Brazil. E-mail: andrew@birdingbraziltours.com

ABSTRACT. We inventoried the birds from Serra do Aracá region, state of Amazonas. The region encompasses a high diversity of vegetation types, including white sand forests and campinas, terra firme and flooded forests, montane forests and tepuis. We recorded 416 bird taxa in 69 families through captures with mist nets, tape recording of bird voices, and collection of voucher specimens. A large proportion of them (61%) were recorded in a single vegetation type. Qualitative estimates suggest that approximately 580 bird species occur in the region. The avifauna of the Aracá region has a mixed biogeographic composition, with species typical of both margins of the Rio Negro occurring sympatrically. Additionally, species whose distributions are restricted to three areas of endemism for Amazonian birds (Imeri, Guiana and Pantepui) were recorded in the region. Rare landscapes in the Brazilian Amazon are found in the Serra do Aracá region. Additionally, we recorded endemic and rare birds, highlighting the value of the region for conservation. The Serra do Aracá State Park officially protects montane forests, terra firme forests and tepuis. We suggest that the large extension of white sand campinas and igapó forests at the southern portion of Serra do Aracá should be also preserved in order to improve the representation of the rich natural heritage of the region.

KEY WORDS. Amazon biodiversity; Amazonas; Rio Branco; Rio Negro; tepuis; white sand campinas.

The biogeographic distribution of the Amazonian avifauna is complex, and includes geographic gradients of species diversity and the influence of rivers in the delimitation of areas of endemism (Cracraft 1985, Haffer 1992, Rahbek & Graves 2001, Silva *et al*. 2005, Cohn-Haft *et al*. 2007a, b). Although the major geographic patterns of bird distribution in Amazonia have been identified since the late 1960's (Haffer 1969, 1974), recent studies have documented new areas of endemism, areas of biogeographic transition and large scale turnover of species composition in flooded forests (Cohn-Haft *et al*. 2007b, Naka 2011, Borges & Silva 2012). These studies have demonstrated that larger scale inventories are useful for understanding the geographic patterns of bird distribution within the Amazon basin.

Although recent inventories have elucidadet the distribution of birds in the Amazon (see papers in Santos & Aleixo 2011), several locations remain poorly investigated (Oren & Albuquerque 1991, Oren 2001). The avifauna of the region located between the Branco and Negro rivers in the state of Amazonas, for example, remains poorly studied despite recent inventories (Naka *et al*. 2006, Naka *et al*. 2007). This region includes rare ecosystems of the Amazon such as white sand campinas, montane forests and tepuis (Prance & Johnson 1992, Santos *et al*. 1993). Moreover, this region is located between rivers that have a clear influence on the distribution of birds and other taxa (Ayres & Clutton-Brock 1992, Borges 2007, Naka 2011).

We provide a preliminary check-list of the birds from the Serra do Aracá region, which is located in the Rio Negro/Rio Branco interfluve, Northwestern Brazilian Amazon. Additionally, we perform qualitative analysis of the bird fauna, to understand how habitat heterogeneity and geographical context influence species distribution. And finally, we consider the effectivennes of the Serra do Aracá State Park to protect a representative sample of the regional diversity of bird species and environments.

MATERIAL AND METHODS

Birds were sampled in the major habitats of the Serra do Aracá and the valleys of the Aracá and Demini rivers, at the Negro/Branco interfluve in 2004 (December), 2006 to 2008 (July/August) and 2010 (July/August) years. During the expeditions we held nearly 55 field days, which were distributed among 25 sites throughout the region (Fig. 1), though not evenly. We spent only 10 days in the montane forest and summit of Serra do Aracá due to difficulties accessing the site and remaining in it, and a limited time in the terra firme and

flooded forests. Therefore, sampling was more intense in white sand campinas and campinaranas (Anderson 1981), which are easy to access from rivers and are relatively low in species diversity.

The Aracá river valley and its tributaries are extensively covered with white sand campinas, sand dunes, low canopy forests (campinaranas) and black water flooded forests (igapó forests). In the Aracá valley, we also visited granite rock outcrops (inselbergs), with altitudes varying from 80-120 m and sparse vegetation cover. Hillside montane forests and the open vegetation of Serra do Aracá were found between 400 and 1,200 m a.s.l. Serra do Aracá has a flat table shape, which is typical of the Venezuelan tepuis (Huber 1988, Huber 2005) and its summit is occupied by partially flooded grasslands and scrublands and patches of low-canopy forests. The montane forests have a more heterogeneous vegetation structure and normally are covered by clouds in cold mornings. Detailed descriptions of the floristic and vegetation physiognomy of the Serra do Aracá can be found in Prance & Johnson (1992). Inventories of terra firme forests and igapó flooded forests were concentrated in Serra do Aracá foothills and along the lower courses of Aracá and Demini rivers (Fig. 1).

Our field methods included capture of birds with mist nets (36 mm mesh, 12 x 2.5 m), tape recording of bird vocalizations using professional tape recorders (Sony TCM 5000, Marantz PMD 660) and collection of specimens. We captured 635 individuals in 2,204 nets/hours of mist net operation. Biogeographic and/or taxonomic relevant specimens were collected (SISBIO #32122-1) and deposited in the bird collection of Instituto Nacional de Pesquisas da Amazônia (INPA). Voice records will be deposited in public archives of the British Library's Sound Archive and the bird collection of the Instituto Nacional de Pesquisas da Amazônia (INPA). Meanwhile photographs or recordings can be requested from the authors (see Appendices S1-S6*).

Each species was recorded in the habitat categories defined in Appendix 1. Harrison indices were calculated between pairs of habitats using this categorization to determine the turnover of species between major habitats in the study region. This index is a measure of beta diversity, and is insensitive to differences in the total number of species of the sampling units compared (Magurran 2004), which is useful for comparing habitats with very different numbers of species, as reported here. This index varies from 0 (total overlap in species composition) to 100 (completely different species composition) (Magurran 2004). Only species in the following habitats were included in the analysis: terra firme forests, tepuis (including montane forests plus grassland and scrub on the Serra do Aracá summit), igapó forests and white sand campinas and campinaranas.

We described the geographic distributions of individual bird species in the following categories: 1) monotypic or polytic species with widespread distribution in the Amazon, especially in the northern portion of the basin; 2) taxa (species or subspecies) whose distribution includes the left margin of the Rio Negro, including the Guianas and both margins of the Rio Branco. Some species in this category are also found in the southern part of the Amazon river, while others are not recorded in the Central Amazon; 3) taxa whose distribution falls primarily on the right margin of the Rio Negro, but which extends to the left margin (Negro/Branco interfluve). Some of these species can also be found in the south-western parts of the Amazon; 4) taxa apparently restricted to the north-western Amazon in the upper Rio Negro, South Venezuela, and Eastern Colombia; 5) taxa endemic to the Guyana Highlands (tepuis). Since no extensive collection of bird specimens has been conducted in the region, subspecies identification was tentative and made after extensive literature review (del Hoyo *et al*. 1992-2004, Restall *et al*. 2006), including regional catalogues (Friedmann 1948, Pinto 1966).

RESULTS

We compiled a check-list with 416 bird taxa, and documented the presence of 282 (68%) of them (Appendix 1). The avifauna of Aracá is remarkable in the diversity of flycatchers (Tyrannidae: 36 species), antbirds (Thamnophilidae: 38 species), hummingbirds (Trochilidae: 25 species) and parrots (Psittacidae: 17 species). The list includes congeneric species that are not easy to tell appart in the field (*Phaethornis superciliosus*/*malaris*, *Picumnus pumilus*/*lafresnayi*), species that could be identified only to genus due inadequated documentation (*Cypseloides* sp., *Topaza* sp.) and some hypothetical records (*Pyrrhura egregia* (Sclater, 1881), *Coccyzus melacoryphus* Vieillot, 1817, *Pteroglossus azara* (Vieillot, 1819), *Hylophilus thoracicus* Temminck, 1822, *Microcerculus ustulatus* Salvin & Godman, 1883) that neeed to be better documented. These records were maintained in the final check-list because they could be useful for further studies in the region.

During our fieldwork, we found bird species endemic to north-western Amazonia (e.g., *Ammonastes pelzelni* (Sclater, 1890), *Cyanocorax heilprini* Gentry, 1885), birds that are poorly known in nature (e.g., *Crypturellus duidae* Zimmer, 1938, *Hemitriccus inornatus* (Pelzeln, 1868)) or infrequently recorded for the Amazonia or Brazil (e.g., *Sarkidiornis sylvicola* Ihering & Ihering, 1907, *Leucophaeus atricilla* (Linnaeus, 1758), *Hydropsalis longirostris* (Bonaparte, 1825), *Campylopterus duidae* Chapman, 1929). Further details of these records will be presented in another publication since the current study intends to describe the avifauna of the Aracá region in a more general context.

*Available as Online Supplementary Material accessed with the online version of the manuscript at http://www.scielo.br/zool

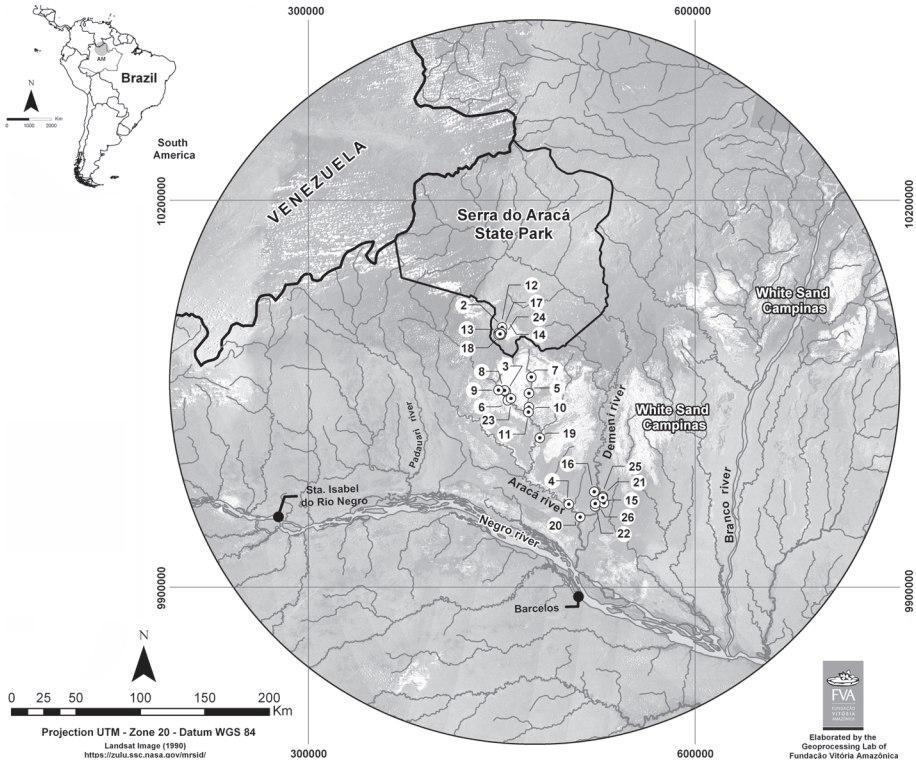


Figure 1. Northwestern region of the state of Amazonas showing the study sites, mainly rivers and municipalities. Note the large areas occupied by white sand campinas in the study region.

Generally, the diversity of birds in most habitats studied seems to be undersampled, considering the expected diversity found for similar habitats in more thoroughly studied regions (Table I). The exception was white sand campinas and campinaranas, where bird diversity was high compared with other better sampled regions (Table I). This result is likely related to the wide extension occupied by this habitat in Aracá (Fig. 1). Sampling efforts were less intense in terra firme forest and therefore it is likely that species diversity there is underestimated by at least 28% (Table I). Considering the deficit in the number of species found in the major habitats (Table I), we expect that 160 to 167 species will be added to the current check-list in future surveys, increasing the known bird diversity of region to approximately 580 species.

A large proportion of birds (61%, 231/379 species) were recorded in a single habitat. Most species were restricted to terra firme forest (27%), followed by igapó forests (14%), white sand campinas and campinaranas (16%) and tepuis (4%). Igapó flooded forests and white sand campinas and campinaranas have the most similar avifaunas (Table II). The avifauna of each vegetation type, however, is quite distinct in bird species composition, since Harrison index values were greater than 80 in most paired comparisons (Table II).

Table I. Number of bird species recorded in the terrestrial habitats in the Aracá region compared with the same habitats in better sampled places in the Amazon.

Habitats	Number of recorded species	Number of expected species	Aracá deficits
Terra firme forests	179	250-257[1]	71-78
Igapó flooded forests	137	215[2]	78
Tepuis	36	14-47[3]	11
White sand campinas and campinaranas	180	153[1]	–

Sources: [1]Borges & Almeida (2011), Cohn-Haft *et al.* (1997); [2]Borges & Carvalhaes (2000), Borges & Almeida (2011); [3]Borges (unpubl. data).

Table II. Harrison indices calculate in paired comparisons between major vegetation types in the Aracá region.

	Igapó flooded forests	Tepuis	Terra firme forests
White sand campinas and campinaranas	57.1	83.3	69.3
Igapó flooded forests		96.5	81.6
Tepuis			94.4

Most avian taxa in the Aracá region are widely distributed throughout the Amazon basin (Table III). A smaller pro-

Table III. Taxa (species or subspecies) recorded in Aracá region distributed in major biogeographic categories. For more details in categories definition see Methods section.

Biogeographical categories	Number of species (%)	Examples
Taxa widely distributed in the Amazon	200 (67%)	*Amazilia f. fimbriata* Gmelin, 1788, *Cacicus c. cela* Linnaeus, 1766
Taxa distributed mainly at left bank of the Rio Negro	31 (10%)	*Todirostrum pictum* Salvin, 1897, *Monasa atra* (Boddaert, 1783)
Taxa distributed mainly at right bank of the Rio Negro	42 (14%)	*Hylophilus b. brunneiceps* P.L. Sclater, 1866, *Lepidothrix c. coronata carbonate* Todd, 1925
Taxa apparently restricted to Northwestern Amazonia	12 (4%)	*Brotogeris chrysoptera tenuifrons* Friedmann, 1945, *Cyanocorax heilprini* Gentry, 1885
Taxa endemic to Guyana mountain system (tepuis)	13 (4%)	*Trogon personatus* Gould, 1842, *Ceratopipra cornuta* (Spix, 1825)

portion of representative taxa have their geographical distribution centered in the right or left banks of the Rio Negro, while only a few species have more restricted distributions (Table III).

DISCUSSION

Future inventories will significantly increase the bird diversity documented for the Aracá region. We recommend that additional inventories target the less known avifauna of the terra firme forests and tepuis. Also, increasing specimen collections is fundamental for understanding bird species diversity and biogeographical patterns in the region. Although incomplete, the results reported here suggests that large rivers (Branco and Negro), the Guyana mountain system and habitat diversity are the major determinants of the regional bird species distribution.

It is well-known that large rivers in the Amazon basin such as the Madeira, Negro and Solimões-Amazonas strongly influence the distribution of bird species (Hellmayr 1910, Haffer 1992, Borges 2007). In the study region, the Negro influences the geographic distribution of several bird species, especially in its lower course (Borges 2007, Naka 2011). Bird species such as *Selenidera nattereri* (Gould, 1836) and *Tyranneutes stolzmanni* (Hellmayr, 1906), recorded on the right margin of the Negro (Borges *et al.* 2001) and Aracá region, are substituted by related species (*S. piperivora* (Linnaeus, 1766), and *T. virescens* (Pelzeln, 1868)) on the left margin of Rio Branco near Manaus (Cohn-Haft *et al.* 1997). Additionally, some species typical of the left margin of Rio Branco (Cohn-Haft *et al.* 1997), such as *Monasa atra* (Boddaert, 1783) and *Gymnopithys rufigula*, (Boddaert, 1783) were also recorded in the Aracá region and sites in southern Venezuela. These species are substituted by related species on the right margin of Rio Negro (Cohn-Haft *et al.* 1997, Zimmer & Hilty 1997, Borges *et al.* 2001).

The avifauna of the Aracá region has a mixed composition, with species from both margins of the Rio Negro occurring sympatrically. Reinforcing the mixed nature of its avifauna, Aracá is located in a region of confluence of three areas of endemism for Amazonian birds: Imeri, Guianas and Pantepui (Cracraft 1985). The bird species *C. heilprini* and *A. pelzelni* are representatives of the Imeri area, while the Guiana is exemplified by the occurrence of *Crax alector* Linnaeus, 1766, *M. atra* and *G. rufigula*. The Pantepui area of endemism is characterized by birds of the Guyana highlands (Mayr & Phelps 1967), and is represented in the study region by species that occur in Serra do Aracá, such as *Ceratopipra cornuta* (Spix, 1825) and *Hylophilus sclateri* Salvin & Godman, 1883.

The patterns of species diversity and turnover of bird communities are clearly influenced by the various vegetation types found in the Aracá region, as shown by the high Harrison index values (Table II). The large difference in bird composition between habitats is partially explained by incomplete sampling, and it is likely that additional inventories will increase the similarity of bird species composition between them. However, natural history knowledge of several bird species suggests that the regional avifauna is well compartmentalized among the major regional landscapes.

These qualitative and preliminaries results suggests that the avifauna of the Aracá region is a product of interactive effects of geomorphological (development of rivers and mountains) and ecological (habitats diversity) processes. Further quantitative biogeographic analyses are needed to investigate the relative contribution of those processes in determining patterns of species distribution.

The extensive white sand campinas of the Aracá region, although relatively poor in species, contain large populations of birds that are specialized in this habitat type (Alonso & Whitney 2003, Borges 2004, Aleixo & Polleto 2007, Guilherme & Borges 2011). These specialized birds are represented by subpopulations that are more or less isolated from each other through the Amazon basin, and hence this island-like habitat (Prance 1996) represents an ideal situation to evaluate the level of genetic and morphological divergence of birds and other organisms (see Capurucho *et al.* 2013 for an illustrative example).

Serra Aracá is part of a mountain system with different levels of isolation that composes the biogeographical region of Pantepui (Mayr & Phelps 1967). In Brazil, this biogeographical unit is represented by transnational (Brazil-Venezuela) mountains such as Pico da Neblina and Monte Roraima. Serra do Aracá is relatively isolated from a more continuous block of mountains and is entirely found in the Brazilian territory. Intensification of bird inventories in the Serra do Aracá will result in a better knowledge of the geographic distribution of

the birds that are already known, and may result in the discovery of new taxa. A non-avian example of the potential of the Aracá region for taxonomic studies is the recent discovery of a new primate species of the genus *Cacajao* (Boubli *et al*. 2008).

The unique features of the Aracá region require conservation strategies that consider its biological and environmental diversity. Serra do Aracá State Park, with 1,818.700 ha, is one of the largest protected areas of the Brazilian Amazon. Unfortunately, the boundaries of this State Park do not include the large white sand campinas, the sand dunes and igapó flooded forests, which are found surrounding the Aracá river and its tributaries (Fig. 1). These habitats make an important contribution to the regional diversity of bird species. Moreover the occurrence of related taxa in the summits of the Serra do Aracá (e.g., *Turdus ignobilis* cf. *murinus*) and white sand campinas (e.g., *Turdus ignobilis* cf. *arthuri*) suggests that these birds share an evolutionary history (D.C. Oren unpubl. data). Also, the sand dunes of the Aracá region are relicts of unique geological events that occurred in the Holocene and Pleistocene (Carneiro *et al*. 2002). Extending the boundaries of Serra do Aracá State Park or creating an adjacent newly protected area to incorporate the large extension of white sand campinas in the southern part of the Serra do Aracá would substantially improve the representation of the rich biological, historical and environmental heritage of the region.

ACKNOWLEDGMENTS

The field research in the Aracá region received financial support from the Gordon and Betty Moore Foundation through the Geopolitics of Conservation in the Rio Negro project. We would like to acknowledge the enthusiastic support of Enrique Ortiz and Jason Cole. Our fieldwork would not be possible without the collaboration of Zélio (Soldado), Raimundo, Roberto and Antenor. Carlos Durigan, Zig Kok and Marcelo Moreira who all shared important ornithological records. The State Center for Conservation Units (CEUC) and the Chico Mendes Institute for Biodiversity Conservation (ICMBIO) provided the formal licences for fieldwork and skin collections in the Serra do Aracá State Park. Thanks to our colleagues Carlos Durigan, Simone Iwanaga, Marcelo Moreira, Márcio Oliveira, Jansen Zuanon, Alberto Akama, Alexandre Loy (*in memorian*), Cintia Cornelius, Claudeir Vargas, Tiago, Célio, Daniel, Dalva and Cledson for the sense of humor during the hard work in the hills, sand fields, and rivers of the Aracá region. Cintia Cornelius kindly allowed us to include some of her species records in the check-list. In 2010, a field expediction to Aracá was supported by resources provided by Fundação de Amparo a Pesquisa do Amazonas (FAPEAM) and Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP) through the FAPESP/FAPEAM joint funding program (09/53365-0). Marcelo Moreira kindly prepared the map. Nigel Smith, Yiyuan Jasmine and Karl Didier helped with the use of English language. Two anonymous reviewers helped to clarify important points in the text.

LITERATURE CITED

Aleixo, A. & F. Poletto. 2007. Birds of an open vegetation enclave in southern Brazilian Amazonia. **Wilson Journal of Ornithology 119**: 610-630. doi: http://dx.doi.org/10. 1676/06-153.1

Alonso, J.A. & B.M. Whitney. 2003. New distributional records of birds from white-sand forests of the northern Peruvian Amazon, with implications for biogeography of northern South America. **Condor** 105: 552-566. *doi*: http://dx.doi.org/10.1676/04-064

Anderson, A. 1981. White-sand vegetation of Brazilian Amazonia. **Biotropica 13**: 199-210. doi: http://dx.doi.org/10.2307/2388125.

Ayres, M. & T.H. Clutton-Brock. 1992. River boundaries and species range size in Amazonian primates. **The American Naturalist 140**: 531-537. doi: http://dx.*doi*.org/10.1086/285427.

Borges, S.H. 2004. Species poor but distinct: bird assemblages in white sand vegetation in Jaú National Park, Amazonian Brazil. **Ibis 146**: 114-124. doi: 10.1111/j.1474-919X.2004.00230.x

Borges, S.H. 2007. Análise biogeográfica da avifauna da região oeste do baixo Rio Negro, Amazônia Brasileira. **Revista Brasileira de Zoologia 24**: 919-940. doi: http://dx.doi.org/10.1590/S0101-81752007000400008

Borges, S.H. & A.M.P. Carvalhaes. 2000. Bird species of black water inundation forest in the Jaú National Park (Amazonas State, Brazil): their contribution to regional species richness. **Biodiversity and Conservation 9**: 201-214. doi: 10.1023/A:1008902306499.

Borges, S.H. & R.A. Almeida. 2011. Birds of the Jaú National Park and adjacent area, Brazilian Amazon: new species records with reanalysis of a previous checklist. **Revista Brasileira de Ornitologia 19**: 108-133.

Borges, S.H. & J.M.C. Silva. 2012. A new area of endemism for Amazonian birds in the Rio Negro basin. **Wilson Journal of Ornithology 124**: 15-24. doi: http://dx.doi.org/10.1676/07-103.1

Borges, S.H.; M. Cohn-Haft; A.M.P. Carvalhaes; L.M. Henriques; J.F. Pacheco & A. Whittaker. 2001. Birds of Jaú National Park, Brazilian Amazon: Species check-list, biogeography and conservation. **Ornitologia Neotropical 12**: 109-140.

Boubli, J.P.; M.N.F. Silva; M.V. Amado; T. Hrbek; F.B. Pontual & I.P. Farias. 2008. A Taxonomic Reassessment of *Cacajao melanocephalus* Humboldt (1811), with the description of two new species. **International Journal of Primatology 29**: 723-741.

Capurucho, J.C.; C. Cornelius, S.H. Borges; M. Cohn-Haft; A. Aleixo; J.P. Metzger & C. Ribas. 2013. Combining phylogeography and landscape genetics of *Xenopipo atronitens* (Aves: Pipridae), a white sand campinas specialist, to understand Pleistocene landscape evolution in Amazonia. **Biological Journal of the Linnean Society 110**: 60-76. doi: 10.1111/bij.12102

Carneiro Filho, A.C.; D. Schwartz; S.H. Tatumi & T. Rosique. 2002. Amazonian paleodunes provide evidence for a drier climate phases during the late Pleistocene-Holocene. **Quaternary Research 58**: 205-209. doi:10.1006/qres.2002.2345

CBRO. 2014. **Listas das aves do Brasil.** Comitê Brasileiro de Registros Ornitológicos, avaliable online at: http://www.cbro.org.br. [Accessed: May 2014].

Cohn-Haft, M.; A.M.F. Pacheco; C. Bechtoldt; M.F. Torres; A.M. Fernandes; C.H. Sardelli; I.T. Macedo. 2007a. Inventário ornitológico, p. 145-178. *In*: L. Rapp Py-Daniel; C.P. Deus; A.L. Henriques; D.M. Pimpão; O.M. Ribeiro (Orgs). **Biodiversidade do Médio Madeira: Bases científicas para propostas de conservação.** Manaus, INPA, 244p.

Cohn-Haft, M.; A. Whittaker & P.C. Stouffer. 1997. A new look at the "species-poor" Central Amazon: The avifauna north of Manaus, Brazil. **Ornithological Monographs 48**: 205-235.

Cohn-Haft, M; L.N. Naka & A.M. Fernandes. 2007b. Padrões de distribuição da avifauna da várzea dos rios Solimões e Amazonas, p. 287-323. *In*: A.L. Albernaz (Org.). **Conservação da várzea: identificação e caracterização de regiões biogeográficas.** Manaus, Ibama/ProVárzea, 353p.

Cracraft, J. 1985. Historical biogeography and patterns of differentiation within the South American avifauna: Areas of endemisms. **Ornithological Monographs 36**: 49-84.

Del Hoyo, J.; A. Elliot & J. Sargatal. 1992-2004. **Handbook of the Birds of the World.** Barcelona, Linx Edicions, 1992: vol. 1 – Ostrich to Ducks; 1993: vol. 2 – New World Vultures to Guineafowl; 1996: vol. 3 Hoatzin to Auks; 1997: vol. 4 – Sandgrouse to Cuckoos; 1999: vol. 5 – Barn-Owls to Hummingbirds; 2001: vol. 6 – Mousebirds to Hornbills; 2002: vol. 7 – Jacamars to Woodpeckers; 2003: vol. 8 – Broadbills to Tapaculos; 2004: vol. 9 – Cotingas to Wagtails.

Friedmann, H. 1948. Birds collected by the National Geographic Society's expeditions to northern Brazil and southern Venezuela. **Proceedings of the United States National Museum 97**: 373-569.

Guilherme, E. & S.H. Borges. 2011. Ornithological records from a campina/campinarana enclave on the upper Juruá river, Acre, Brazil. **Wilson Journal of Ornithology 123**: 24-32. doi: http://dx.doi.org/10.1676/10-036.1

Haffer, J. 1969. Speciation in Amazonian birds. **Science 165**: 131-137. doi: 10.1126/science.165.3889.131

Haffer, J. 1974. Avian speciation in tropical South America. **Publications of the Nuttall Ornithological Club 14**: 1-390.

Haffer J. 1992. On the "river effect" in some forest birds of southern Amazonia. **Boletim do Museu Paraense Emílio Goeldi, Série Zoologia, 8**: 217-245.

Hellmayr, C.E. 1910. The birds of the rio Madeira. **Novitates Zoologicae 17**: 257-428.

Huber, O. 1988. Vegetacion y flora de Pantepui, Region Guayana. **Acta Botanica Brasilica 1** (2): 41-52. http://dx.doi.org/10.1590/S0102-33061987000300005

Huber, O. 2005. Diversity of vegetation types in the Guyana Region: an overview. **Biologiske Skrifter 55**: 169-188.

Magurran, A. 2004. **Measuring biological diversity.** London, Blackwell Publishing.

Mayr, E. & W.H. Phelps. 1967. The origin of the bird fauna of the South Venezuelan highlands. **Bulletin of the American Museum of Natural History 136**: 273-327.

Naka, L.N. 2011. Avian distribution patterns in the Guiana Shield: implications for the delimitation of Amazonian areas of endemism. **Journal of Biogeography** 38: 681-696. doi: 10.1111/j.1365-2699.2010.02443.x

Naka, L.N.; M. Cohn-Haft; F. Mallet-Rodrigues; M.P.D. Santos & M.F. Torres. 2006. The avifauna of the Brazilian state of Roraima: Bird distribution and biogeography in the Rio Branco basin. **Revista Brasileira de Ornitologia 14**: 197-238.

Naka, L.N.; M. Cohn-Haft; A. Whittaker; J.M. Barnett & M.F. Torres. 2007. Avian biogeography of amazonian flooded forests in the Rio Branco basin, Brazil. **Wilson Journal of Ornithology 119**: 439-449. doi: http://dx.doi.org/10.1676/06-062.1

Oren, D.C. 2001. Biogeografia e conservação de aves na região Amazônica, p. 97-109. *In*: J.P. Capobianco (Orgs). **Biodiversidade da Amazônia Brasileira.** São Paulo, Estação Liberdade: Instituto Socioambiental.

Oren, D.C. & H.G. Albuquerque. 1991. Priority areas for new avian collections in Brazilian Amazonia. **Goeldiana, Zoologia, 6**: 1-11.

Pinto, O. 1966. Estudo crítico e catálogo remissivo das aves do território federal de Roraima. **Cadernos da Amazônia 8**: 1-176.

Prance, G. 1996. Islands in Amazonia. **Philosophical Transactions of the Royal Society B 351**: 823-833.

Prance, G.T. & D.M. Johnson. 1992. Plant collections from the plateau of Serra do Aracá (Amazonas, Brazil) and their phytogeographic affinities. **Kew Bulletin 47**: 1-22.

Rahbek, C. & G. Graves. 2001. Multiscale assessment of patterns of avian species richness. **Proceedings of the National Academy of Sciences of the United States of America 98**: 4534-4539. doi: 10.1073/pnas.071034898

Restall, R.; C. Rodner & M. Lentino. 2006. **Birds of Northern South America – an identification guide.** London, Helm Field Guides, Christopher Helm.

Santos, J.O.S.; B.W. Nelson & A. Giovaninni. 1993. Dunas gigantes e campos de areia. **Ciência Hoje 93**: 22-25.

Santos, M.P.D. & A. Aleixo. 2011. Foreword. **Revista Brasileira de Ornitologia 19** (2): 1.

Silva, J.M.C.; A.B. Rylands & G.A.B. Fonseca. 2005. The fate of the Amazonian areas of endemism. **Conservation Biology 19**: 689-694. doi: 10.1111/j.1523-1739.2005.00705.x

Zimmer, K. & S. Hilty. 1997. Avifauna of a locality in the upper Orinoco drainage of Amazonas, Venezuela. **Ornithological Monographs 48**: 865-886.

Submitted: 07.II.2013; Accepted: 04.V.2014.
Editorial responsibility: Fernando de C. Passos

Appendix 1. List of bird species recorded in the Aracá region, Amazonas State, Brazilian Amazon. Taxonomic nomenclature follows the Brazilian Committee of Ornithological Records (CBRO 2014). Species between parentheses do not have adequate documentation for a safe identification.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Tinamidae Gray, 1840					
Tinamus major (Gmelin, 1789)	inhambu-de-cabeça-vermelha	g (2), v (1)	mtf	1,4,15	aw, sr
Crypturellus cinereus (Gmelin, 1789)	inhambu-preto	v (2)	ca	9	sc
Crypturellus soui (Hermann, 1783)	tururim	g (1, 2)	cp, mtf, ca	1,4,6,10,22	aw, s2, sr
Crypturellus undulatus (Temminck, 1815)	jaó	g (1, 2)	ig, cp	4	aw, sr
Crypturellus duidae Zimmer, 1938	inhambu-de-pé-cinza	g (1, 2)	ca, mtf	4,21,24	aw, sr
Anatidae Leach, 1820					
Dendrocygna autumnalis (Linnaeus, 1758)	asa-branca	v (1)	r	4	aw
Cairina moschata (Linnaeus, 1758)	pato-do-mato	o (1, 2, 3)	r,ca	1,4,20	aw, s2, sr
Sarkidiornis sylvicola Ihering & Ihering, 1907	pato-de-crista	o (1)	r	4	aw
Cracidae Rafinesque, 1815					
Ortalis motmot (Linnaeus, 1766)	aracuã-pequeno	g (1, 2)	cp, mm, ca	4,5,8,9	aw, s2
Penelope jacquacu Spix, 1825	jacu-de-spix	g (1), f (3), o (2), v (2)	mtf	1,4,12,16-18,22,26	aw, s2, sr
Pauxi tomentosa (Spix, 1825)	mutum-do-norte	g (1, 2), f (2), o (2)	ca	4	aw, s2, sr
Crax alector Linnaeus, 1766	mutum-poranga	g (2), f (4a), v (1)	mtf	4,16,21	aw, s2, sr, ter
Odontophoridae Gould, 1844					
Odontophorus gujanensis (Gmelin, 1789)	uru-corcovado	o (2)	mtf	1,17,21,25	sr
Ciconiidae Sundevall, 1836					
Ciconia maguari (Gmelin, 1789)	maguari	o (2)	r, ca	11	s2
Jabiru mycteria (Lichtenstein, 1819)	tuiuiú	o (1)	r	4	aw
Mycteria americana Linnaeus, 1758	cabeça-seca	o (1, 2)	r	4	aw, s2
Phalacrocoracidae Reichenbach, 1849					
Phalacrocorax brasilianus (Gmelin, 1789)	biguá	o (2)	r	1	s2
Anhingidae Reichenbach, 1849					
Anhinga anhinga (Linnaeus, 1766)	biguatinga	o (1, 2, 3)	r	1,4,20	aw, s2, sr
Ardeidae Leach, 1820					
Tigrisoma lineatum (Boddaert, 1783)	socó-boi	o (1, 2)	r, ca	4	aw, s2
Cochlearius cochlearius (Linnaeus, 1766)	arapapá	v (1)	r	4	aw
Butorides striata (Linnaeus, 1758)	socozinho	g (2), o (1, 2)	r	1,4,20	aw, s2, sr
Bubulcus ibis (Linnaeus, 1758)	garça-vaqueira	o (1, 2)	r	4,20	aw, sr
Ardea cocoi Linnaeus, 1766	garça-moura	o (1, 2)	r	1,4	aw, sr
Ardea alba Linnaeus, 1758	garça-branca-grande	o (1, 2, 3)	r, ca	1,4,8,20	aw, s2, sr
Pilherodius pileatus (Boddaert, 1783)	garça-real	o (1, 2, 3)	r	4	aw, s2
Egretta thula (Molina, 1782)	garça-branca-pequena	o (1, 2, 3)	r	1,4	aw, s2, sr
Threskiornithidae Poche, 1904					
Mesembrinibis cayennensis (Gmelin, 1789)	coró-coró	g (2), o (1, 2)	r, ca	1,4	aw, s2, sr
Cathartidae Lafresnaye, 1839					
Cathartes aura (Linnaeus, 1758)	urubu-de-cabeça-vermelha	o (1, 2)	ca, ig, mtf, cp	2,4,8	aw, s2, sr
Cathartes melambrotus Wetmore, 1964	urubu-da-mata	o (1, 2)	ca, ig, mtf, cp, cal	4	aw, s2
Coragyps atratus (Bechstein, 1793)	urubu-de-cabeça-preta	o (1, 2)	ca, ig, mtf, cp	1,4	aw, s2, sr
Sarcoramphus papa (Linnaeus, 1758)	urubu-rei	o (2)	mtf, ig	1,15	s2, sr
Pandionidae Bonaparte, 1854					
Pandion haliaetus (Linnaeus, 1758)	águia-pescadora	o (1, 2)	ig	1,4,20	aw, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Accipitridae Vigors, 1824					
Elanoides forficatus (Linnaeus, 1758)	gavião-tesoura	o (2)	ca, ig	1	s2, sr
Ictinia plumbea (Gmelin, 1788)	sovi	o (1)	ig	4	aw, s2
Accipiter superciliosus (Linnaeus, 1766)	gavião-miudinho	o (1)	ig	4,20	aw
Geranospiza caerulescens (Vieillot, 1817)	gavião-pernilongo	o (2)	ig	20	sr
Leucopternis melanops (Latham, 1790)	gavião-de-cara-preta	v (3)	mtf	1	sr
Urubitinga urubitinga (Gmelin, 1788)	gavião-preto	o (1, 2)	ig	1,4,20	aw, sr
Heterospizias meridionalis (Latham, 1790)	gavião-caboclo	o (2)	ca	9	sc
Busarellus nigricollis (Latham, 1790)	gavião-belo	o (1, 2)	ig	4,20	aw, sr
Rupornis magnirostris (Gmelin, 1788)	gavião-carijó	g (1, 2), f (2)	ig, ca, cp	1,4-6,8,10,20,-26	aw, s2, sr
Spizaetus tyrannus (Wied, 1820)	gavião-pega-macaco	o (4a), v (2)	mtf	22	s2, ter
Spizaetus ornatus (Daudin, 1800)	gavião-de-penacho	o (4a), v (2)	mtf	22	s2, sr, ter
Eurypygidae Selby, 1840					
Eurypyga helias (Pallas, 1781)	pavãozinho-do-pará	o (1, 2)	r	1,4	aw, sr
Aramidae Bonaparte, 1852					
Aramus guarauna (Linnaeus, 1766)	carão	o (1, 2)	r	3,27	aw, s2
Psophiidae Bonaparte, 1831					
Psophia crepitans Linnaeus, 1758	jacamim-de-costas-cinzentas	f (2, 4a)	mtf	1,16	s1, s2, sr
Rallidae Rafinesque, 1815					
Aramides cajaneus (Statius Muller, 1776)	saracura-três-potes	v (2)	ca	19,20	s2, sr
Laterallus viridis (Statius Muller, 1776)	sanã-castanha	g (2)	ca	8	s2
Heliornithidae Gray, 1840					
Heliornis fulica (Boddaert, 1783)	picaparra	o (2)	r	1	s2
Charadriidae Leach, 1820					
Vanellus cayanus (Latham, 1790)	batuíra-de-esporão	f (4 - b), o (1, 2)	r	1,4	aw, s1, s2, sr, ter
Vanellus chilensis (Molina, 1782)	quero-quero	g (2), o (1, 2, 3)	ca, r	1,4-6,8,10,11,19	aw, s2, sr
Charadrius collaris Vieillot, 1818	batuíra-de-coleira	o (1)	r, ca	4	aw
Scolopacidae Rafinesque, 1815					
Gallinago paraguaiae (Vieillot, 1816)	narceja	g (1), o (2), c (4d) - INPA 2077	mm, ca	4	aw, s2
Actitis macularius (Linnaeus, 1766)	maçarico-pintado	o (1, 3)	r	1,4	aw, sr
Tringa solitaria Wilson, 1813	maçarico-solitário	o (1, 3)	r	1,4	aw, sr
Tringa melanoleuca (Gmelin, 1789)	maçarico-grande-de-perna-amarela	o (1)	r	4	aw
Tringa flavipes (Gmelin, 1789)	maçarico-de-perna-amarela	o (1)	r	4	aw
Jacanidae Chenu & Des Murs, 1854					
Jacana jacana (Linnaeus, 1766)	jaçanã	o (1)	r	4	aw
Laridae Rafinesque, 1815					
Leucophaeus atricilla (Linnaeus, 1758)	gaivota-alegre	o (1)	r	4	aw
Sternidae Vigors, 1825					
Sternula superciliaris (Vieillot, 1819)	trinta-réis-anão	o (1)	r	4	aw
Phaetusa simplex (Gmelin, 1789)	trinta-réis-grande	g (1)	r	1,4	aw, s2, sr
Rynchopidae Bonaparte, 1838					
Rynchops niger Linnaeus, 1758	talha-mar	g (1)	r	4	aw
Columbidae Leach, 1820					

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Columbina passerina (Linnaeus, 1758)	rolinha-cinzenta	g (1), f (2)	ca, cp	4,19,20,23	aw, s2, sr
Patagioenas speciosa (Gmelin, 1789)	pomba-trocal	g (2), v (2)	ca, ig	24	s2, sr
Patagioenas fasciata (Say, 1823)	pomba-de-coleira-branca	o (3)	cal	2	sr
Patagioenas cayennensis (Bonnaterre, 1792)	pomba-galega	g (1, 2), o (2), v (2)	ig, cp, ca	1,4-11,19,20	aw, s2, sr
Patagioenas plumbea (Vieillot, 1818)	pomba-amargosa	g (1, 2)	mtf, ig, ca	4,16,20-22,25	aw, sr
Patagioenas subvinacea (Lawrence, 1868)	pomba-botafogo	g (1, 2)	mtf	4,12,17,18,21	aw, sr
Leptotila verreauxi Bonaparte, 1855	juriti-pupu	g (2)	ca, mtf	24	s2, sr
Leptotila rufaxilla (Richard & Bernard, 1792)	juriti-gemedeira	g (1, 2)	ca, ig	4,18,20,22	aw, sr
Geotrygon montana (Linnaeus, 1758)	pariri	g (2)	ca	15-18,21,22,24	sr
Opisthocomidae Swainson, 1837					
Opisthocomus hoazin (Statius Muller, 1776)	cigana	g (2), f (2), o (1, 2, 3)	ig	1,4,20	aw, sr
Cuculidae Leach, 1820					
Coccycua minuta (Vieillot, 1817)	chincoã-pequeno	o (2, 3)	ig	20	sr
Piaya cayana (Linnaeus, 1766)	alma-de-gato	g (2), o (1, 2)	ig, ca, cp	4,8,20	aw, s2, sr
Piaya melanogaster (Vieillot, 1817)	chincoã-de-bico-vermelho	o (2)	mtf	17,18,22,25	sr
Coccyzus melacoryphus Vieillot, 1817	papa-lagarta-acanelado	o (2, 3)	ig, ca	20	sr
Crotophaga major Gmelin, 1788	anu-coroca	g (1), v (2)	ig	1,4,20	aw, s2, sr
Crotophaga ani Linnaeus, 1758	anu-preto	o (2, 3)	ig, cp	20	s2, sr
Tapera naevia (Linnaeus, 1766)	saci	v (1)	ca	4	aw
Neomorphus rufipennis (Gray, 1849)	jacu-estalo-de-asa-vermelha	o (4a)	mtf	18	s2, ter
Strigidae Leach, 1820					
Megascops choliba (Vieillot, 1817)	corujinha-do-mato	v (1, 2)	ca, ig	4,9	aw, s2
Megascops watsonii (Cassin, 1849)	corujinha-orelhuda	v (1), f (2)	mtf	4,15,18	aw, sr
Pulsatrix perspicillata (Latham, 1790)	murucututu	v (1)	ig	4	aw
Athene cunicularia (Molina, 1782)	coruja-buraqueira	f (2)	ca	19	s2
Nyctibiidae Chenu & Des Murs, 1851					
Nyctibius griseus (Gmelin, 1789)	mãe-da-lua	g (2), v (1)	ca, ig	1,4,5,10,11,15,24	aw, s2, sr
Caprimulgidae Vigors, 1825					
Lurocalis semitorquatus (Gmelin, 1789)	tuju	v (1)	mtf	4	aw
Chordeiles pusillus Gould, 1861	bacurauzinho	g (1, 2)	ca	4,5,6,8-11,19	aw, s2
Hydropsalis leucopyga (Spix, 1825)	bacurau-de-cauda-barrada	g (1), v (2)	ca, ig	1,4,8,20	aw, s2, sr
Hydropsalis albicollis (Gmelin, 1789)	bacurau	g (2), v (1, 2)	ca, ig	1,4-6,8,10,11,15,19	aw, s2, sr
Antrostomus rufus (Boddaert, 1783)	joão-corta-pau	g (1, 2)	ca	4,6,9,24	aw, s2, sr
Hydropsalis longirostris (Bonaparte, 1825)	bacurau-da-telha	f (3)	cal	2	sr
Hydropsalis cayennensis (Gmelin, 1789)	bacurau-de-cauda-branca	g (2)	ca	2,5,6,9-11,19	s2, sr
Hydropsalis nigrescens (Cabanis, 1848)	bacurau-de-lajeado	g (2), o (1)	ca	4,24	aw, sr
Hydropsalis climacocerca (Tschudi, 1844)	acurana	g (1)	ig	4,20	aw, sr
Apodidae Olphe-Galliard, 1887					
Cypseloides sp.	taperuçu-velho	o (3)	cal	2	sr
Streptoprocne zonaris (Shaw, 1796)	taperuçu-de-coleira-branca	o (2, 3)	cal, ca	2	s2, sr
Chaetura spinicaudus (Temminck, 1839)	andorinhão-de-sobre-branco	g (1)	ca, ig	4	aw
Chaetura brachyura (Jardine, 1846)	andorinhão-de-rabo-curto	o (1)	ca, ig	4	aw
Aeronautes montivagus (d'Orbigny & Lafresnaye, 1837)	andorinhão-serrano	o (2)	ca, ig	2,6,24	s2, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Trochilidae Vigors, 1825					
Threnetes leucurus (Linnaeus, 1766)	balança-rabo-de-garganta-preta	f (2)	mtf, cp	12,13,17,18,22,24	sr
Phaethornis rupurumii Boucard, 1892	rabo-branco-do-rupununi	g (2), f (2), v (1)	ca	4	aw, s1
Phaethornis ruber (Linnaeus, 1758)	rabo-branco-rubro	g (1, 2), f (2)	mtf, cp, ca	4,12,15-18,21,22,24	aw, s1, sr
Phaethornis bourcieri (Lesson, 1832)	rabo-branco-de-bico-reto	o (2, 3)	mtf	13,17	sr
Phaethornis superciliosus (Linnaeus, 1766)/*P. malaris* (Nordmann, 1835)	rabo-branco-de-bigodes	g (2), v (1)	mtf	4,12,14,16-18,20,22	aw, sr
Doryfera johannae (Bourcier, 1847)	bico-de-lança	g (2), f (2)	cal	2	s1, s2
Campylopterus largipennis (Boddaert, 1783)	asa-de-sabre-cinza	o (2, 3)	mtf	13,17	sr
Campylopterus duidae Chapman, 1929	asa-de-sabre-de-peito-camurça	f (2)	cal	2	s2
Florisuga mellivora (Linnaeus, 1758)	beija-flor-azul-de-rabo-branco	o (2)	mtf	20	sr
Colibri delphinae (Lesson, 1839)	beija-flor-marrom	g (2), f (2), c (2) - INPA 2432	cal	2	s2
Topaza sp.	beija-flor-brilho-de-fogo	g (2)	mtf	18	sr
Chrysolampis mosquitus (Linnaeus, 1758)	beija-flor-vermelho	g (1), f (2)	ca	4,6,8	aw, s2
Discosura longicaudus (Gmelin, 1788)	bandeirinha	f (2), c (2) - INPA 2163	ca, mtf	6,14	s1, s2, sr
Chlorostilbon notatus (Reich, 1793)	beija-flor-de-garganta-azul	o (1, 2)	ca	4	aw, s2
Chlorostilbon mellisugus (Linnaeus, 1758)	esmeralda-de-cauda-azul	o (2), c (4d) - INPA 2069-2070	ca	6	s2
Thalurania furcata (Gmelin, 1788)	beija-flor-tesoura-verde	g (2)	mtf	12,13,17	sr
Hylocharis sapphirina (Gmelin, 1788)	beija-flor-safira	g (2)	ca	24	sr
Hylocharis cyanus (Vieillot, 1818)	beija-flor-roxo	g (1)	ca	4,24	aw, sr
Polytmus theresiae (Da Silva Maia, 1843)	beija-flor-verde	g (1, 2), f (2), c (4d) - INPA 2062-68	ca	2-6,8,11,19	aw, s1, s2
Amazilia versicolor (Vieillot, 1818)	beija-flor-de-banda-branca	f (2), o (1)	ca	4	aw, s2
Amazilia fimbriata (Gmelin, 1788)	beija-flor-de-garganta-verde	f (2), o (1)	ca	4,7,10,20	aw, s1, s2, sr
Amazilia viridigaster (Bourcier, 1843)	beija-flor-de-barriga-verde	f (2), o (2)	cal, ca	2,24	s1, s2, sr
Heliothryx auritus (Gmelin, 1788)	beija-flor-de-bochecha-azul	o (2)	mtf	12,18	sr
Heliomaster longirostris (Audebert & Vieillot, 1801)	bico-reto-cinzento	o (1)	ca	4	aw
Calliphlox amethystina (Boddaert, 1783)	estrelinha-ametista	o (1, 2)	ca	4,6	aw, s2
Trogonidae Lesson, 1828					
Trogon melanurus Swainson, 1838	surucuá-de-cauda-preta	g (1, 2)	mtf	4,15,16	aw, sr
Trogon viridis Linnaeus, 1766	surucuá-grande-de-barriga-amarela	g (1, 2), f (2)	mtf, ca, cp, ig	3-6,8,12,15-22,24,25	aw, s1, s2, sr
Trogon violaceus Gmelin, 1788	surucuá-violáceo	g (1)	ca	4	aw
Trogon curucui Linnaeus, 1766	surucuá-de-barriga-vermelha	g (2)	ca, ig	11	s2
Trogon personatus Gould, 1842	surucuá-mascarado	g (2)	mm	2	s2
Alcedinidae Rafinesque, 1815					
Megaceryle torquata (Linnaeus, 1766)	martim-pescador-grande	g (1, 2)	r, ca	1,4,20	aw, s2, sr
Chloroceryle amazona (Latham, 1790)	martim-pescador-verde	o (1)	r	1,4,20	aw, s2, sr
Chloroceryle aenea (Pallas, 1764)	martim-pescador-verde	o (2)	r, ca	10	sc
Chloroceryle americana (Gmelin, 1788)	martim-pescador-pequeno	o (1)	r	1,4	aw, s2, sr
Chloroceryle inda (Linnaeus, 1766)	martim-pescador-da-mata	o (1)	r	4	aw
Momotidae Gray, 1840					
Momotus momota (Linnaeus, 1766)	udu-de-coroa-azul	g (1, 2), f (2)	mtf, cp	1,4,16-18,21,22	aw, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Galbulidae Vigors, 1825					
Galbula albirostris Latham, 1790	ariramba-de-bico-amarelo	g (2), f (2)	mtf	13,17,25	sr
Galbula galbula (Linnaeus, 1766)	ariramba-de-cauda-verde	g (1), f (2)	ig	4,20	aw, s2, sr
Galbula leucogastra Vieillot, 1817	ariramba-bronzeada	g (1, 2), f (2)	ca	3-6,10,24	aw, s1, s2, sr
Galbula dea (Linnaeus, 1758)	ariramba-do-paraíso	g (1, 2)	mtf	4,15-18,20,22,26	aw, sr
Jacamerops aureus (Statius Muller, 1776)	jacamaraçu	g (1)	mtf	4,15,16,18	aw, sr
Bucconidae Horsfield, 1821					
Notharchus macrorhynchos (Gmelin, 1788)	macuru-de-testa-branca	g (2)	mtf	25	sr
Bucco tamatia Gmelin, 1788	rapazinho-carijó	g (1, 2), f (2)	ca	1,4-8,22,24	aw, s2, sr
Bucco capensis Linnaeus, 1766	rapazinho-de-colar	g (1)	ca, mtf	4	aw
Monasa atra (Boddaert, 1783)	chora-chuva-de-asa-branca	o (2)	mtf	1	sr
Monasa nigrifrons (Spix, 1824)	chora-chuva-preto	g (1)	ig	1,4,20	aw, sr
Chelidoptera tenebrosa (Pallas, 1782)	urubuzinho	g (1), o (2)	ig, ca	1,3,4,6,19,20,24	aw, s2, sr
Capitonidae Bonaparte, 1838					
Capito auratus (Dumont, 1816)	capitão-de-fronte-dourada	g (1, 2)	mtf	4,15,16,18,20,22	aw, sr
Ramphastidae Vigors, 1825					
Ramphastos tucanus Linnaeus, 1758	tucano-grande-de-papo-branco	g (1, 2), o (2)	ca, ig, mtf	4,12,15-18,20-22,24,25	aw, s2, sr
Ramphastos vitellinus Lichtenstein, 1823	tucano-de-bico-preto	g (2), f (3), o (1, 2)	ca, ig, mtf	4,15-18,22,25,26	aw, s2, sr
Selenidera nattereri (Gould, 1836)	saripoca-de-bico-castanho	g (1, 2)	mtf	4,22	aw, sr
Pteroglossus viridis (Linnaeus, 1766)	araçari-miudinho	g (1), f (2)	ca	3,27	aw, s1
Pteroglossus azara (Vieillot, 1819))	araçari-de-bico-de-marfim	g (1)	ca	4	aw
Pteroglossus aracari (Linnaeus, 1758)	araçari-de-bico-branco	v (3)	ca	24	sr
Pteroglossus pluricinctus Gould, 1835	araçari-de-cinta-dupla	o (2)	mtf	17	sr
Picidae Leach, 1820					
Picumnus pumilus Cabanis & Heine, 1863/*P. lafresnayi* Malherbe, 1862)	pica-pau-anão-do-amazonas	o (2)	ca	6	s2
Picumnus exilis (Lichtenstein, 1823)	pica-pau-anão-de-pintas-amarelas	o (1), c (4d) - INPA 2061	ca	4	aw
Melanerpes cruentatus (Boddaert, 1783)	benedito-de-testa-vermelha	v (2)	ca, ig, cp	17,18,20,21,25,26	sr
Veniliornis affinis (Swainson, 1821)	picapauzinho-avermelhado	g (1, 2)	mtf	4,15	aw, sr
Piculus flavigula (Boddaert, 1783)	pica-pau-bufador	g (2), v (1)	mtf	4,17,18	aw, sr
Piculus chrysochloros (Vieillot, 1818)	pica-pau-dourado-escuro	g (2)	ca, mtf	20	s2, sr
Colaptes punctigula (Boddaert, 1783)	pica-pau-de-peito-pontilhado	o (2, 3)	ig	20	sr
Celeus grammicus (Natterer & Malherbe, 1845)	picapauzinho-chocolate	g (2), v (1), c (4d) - INPA 1329	mtf, ca	4,9,16	aw, s2, sr
Celeus elegans (Statius Muller, 1776)	pica-pau-chocolate	g (1, 2)	mtf, ca	4,5,17-19	aw, s2, sr
Celeus flavus (Statius Muller, 1776)	pica-pau-amarelo	g (1), v (2)	ca, ig	4,7,17	aw, s2, sr
Celeus torquatus (Boddaert, 1783)	pica-pau-de-coleira	g (2), f (2)	mtf, ca	4,9,16,24	aw, s2, sr
Dryocopus lineatus (Linnaeus, 1766)	pica-pau-de-banda-branca	g (1), v (2)	ig, ca	4,11,19,20	aw, s2, sr
Campephilus rubricollis (Boddaert, 1783)	pica-pau-de-barriga-vermelha	o (1), v (2)	mtf, ca	4,9,17	aw, s2, sr
Campephilus melanoleucos (Gmelin, 1788)	pica-pau-de-topete-vermelho	g (1, 2)	ig, mtf, ca	1,4,20	aw, s2, sr
Falconidae Leach, 1820					
Daptrius ater Vieillot, 1816	gavião-de-anta	g (1), o (2)	ig	1,4,20,24	aw, s2, sr
Ibycter americanus (Boddaert, 1783)	gralhão	g (1)	ig, mtf	1,4	aw, sr
Caracara plancus (Miller, 1777)	caracará	o (1)	ca	4	aw

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Milvago chimachima (Vieillot, 1816)	carrapateiro	o (1, 2)	ig, ca, cp	1,4,6,10,11,19	aw, s2, sr
Herpetotheres cachinnans (Linnaeus, 1758)	acauã	v (2)	ca	1	sr
Micrastur gilvicollis (Vieillot, 1817)	falcão-mateiro	g (2)	mtf	15	sr
Micrastur mirandollei (Schlegel, 1862)	tanatau	g (2)	ig	11	s2
Micrastur semitorquatus (Vieillot, 1817)	falcão-relógio	g (1, 2)	ca	4,24	aw, sr
Falco rufigularis Daudin, 1800	cauré	o (1, 2)	ig	1,4	aw, s2, sr
Psittacidae Rafinesque, 1815					
Ara ararauna (Linnaeus, 1758)	arara-canindé	g (1), f (2)	mtf, ig, ca	1,3,4,17,18,20,22,24	aw, s2, sr
Ara macao (Linnaeus, 1758)	araracanga	o (1), f (2)	mtf, ig	17,18	aw, sr
Ara chloropterus Gray, 1859	arara-vermelha-grande	g (1), o (2)	mtf	17	aw, s2, sr
Orthopsittaca manilatus (Boddaert, 1783)	maracanã-do-buriti	o (1, 2)	ig, ca	1,4,6	aw, s2, sr
Psittacara leucophthalmus (Statius Muller, 1776)	periquitão-maracanã	v (2)	ig	1,20	sr
Eupsittula pertinax (Linnaeus, 1758)	periquito-de-bochecha-parda	g (1, 2), o (2)	ig, ca	1,4,5,7-11,19	aw, s2, sr
Pyrrhura egregia (Sclater, 1881)	tiriba-de-cauda-roxa	v (2)	mm	2	s2
Brotogeris chrysoptera (Linnaeus, 1766)	periquito-de-asa-dourada	g (1, 2)	mtf, ig, ca	1,4	aw, sr
Brotogeris sanctithomae (Statius Muller, 1776)	periquito-testinha	o (1)	ig	1,4,20	aw
Touit purpuratus (Gmelin, 1788)	apuim-de-costas-azuis	g (1)	mtf	1,4,12	aw, sr
Pionites melanocephalus (Linnaeus, 1758)	marianinha-de-cabeça-preta	g (1, 2), f (2)	mtf, ig, ca	4,12,15,17,18,20,24,25	aw, s1, s2, sr
Pyrilia barrabandi (Kuhl, 1820)	curica-de-bochecha-laranja	g (1, 2)	mtf, ca	1,4,15-18,20,22	aw, sr
Pionus menstruus (Linnaeus, 1766)	maitaca-de-cabeça-azul	g (2), o (1)	mtf, ig	4,12,17,18,20,22,24	aw, sr
Pionus fuscus (Statius Muller, 1776)	maitaca-roxa	g (1, 2)	mtf, ca	4,12,15,17,18,21,24,-25	aw, sr
Amazona festiva (Linnaeus, 1758)	papagaio-da-várzea	o (1, 2)	ig	4,20,22	aw, s2, sr
Amazona amazonica (Linnaeus, 1766)	curica	g (1, 2), f (2)	ig, ca	1,4,6,7,9,11,19,20	aw, s2, sr
Amazona farinosa (Boddaert, 1783)	papagaio-moleiro	g (2), o (1)	mtf, ca	4,12,15,17,18	aw, sr
Thamnophilidae Swainson, 1824					
Euchrepomis spodioptila (Sclater & Salvin, 1881)	zidedê-de-asa-cinza	g (2)	mtf	15,16	sr
Pygiptila stellaris (Spix, 1825)	choca-cantadora	g (1, 2)	ig, cp	4,15,21,22	aw, sr
Ammonastes pelzelni (Sclater, 1890)	formigueiro-de-barriga-cinza	g (2), f (2)	ca	24	sr
Myrmophylax atrothorax (Boddaert, 1783)	formigueiro-de-peito-preto	g (1, 2), v (2)	mtf, cp	4,16-18,22,26	aw, s2, sr
Aprositornis disjuncta (Friedmann, 1945)	formigueiro-de-yapacana	c (4d) - INPA 2081	ca	10	sc
Myrmeciza longipes (Swainson, 1825)	formigueiro-de-barriga-branca	g (2), f (2)	mtf, mm	12,17,18	s2, sr
Epinecrophylla haematonota (Sclater, 1857)	choquinha-de-garganta-carijó	g (2), v (1)	mtf	4,12,15,17,18,25	aw, sr
Myrmotherula brachyura (Hermann, 1783)	choquinha-miúda	g (1, 2)	mtf	1,4,16,20,21	aw, sr
Myrmotherula ambigua Zimmer, 1932	choquinha-de-coroa-listrada	g (2)	mtf, mm	1,15,18	sr
Myrmotherula cherriei Berlepsch & Hartert, 1902	choquinha-de-peito-riscado	g (1, 2), v (2)	ca	4,6,24	aw, s2, sr
Myrmotherula axillaris (Vieillot, 1817)	choquinha-de-flanco-branco	g (2), v (1)	mtf	4,15,25	aw, sr
Myrmotherula longipennis Pelzeln, 1868	choquinha-de-asa-comprida	g (2), o (1)	mtf	4,15,16,21,25	aw, sr
Myrmotherula menetriesii (d'Orbigny, 1837)	choquinha-de-garganta-cinza	g (1, 2)	mtf	4,17,18	aw, sr
Formicivora grisea (Boddaert, 1783)	papa-formiga-pardo	g (1, 2), f (2), c (4d) - INPA 2094-2102	ca	4-11,19,24	aw, s1, s2, sr
Thamnomanes ardesiacus (Sclater & Salvin, 1867)	uirapuru-de-garganta-preta	g (2)	mtf	17,18,21	sr
Thamnomanes caesius (Temminck, 1820)	ipecuá	g (1, 2)	mtf	4,15-18,21,22,24,25	aw, sr
Megastictus margaritatus (Sclater, 1855)	choca-pintada	g (1, 2), f (2)	mtf	4,16,21,25	aw, sr
Herpsilochmus dorsimaculatus Pelzeln, 1868	chorozinho-de-costas-manchadas	g (1, 2)	mtf, ca	4,15-18,22,24,26	aw, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Sakesphorus canadensis (Linnaeus, 1766)	choca-de-crista-preta	g (1, 2), o (2)	ig, ca	4,19,20	aw, s2, sr
Thamnophilus doliatus (Linnaeus, 1764)	choca-barrada	g (1, 2), f (2), c (2) - INPA 2433-34	ca, cal	2,4,6-8,10,11,19	aw, s2
Thamnophilus murinus Sclater & Salvin, 1868	choca-murina	g (1, 2)	mtf, cp	4,12-18,21,22,25	aw, s2, sr
Thamnophilus nigrocinereus Sclater, 1855	choca-preta-e-cinza	g (1)	ig	4	aw
Thamnophilus aethiops Sclater, 1858	choca-lisa	g (2), v (1)	mtf	4,12,14-18,21,22	aw, sr
Thamnophilus amazonicus Sclater, 1858	choca-canela	g (1, 2)	ca	3,4,7-9,23,24	aw, s2, sr
Cymbilaimus lineatus (Leach, 1814)	papa-formiga-barrado	g (1, 2)	mtf	1,4,17,18	aw, sr
Taraba major (Vieillot, 1816)	choró-boi	g (2)	ig, cp	22	sr
Sclateria naevia (Gmelin, 1788)	papa-formiga-do-igarapé	g (2), o (1)	ig	4,16,20	aw, sr
Hypocnemoides melanopogon (Sclater, 1857)	solta-asa-do-norte	g (1, 2)	ig	1,4,20	aw, sr
Hylophylax naevius (Gmelin, 1789)	guarda-floresta	g (1, 2)	mtf	4,15,17	aw, sr
Percnostola minor Pelzeln, 1868	formigueiro-de-pelzeln	g (1), f (2)	mtf	4,13,17,18	aw, sr
Myrmoborus leucophrys (Tschudi, 1844)	papa-formiga-de-sobrancelha	g (2), f (2)	mtf	21	sr
Cercomacra cinerascens (Sclater, 1857)	chororó-pocuá	g (2)	mtf	18,24	sr
Cercomacra tyrannina (Sclater, 1855)	chororó-escuro	g (2), f (2)	ca, ig, cp, mm	2	s2
Hypocnemis flavescens Sclater, 1864	cantador-sulfúreo	g (2), f (2), v (2)	mtf, cp	13-18,21,22,25	s2, sr
Pithys albifrons (Linnaeus, 1766)	papa-formiga-de-topete	g (1, 2), f (3)	mtf	4,12,13,16-18,21,22	aw, sr
Willisornis poecilinotus (Cabanis, 1847)	rendadinho	g (1, 2), f (2)	mtf, ca	4,9,21,22,24	aw, s1, s2, sr
Phlegopsis erythroptera (Gould, 1855)	mãe-de-taoca-avermelhada	g (1, 2)	mtf, ca	4,22	aw, s2, sr
Gymnopithys rufigula (Boddaert, 1783)	mãe-de-taoca-de-garganta-vermelha	g (1, 2)	mtf	4,12,15,16,21,22,25	aw, sr
Grallariidae Sclater & Salvin, 1873					
Myrmothera campanisona (Hermann, 1783)	tovaca-patinho	g (2), v (1)	mtf	4,15,21,25	aw, sr
Formicariidae Gray, 1840					
Formicarius colma Boddaert, 1783	galinha-do-mato	o (1)	mtf, ca	4,12,15,16,21,22,24	aw, sr
Scleruridae Swainson, 1827					
Sclerurus macconnelli Chubb, 1919	vira-folha-de-peito-vermelho	g (1)	mtf	4	aw
Sclerurus rufigularis Pelzeln, 1868	vira-folha-de-bico-curto	v (2)	mtf	18	sr
Dendrocolaptidae Gray, 1840					
Dendrocincla fuliginosa (Vieillot, 1818)	arapaçu-pardo	g (1, 2), c (4d) - 2075	mtf, mm, ca	4,18,21,22	aw, s2, sr
Dendrocincla merula (Lichtenstein, 1829)	arapaçu-da-taoca	g (1), c (4d) - INPA 2074	mtf, ca	4,18,21	aw, sr
Deconychura longicauda (Pelzeln, 1868)	arapaçu-rabudo	v (2)	mtf	25	sr
Sittasomus griseicapillus (Vieillot, 1818)	arapaçu-verde	g (2)	mtf, mm	17,18,25	s2, sr
Glyphorynchus spirurus (Vieillot, 1819)	arapaçu-de-bico-de-cunha	g (2), o (1)	mtf	4,12,13,15-18,21,22	aw, sr
Nasica longirostris (Vieillot, 1818)	arapaçu-de-bico-comprido	g (1, 2), v (2)	ig, ca	1,4,9,20,22	aw, s2, sr
Dendrocolaptes certhia (Boddaert, 1783)	arapaçu-barrado	g (2), o (1), v (2)	mtf, ig, ca	4,9,15-17	aw, s2, sr
Dendrocolaptes picumnus Lichtenstein, 1820	arapaçu-meio-barrado	v (2)	mtf	17,18	sr
Dendroplex picus (Gmelin, 1788)	arapaçu-de-bico-branco	g (1, 2), c (4d) - INPA 2076	ig, ca	1,4,5-7,10,11,19,20,22	aw, s2, sr
Dendroplex kienerii (Des Murs, 1855)	arapaçu-ferrugem	g (2), v (1)	ig, ca	4	aw, sr
Xiphorhynchus pardalotus (Vieillot, 1818)	arapaçu-assobiador	g (1, 2)	mtf	4,12,13,15-18,21,24-26	aw, sr
Xiphorhynchus obsoletus (Lichtenstein, 1820)	arapaçu-riscado	g (1, 2)	ig, ca	4,6,8,20	aw, s2, sr
Xiphorhynchus guttatus (Lichtenstein, 1820)	arapaçu-de-garganta-amarela	g (1, 2)	mtf, cp	1,4,15,22	aw, sr
Lepidocolaptes albolineatus (Lafresnaye, 1845)	arapaçu-de-listras-brancas	g (2), o (1)	mtf	4	aw, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Xenopidae Bonaparte, 1854					
Xenops minutus (Sparrman, 1788)	bico-virado-miúdo	g (2)	mtf	25	sr
Furnariidae Gray, 1840					
Synallaxis rutilans Temminck, 1823	joão-teneném-castanho	g (1, 2)	mtf	1,4,16,21	aw, sr
Cranioleuca vulpina (Pelzeln, 1856)	arredio-do-rio	g (2), o (1)	ig	1,4,20	aw, sr
Cranioleuca gutturata (d'Orbigny & Lafresnaye, 1838)	joão-pintado	o (1)	ig	4	aw
Philydor pyrrhodes (Cabanis, 1848)	limpa-folha-vermelho	g (1, 2)	mtf	4,14,17,18,21,24	aw, sr
Automolus ochrolaemus (Tschudi, 1844)	barranqueiro-camurça	g (2)	mtf, cp, ca, ig	21,25	s2, sr
Automolus infuscatus (Sclater, 1856)	barranqueiro-pardo	g (2)	mtf	13,16,17	sr
Pipridae Rafinesque, 1815					
Neopelma chrysocephalum (Pelzeln, 1868)	fruxu-do-carrasco	f (2)	ca	9	s1, s2
Tyranneutes stolzmanni (Hellmayr, 1906)	uirapuruzinho	g (1, 2)	mtf	4,17,18	aw, sr
Lepidothrix coronata (Spix, 1825)	uirapuru-de-chapéu-azul	g (1, 2)	mtf, ca	4,12-18,18,22,24,25	aw, sr
Lepidothrix suavissima (Salvin & Godman, 1882)	dançador-do-tepui	f (2), c (2) - INPA 2435-36	mm	2	s2
Xenopipo atronitens Cabanis, 1847	pretinho	g (1, 2), f (2), c (4d) - INPA 2050-59	ca, mm	3-10,19,24	aw,s1, s2, sr
Heterocercus flavivertex Pelzeln, 1868	dançarino-de-crista-amarela	g (1, 2), f (2)	ig, ca	1,4	aw, s1, s2, sr
Dixiphia pipra (Linnaeus, 1758)	cabeça-branca	g (1, 2), f (2), c (4d) - INPA 2060	ca, mtf	4,12,16,18,21-26	aw, s1, s2, sr
Pipra filicauda Spix, 1825	rabo-de-arame	v (1)	ig	4	aw
Ceratopipra cornuta (Spix, 1825)	dançador-de-crista	f (2), c (2) - INPA 2437	mm	2	s2
Ceratopipra erythrocephala (Linnaeus, 1758)	cabeça-de-ouro	g (2), v (1)	mtf, ca, cp, ig	4,16-18,20,21,24-26	aw, s2, sr
Onychorhynchidae Tello *et al.*, 2009					
Onychorhynchus coronatus (Statius Muller, 1776)	maria-leque	o (2, 3), v (2)	mtf	14,18	sr
Terenotriccus erythrurus (Cabanis, 1847)	papa-moscas-uirapuru	g (2)	mtf	1,15,16,18	sr
Myiobius barbatus (Gmelin, 1789)	assanhadinho	g (1, 2)	mtf	4,18	aw, sr
Tityridae Gray, 1840					
Schiffornis major Des Murs, 1856	flautim-ruivo	g (1, 2)	ig	1,4	aw, sr
Schiffornis turdina (Wied, 1831)	flautim-marrom	g (2), v (1)	mtf, ca	4,9,12,16,18,24	aw, s2, sr
Laniocera hypopyrra (Vieillot, 1817)	chorona-cinza	g (2), o (1)	mtf	4,15,25	aw, sr
Pachyramphus rufus (Boddaert, 1783)	caneleiro-cinzento	o (2)	ig	20	sr
Pachyramphus marginatus (Lichtenstein, 1823)	caneleiro-bordado	g (1, 2)	mtf	4,17,18,21	aw, s2, sr
Pachyramphus surinamus (Linnaeus, 1766)	caneleiro-da-guiana	g (1, 2)	mtf	4,15	aw, sr
Pachyramphus minor (Lesson, 1830)	caneleiro-pequeno	o (1)	mtf	4,17,18	aw, sr
Cotingidae Bonaparte, 1849					
Cotinga cayana (Linnaeus, 1766)	anambé-azul	f (2), o (1)	ig	1,4,20	aw, sr
Lipaugus vociferans (Wied, 1820)	cricrió	g (1, 2)	mtf, ig, ca	4,15,16,17,18,20,21,22,25	aw, s2, sr
Xipholena punicea (Pallas, 1764)	anambé-pompadora	g (1), o (2), v (2)	ca, mtf	1,3,4,16	aw, s2, sr
Gymnoderus foetidus (Linnaeus, 1758)	anambé-pombo	o (1, 2)	ig	4,20	aw, s2, sr
Cephalopterus ornatus Geoffroy Saint-Hilaire, 1809	anambé-preto	f (2), o (1)	ig	4,20	aw, sr
Rupicola rupicola (Linnaeus, 1766)	galo-da-serra	f (4a)	mm	14	sc
Pipritidae Ohlson *et al.*, 2013					
Piprites chloris (Temminck, 1822)	papinho-amarelo	g (2)	mtf, ca	9,15-18,21	s2, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Platyrinchidae Bonaparte, 1854					
Platyrinchus coronatus Sclater, 1858	patinho-de-coroa-dourada	f (2)	mtf	12	sr
Platyrinchus platyrhynchos (Gmelin, 1788)	patinho-de-coroa-branca	g (1, 2)	mtf	4,16	aw, sr
Neopipo cinnamomea (Lawrence, 1869)	enferrujadinho	g (1)	ca	4	aw
Rhynchocyclidae Berlepsch, 1907					
Mionectes oleagineus (Lichtenstein, 1823)	abre-asa	o (1)	mtf, cp, ca	4,12,14-18,21,24	aw, sr
Mionectes macconnelli (Chubb, 1919)	abre-asa-da-mata	g (2)	mtf, ca	25	sr
Corythopis torquatus Tschudi, 1844	estalador-do-norte	g (2), v (1)	mtf	4	aw, sr
Tolmomyias sulphurescens (Spix, 1825)	bico-chato-de-orelha-preta	v (2)	ig	1,20	sr
Tolmomyias assimilis (Pelzeln, 1868)	bico-chato-da-copa	g (1, 2)	mtf	4,12,15-18,22	aw, sr
Tolmomyias poliocephalus (Taczanowski, 1884)	bico-chato-de-cabeça-cinza	g (2), v (1)	mtf, cp, ca, ig	4,15,16,18,20-22	aw, sr
Tolmomyias flaviventris (Wied, 1831)	bico-chato-amarelo	g (1, 2), c (4d) - INPA 2087	ca	4,6	aw, s2
Todirostrum maculatum (Desmarest, 1806)	ferreirinho-estriado	g (1, 2)	ig, ca	1,4,20	aw, sr
Todirostrum pictum Salvin, 1897	ferreirinho-pintado	g (2)	mtf, cp	1,15,16,18,22,25,26	sr
Myiornis ecaudatus (d'Orbigny & Lafresnaye, 1837)	caçula	v (1)	mtf	4	aw
Hemitriccus minor (Snethlage, 1907)	maria-sebinha	g (1)	ig	4,20	aw, sr
Hemitriccus zosterops (Pelzeln, 1868)	maria-de-olho-branco	g (2)	mtf	16	sr
Hemitriccus margaritaceiventer (d'Orbigny & Lafresnaye, 1837)	sebinho-de-olho-de-ouro	g (2), f (2)	ca, cal	2,5-8,10,11,19	s2
Hemitriccus inornatus (Pelzeln, 1868)	maria-da-campina	g (2)	ca	24	sr
Lophotriccus galeatus (Boddaert, 1783)	caga-sebinho-de-penacho	g (2), f (2), v (1)	mtf, cp	4,15,16,22,25	aw, sr
Tyrannidae Vigors, 1825					
Tyrannulus elatus (Latham, 1790)	maria-te-viu	g (1, 2)	mtf, cp, ig, ca	3,4,9,15,16,20,21,24,25	aw, s2, sr
Myiopagis gaimardii (d'Orbigny, 1839)	maria-pechim	g (1, 2)	mtf, cp, ig, ca	4,15-18,20-22	aw, s2, sr
Myiopagis caniceps (Swainson, 1835)	guaracava-cinzenta	g (2), v (1)	mtf	4,15,17,18,21,22	aw, sr
Myiopagis flavivertex (Sclater, 1887)	guaracava-de-penacho-amarelo	g (2), v (1)	ig, cp	4	aw, sr
Elaenia flavogaster (Thunberg, 1822)	guaracava-de-barriga-amarela	g (1)	ca	4	aw
Elaenia parvirostris Pelzeln, 1868	guaracava-de-bico-curto	c (4d), INPA 2033-34	ca	10	sc
Elaenia cristata Pelzeln, 1868	guaracava-de-topete-uniforme	g (2), f (2), c (4d) - INPA 2035-39	ca, cal	2,8	s2
Elaenia ruficeps Pelzeln, 1868	guaracava-de-topete-vermelho	g (2), f (2), o (1, 2), c (4d) - INPA 2040-49	ca, cal	3,4-11,19,24	aw, s1, s2, sr
Ornithion inerme Hartlaub, 1853	poiaeiro-de-sobrancelha	g (1, 2)	mtf	4,17,24	aw, sr
Camptostoma obsoletum (Temminck, 1824)	risadinha	g (1, 2), v (2)	ig, ca	3,4,8,9,20	aw, s2, sr
Capsiempis flaveola (Lichtenstein, 1823)	marianinha-amarela	g (1, 2)	ig	4	aw, sr
Zimmerius gracilipes (Sclater & Salvin, 1868)	poiaeiro-de-pata-fina	g (1, 2)	mtf, ig, ca	4,15,20	aw, s2, sr
Inezia subflava (Sclater & Salvin, 1873)	amarelinho	o (1, 2), v (2)	ig, ca	3,4	aw, s2
Hirundinea ferruginea (Gmelin, 1788)	gibão-de-couro	f (4c), o (3)	cal	2	s2, sr, ter
Lathrotriccus euleri (Cabanis, 1868)	enferrujado	o (1)	ig	4	aw
Cnemotriccus fuscatus (Wied, 1831)	guaracavuçu	g (2), f (2), c (4d) - INPA 2088	ca	6,24	s2, sr
Ochthornis littoralis (Pelzeln, 1868)	maria-da-praia	g (2), o (1, 2, 3)	ig	4,20	aw, sr
Legatus leucophaius (Vieillot, 1818)	bem-te-vi-pirata	g (1), v (2)	ig	4,20	aw, s2, sr

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Myiozetetes cayanensis (Linnaeus, 1766)	bentevizinho-de-asa-ferrugínea	o (1), v (2)	ca, ig	1,3,4,6,19,20,26	aw, s2, sr
Pitangus sulphuratus (Linnaeus, 1766)	bem-te-vi	g (2), o (1, 2)	ca, ig	1,3,4,6,8,19-21	aw, s2, sr
Philohydor lictor (Lichtenstein, 1823)	bentevizinho-do-brejo	g (2), o (1, 2)	ig	4,20	aw, s2, sr
Conopias trivirgatus (Wied, 1831)	bem-te-vi-pequeno	g (1), v (2)	ig	4,20	aw, sr
Conopias parvus (Pelzeln, 1868)	bem-te-vi-da-copa	g (1, 2)	mtf, ca	4,12,15-18,21,22,25	aw, s2, sr
Myiodynastes maculatus (Statius Muller, 1776)	bem-te-vi-rajado	o (2)	mtf	17,20	sr
Tyrannopsis sulphurea (Spix, 1825)	suiriri-de-garganta-rajada	v (1)	ig	4,22	aw, sr
Empidonomus varius (Vieillot, 1818)	peitica	o (2)	ig	1	sr
Tyrannus melancholicus Vieillot, 1819	suiriri	f (2), o (1, 2, 3)	ig, ca	1,4-9,11,19,20,24	aw, s2, sr
Tyrannus savana Vieillot, 1808	tesourinha	o (2)	ig, ca	1	s2
Rhytipterna simplex (Lichtenstein, 1823)	vissiá	g (1, 2), c (4d) - INPA 2083	mtf, ca	4,15-17,22	aw, s2, sr
Rhytipterna immunda (Sclater & Salvin, 1873)	vissiá-cantor	g (1, 2), c (4d) - INPA 2084	ca	4,11	aw, s2
Myiarchus tuberculifer (d'Orbigny & Lafresnaye, 1837)	maria-cavaleira-pequena	g (1, 2), f (2), c (4d) - INPA 2085-86	ca, cal, ig, mtf	2,4-11,19,20	aw, s1, s2, sr
Myiarchus ferox (Gmelin, 1789)	maria-cavaleira	g (2), v (1, 2)	ca, ig	4,8,20	aw, s2, sr
Ramphotrigon ruficauda (Spix, 1825)	bico-chato-de-rabo-vermelho	g (1, 2)	mtf, ca	4,16,21,25	aw, s2, sr
Attila cinnamomeus (Gmelin, 1789)	tinguaçu-ferrugem	g (1), v (2)	ig, ca	4,19,20	aw, s2, sr
Attila citriniventris Sclater, 1859	tinguaçu-de-barriga-amarela	g (2)	ca	1	s2, sr
Attila spadiceus (Gmelin, 1789)	capitão-de-saíra-amarelo	g (1, 2)	mtf, ca	4,9,12,13,16,17,18	aw, s2, sr
Vireonidae Swainson, 1837					
Cyclarhis gujanensis (Gmelin, 1789)	pitiguari	g (1, 2)	ca, ig, cp	1,4,11,15,19,20,22	aw, s2, sr
Vireolanius leucotis (Swainson, 1838)	assobiador-do-castanhal	v (2, 3)	mtf	12,15,18	sr
Vireo olivaceus (Linnaeus, 1766)	juruviara	g (2)	mtf	15	sr
Hylophilus thoracicus Temminck, 1822	vite-vite	v (1)	ca	4	aw
Hylophilus semicinereus Sclater & Salvin, 1867	verdinho-da-várzea	g (1, 2)	ig	1,4,20-22,25	aw, s2, sr
Hylophilus sclateri Salvin & Godman, 1883	vite-vite-do-tepui	g (2), f (2), c (2) - INPA 2438	mm, cal	2	s2
Hylophilus brunneiceps Sclater, 1866	vite-vite-de-cabeça-marrom	g (1, 2), f (2), c (2) - INPA 2439	ca, cal	2,4,24	aw, s2, sr
Hylophilus muscicapinus Sclater & Salvin, 1873	vite-vite-camurça	g (1, 2)	mtf	4,15-18,21	aw, sr
Hylophilus ochraceiceps Sclater, 1860	vite-vite-uirapuru	g (1, 2)	mtf	4,12,13,17,18,20,21,24	aw, sr
Corvidae Leach, 1820					
Cyanocorax heilprini Gentry, 1885	gralha-de-nuca-azul	g (2), f (2), o (2, 3), c (4d) - INPA 2000	ca	9,24	s2, sr
Hirundinidae Rafinesque, 1815					
Atticora fasciata (Gmelin, 1789)	peitoril	o (1, 2)	ig	1,4,20	aw, s2, sr
Stelgidopteryx ruficollis (Vieillot, 1817)	andorinha-serradora	f (2), o (1, 2)	ig, ca	4,5	aw, s2
Progne tapera (Vieillot, 1817)	andorinha-do-campo	g (1, 2), o (2)	ig	4,20	aw, s2, sr
Progne subis (Linnaeus, 1758)	andorinha-azul	o (2)	ig	20	sr
Progne chalybea (Gmelin, 1789)	andorinha-doméstica-grande	o (1, 2)	ig, ca	1,19,20	s2, sr
Tachycineta albiventer (Boddaert, 1783)	andorinha-do-rio	g (1)	ig	1,4,20	aw, sr
Riparia riparia (Linnaeus, 1758)	andorinha-do-barranco	o (1)	ig	4	aw

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Troglodytidae Swainson, 1831					
Microcerculus ustulatus Salvin & Godman, 1883	flautista-do-tepui	v (2)	mm	2	s2
Microcerculus bambla (Boddaert, 1783)	uirapuru-de-asa-branca	g (1, 2), f (3)	mtf	4,12,17,18	aw, sr
Troglodytes musculus Naumann, 1823	corruíra	g (1)	ca, cp	4,20	aw
Pheugopedius coraya (Gmelin, 1789)	garrinchão-coraia	g (1, 2)	mtf, cp, ca	4,12-14,16-18,21,22,24-,25	aw, s2, sr
Cantorchilus leucotis (Lafresnaye, 1845)	garrinchão-de-barriga-vermelha	g (1, 2)	ig	4,20	aw, s2, sr
Polioptilidae Baird, 1858					
Microbates collaris (Pelzeln, 1868)	bico-assovelado-de-coleira	g (2), f (2), v (1)	mtf	4,12,16-18	aw, sr
Ramphocaenus melanurus Vieillot, 1819	bico-assovelado	g (2), f (2)	mtf, ig	17,21,25	sr
Polioptila plumbea (Gmelin, 1788)	balança-rabo-de-chapéu-preto	g (1, 2)	ca, ig	4,10,19,20	aw, s2, sr
Turdidae Rafinesque, 1815					
Turdus leucomelas Vieillot, 1818	sabiá-barranco	g (1), f (2)	ca	4,8,22	aw, s1, s2, sr
Turdus ignobilis cf murinus	caraxué-de-bico-preto	f (2)	cal	2	s2
Turdus ignobilis cf arthuri	caraxué-de-bico-preto	g (1, 2), f (2), c (4d) - INPA 2072-73	ca	2,4,5-8,10,11,19,23	aw, s1, s2
Turdus albicollis Vieillot, 1818	sabiá-coleira	g (2)	mtf	12,14-18,21,25	sr
Mimidae Bonaparte, 1853					
Mimus gilvus (Vieillot, 1807)	sabiá-da-praia	g (2), f (2), c (2) - INPA 2440	ca	6,8	s2
Passerellidae Cabanis & Heine, 1850					
Zonotrichia capensis (Statius Muller, 1776)	tico-tico	g (2), f (2)	ca, cal	2,6,10	s2
Arremon taciturnus (Hermann, 1783)	tico-tico-de-bico-preto	g (2), f (3)	mtf, cp	13,14,17,18,21	sr
Icteridae Vigors, 1825					
Psarocolius viridis (Statius Muller, 1776)	japu-verde	o (1, 2)	mtf, ca	4,5,8	aw, s2
Psarocolius decumanus (Pallas, 1769)	japu	o (2)	ig	1	s2
Cacicus cela (Linnaeus, 1758)	xexéu	o (1, 2)	ig, ca	1,4,20,22	aw, s2, sr
Icterus chrysocephalus (Linnaeus, 1766)	rouxinol-do-rio-negro	g (2), o (2)	ca	1,5,7,20,24	s2, sr
Molothrus oryzivorus (Gmelin, 1788)	iraúna-grande	o (1)	ig	4	aw
Mitrospingidae Barker *et al.*, 2013					
Lamprospiza melanoleuca (Vieillot, 1817)	pipira-de-bico-vermelho	g (1, 2)	mtf	4,16	aw, sr
Thraupidae Cabanis, 1847					
Coereba flaveola (Linnaeus, 1758)	cambacica	g (1, 2), f (2), c (4d) - INPA 2071	ca	1,3-11,19,20	aw, s1, s2, sr
Saltator grossus (Linnaeus, 1766)	bico-encarnado	g (2)	mtf	15,21	sr
Saltator maximus (Statius Muller, 1776)	tempera-viola	o (2, 3), v (2)	cp	17,18,20-22	sr
Schistochlamys melanopis (Latham, 1790)	sanhaçu-de-coleira	f (2), o (1, 2), c (4d) - INPA 2090-93	ca, cal	2,3,4,6-8,11,19	aw, s1, s2, sr
Paroaria gularis (Linnaeus, 1766)	cardeal-da-amazônia	g (1, 2)	ig	4,20	aw, sr
Nemosia pileata (Boddaert, 1783)	saíra-de-chapéu-preto	o (2)	ig	20	sr
Lanio penicillatus (Spix, 1825)	pipira-da-taoca	o (2, 3)	ig	20	sr
Lanio cristatus (Linnaeus, 1766)	tiê-galo	o (2, 3)	mtf	16,18	sr
Lanio surinamus (Linnaeus, 1766)	tem-tem-de-topete-ferrugíneo	o (1)	mtf	4,14,17,18	aw, sr
Lanio luctuosus (d'Orbigny & Lafresnaye, 1837)	tem-tem-de-dragona-branca	o (2)	mtf	12,21	sr
Tachyphonus phoenicius Swainson, 1838	tem-tem-de-dragona-vermelha	f (2), o (1, 2), c (4d) - INPA 2023-32	ca, cal	2-4,7-10	aw, s1, s2

Continues

Appendix 1. Continued.

Taxons	Portuguese common name	Evidences[1]	Habitats[2]	Sites[3]	Sources[4]
Lanio fulvus (Boddaert, 1783)	pipira-parda	g (2)	mtf	12	sr
Ramphocelus carbo (Pallas, 1764)	pipira-vermelha	g (1), o (2)	ig, cp, ca	4,20,22,24,26	aw, s2, sr
Tangara episcopus (Linnaeus, 1766)	sanhaçu-da-amazônia	o (1, 2)	ig, ca, cp	4,20	aw, s2, sr
Tangara palmarum (Wied, 1823)	sanhaçu-do-coqueiro	o (2)	ig, cp	20	s2, sr
Tangara mexicana (Linnaeus, 1766)	saíra-de-bando	o (1)	mtf	4,20	aw, sr
Tangara chilensis (Vigors, 1832)	sete-cores-da-amazônia	g (2)	mtf	17,18	sr
Tangara varia (Statius Muller, 1776)	saíra-carijó	g (1)	mtf	4	aw
Tangara gyrola (Linnaeus, 1758)	saíra-de-cabeça-castanha	o (2)	mtf	18	sr
Tangara cayana (Linnaeus, 1766)	saíra-amarela	o (2), c (4d) - INPA 2089	ca	19	s1
Tangara nigrocincta (Bonaparte, 1838)	saíra-mascarada	o (2)	mtf	17	sr
Tangara velia (Linnaeus, 1758)	saíra-diamante	g (2)	mtf	18	sr
Dacnis flaviventer d'Orbigny & Lafresnaye, 1837	saí-amarela	o (1)	ig	4,20	aw, sr
Dacnis cayana (Linnaeus, 1766)	saí-azul	g (1), f (2)	mtf, ca	4,26	aw, s2, sr
Cyanerpes nitidus (Hartlaub, 1847)	saí-de-bico-curto	f (2)	ca	9	s1
Cyanerpes caeruleus (Linnaeus, 1758)	saí-de-perna-amarela	o (1)	mtf, ig	4	aw
Cyanerpes cyaneus (Linnaeus, 1766)	saíra-beija-flor	o (2)	mtf, ig	9	s2
Chlorophanes spiza (Linnaeus, 1758)	saí-verde	o (2)	mtf, ig	18,21	sr
Hemithraupis flavicollis (Vieillot, 1818)	saíra-galega	o (2)	mtf	16-18,21	sr
Emberizoides herbicola (Vieillot, 1817)	canário-do-campo	g (2), f (2), c (4d) - INPA 2078-79	ca, cal	2,5,6,11,19	s2, sr
Sporophila plumbea (Wied, 1830)	patativa	g (2), f (2), c (2) - INPA 2441-43	ca	23	s2
Sporophila angolensis (Linnaeus, 1766)	curió	g (1)	ca, ig	4,20	aw, sr
Dolospingus fringilloides (Pelzeln, 1870)	papa-capim-de-coleira	g (2),f (2) c (4d) - INPA 2082	ca	9	sc
Cardinalidae Ridgway, 1901					
Granatellus pelzelni Sclater, 1865	polícia-do-mato	g (2)	mtf	25	sr
Caryothraustes canadensis (Linnaeus, 1766)	furriel	g (2)	mtf, ca	17,18,24	s2, sr
Cyanoloxia rothschildii (Bartlett, 1890)	azulão-da-amazônia	g (1, 2)	mtf	4,15,17,18,21,22,24	aw, sr
Fringillidae Leach, 1820					
Euphonia plumbea Du Bus, 1855	gaturamo-anão	v (1, 2)	ca	4	aw, s2
Euphonia chlorotica (Linnaeus, 1766)	fim-fim	o (2), v (2)	ig, ca	9	s2
Euphonia chrysopasta Sclater & Salvin, 1869	gaturamo-verde	g (2)	mtf	21	sr
Euphonia rufiventris (Vieillot, 1819)	gaturamo-do-norte	g (2), v (1), o (2)	mtf, ig	4,15,17-20,22	aw, sr

[1]Evidences: c (voucher specimens with identification numbers in the bird collection of the Instituto Nacional de Pesquisa da Amazônia – INPA under care of Dr. Mario Conh-Haft), f (photographs), g (tape recordings), o (observations without documentation), v (species identified by vocalizations without documentation). Numbers following the evidence referred to following authors: (1) Andrew Whitaker, (2) Sérgio Borges, (3) Ricardo Almeida, (4) other collaborators: a) Carlos Durigan, b) Zig Kock, c) Marcelo Moreira, d) Cintia Cornelius.

[2]Habitats: ca (white sand campinas and campinaranas), cal (altitudinal fields), cp (secondary forests and other human-disturbed habitats), ig (igapó flooded forests), mtf (terra firme forests), mm (montane forests), r (rivers, lakes or streams).

[3]Sites: Numbers referred the sites show in the figure 1. Number 1 identify random observations for which was not possible to assign a geographic coordinate and includes records made during dislocation between mainly studies sites. Following geographic coordinates of each site indicated in figure 1: 2 (-63 26 46/0 55 03), 3 (-63 25 10/0 28 05), 4 (-62 58 53/0 19 24), 5 (-63 15 31/0 27 19), 6 (-63 24 24/0 24 19), 7 (-63 14 35/0 34 07), 8 (-63 25 43/0 28 30), 9 (-63 28 16/0 28 40), 10 (-63 15 32/0 21 28), 11 (-63 15 47/0 19 26), 12(-63 26 53/0 52 56), 13 (-63 27 11/0 52 06), 14 (-63 27 35/0 52 16), 15 (-62 44 09/-0 18 50), 16 (-62 48 13/0 14 08), 17 (-63 27 13/0 51 59), 18 (-63 28 13/0 52 40), 19 (-63 11 01/0 08 32), 20 (-62 54 08/0 24 46), 21 (-62 44 39/0 16 35), 22 (-62 47 53/0 20 13), 23 (-63 23 02/0 25 08), 24 (-63 28 08/0 51 56), 25 (-62 44 36/0 16 10), 26 (-62 47 47/0 19 07).

[4]Sources: aw) Andrew Whittaker, December 2004, s1) Sérgio Borges, July 2006, s2) Sérgio Borges July/August 2007, sr) Sérgio Borges and Ricardo Almeida, August 2008, sc) Sérgio Borges, Cíntia Cornelius and Claudeir Vargas July 2010, ter) Carlos Durigan, Zig Kock, Marcelo Moreira.

Appendix S1. Pictures of noteworthy bird species recorded in the Aracá region, Northwestern Brazilian Amazon.

Gallinago paraguaiae

Hydropsalis longirostris

Psophia crepitans

Galbula leucogastra

Phaethornis rupurumii

Amazilia viridigaster

	
Colibri delphinae	*Campylopterus duidae*
	
Pauxi tomentosa	*Athene cunicularia*
	
Myrmeciza longipes	*Myrmeciza pelzelni*

Percnostola minor

Myrmoborus leucophrys

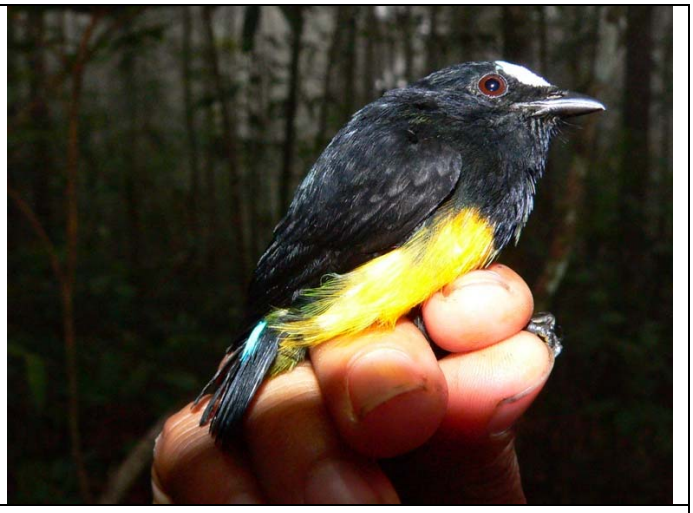
Megastictus margaritatus

Elaenia ruficeps

Elaenia ruficeps (nestlings)

Mimus gilvus

	
Turdus ignobilis cf *murinus*	*Turdus ignobilis* cf *arthuri*
	
Schistochlamys melanopis	*Dolospingus fringilloides*
	
Hemitriccus margaritaceiventer	*Sporophila plumbea* (female, male collected)

	
Cyanocorax heilprini	*Lepidothrix suavissima*
	
Pipra cornuta	*Hylophilus brunneiceps*
	
Hylophilus sclateri	*Zonotrichia capensis*