

RESEARCH ARTICLE

Parque das Neblinas: an important reserve for Atlantic Forest bird conservation in Southeast Brazil

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ABSTRACT. The Atlantic Forest has one of the richest avifaunas in the world, with endemic, migratory and endangered taxa. However, some of the ornithological knowledge produced there has yet to be organized and published, hindering effective conservation actions. For example, a study concluded in 2005 documented 213 species for Parque das Neblinas (PN), a private reserve located in the Serra do Mar in the state of São Paulo, Brazil, but there has been no update since. We retrieved, organized, and technically evaluated ornithological data produced for PN over the last 20 years, including that from articles, online platforms, occasional lists and a systematic inventory logging 250 field hours. Data consolidation resulted in 293 bird species for PN, including 88 endemic and nine threatened with extinction. Two-hundred and fifty-seven species were recorded by different researchers and bird observers while 141 were recorded by the field inventory, which added 24 species to the total list, showing great potential for new research. The PN bird community is typical of the São Paulo plateau, with the occurrence of species from coastal lowlands as well as drier areas in the interior, and represents an important area for the conservation of Atlantic Forest birds that is also suitable for bird observation and photography.

KEYWORDS. Endangered species, endemic species, private reserve, Serra do Mar.

INTRODUCTION

A total of 1,971 bird species occur within Brazil, with the Atlantic Forest standing out for both its high species richness (around 849 species), including around 223 endemics and for its large number of species threatened with extinction, exceeding 100 taxa (species and subspecies), making it one of the most threatened biodiversity hotspots in the world (Myers et al. 2000, Bencke et al. 2006, Vale et al.

2018, Marques and Grelle 2021, Pacheco et al. 2021, MMA 2022, IUCN 2024). The Atlantic Forest encompasses distinct biogeographical regions throughout its broad distribution, among which the Serra do Mar constitutes an important center of endemism for birds and other vertebrates (Müller 1973, Haffer 1974, 1985, Cracraft 1985). However, although it is one of the best studied regions in Brazil, ornithological knowledge for the Atlantic Forest, and especially for Serra do Mar, including some recent publications (e.g., Schunck

et al. 2018, Januário et al. 2023), is still dispersed across different sources.

The information available for the Atlantic Forest and Serra do Mar includes studies focused on topics such as changes in bird communities over hundreds of years (e.g., Cavarzerre et al. 2017, Januário et al. 2023), impacts of fragmentation on birds (e.g., Banks-Leite et al. 2014, Pizo and Tonetti 2020) and the importance of reserves for the protection of birds in this widely threatened biome (e.g., Tonetti et al. 2023), with it being essential to produce and mainly make existing information available to the subsidiary for new conservation actions, as recommended by Pacheco and Bauer (1999).

The state of São Paulo, located within the domains of Serra do Mar and the Atlantic Forest in the Southeast Region of Brazil, stands out for the organization of its historical and current ornithological data, as its information has been retrieved, evaluated and made available over several decades by different researchers via articles (e.g., Ihering 1898), online platforms (e.g., Figueiredo 2002) and classic works such as the book *Aves do Estado de São Paulo* (Willis and Oniki 2003) and the current list of state bird species (Silveira and Uezu 2011). Among these initiatives is “Áreas Importantes para a Conservação das Aves” (Important Bird Areas), a global program of Bird Life International. The program has been mapping priority areas of the Atlantic Forest since 1995, based almost exclusively on lists and data produced in different locations, showing the importance and applicability of basic scientific information to conservation (Bencke et al. 2006).

There is extensive ornithological knowledge for the eastern region of the state of São Paulo, particularly the municipalities of Mogi-das-Cruzes and Bertioga. The former was visited by European naturalists in the 19th century, including Johann Natterer (1787–1843) (Pelzeln 1871), and the latter by naturalists from Museu Paulista (currently the Museu de Zoologia da Universidade de São Paulo) in the 1940s, such as Hélio Ferraz de Almeida Camargo (1922–2006) (Cavarzerre et al. 2014). Different approaches and initiatives were undertaken after these periods (Willis and Oniki 2003), including the determination of two “Important Bird Areas” (SP04 and SP05), which correspond to the region of Parque Estadual da Serra do Mar, the largest existing Atlantic Forest reserve (São Paulo 2005), located between the cities of Santos and São Sebastião, including Bertioga (Bencke et al. 2006). Parque das Neblinas, a private reserve located on the border between the municipalities of Mogi-das-Cruzes and Bertioga, is recognized for encouraging the production of important

scientific knowledge through a program created in 2002 that has already supported more than 70 research projects, such as the description of species new to science, including three anurans, an ant and a crustacean (Ecofuturo 2020, Condez et al. 2021). An ornithological inventory of the reserve was carried out between 2004 and 2005, with the data published in 2011 (Donatelli et al. 2011), after which new information was generated by different researchers, bird watchers and reserve employees. There is now a high demand for organizing and updating this information, which is in line with what was proposed by Pacheco and Bauer (1999).

This study aimed to compile, organize, and evaluate ornithological data from various sources for Parque das Neblinas, including a review of Donatelli et al. (2011), new field data, and the description of additional bird records for this region of the Atlantic Forest and the north-central Serra do Mar, São Paulo.

MATERIAL AND METHODS

Study area

Parque das Neblinas (PN) (23°45'0.77"S; 46°9'56.26"W, 725 m above sea level) is a private nature reserve encompassing 7,000 ha in the eastern region of the state of São Paulo, partially within the Região Metropolitana de São Paulo, the largest urban area in South America with around 20 million inhabitants (IBGE 2023, Fig. 1). PN is located within the Atlantic Forest domain on the Serra do Mar plateau in the municipalities of Mogi das Cruzes and Bertioga, bordering the rural area of Mogi das Cruzes to the north and the protected area of Núcleo Bertioga do Parque Estadual da Serra do Mar (PESM) to the south, the largest existing Atlantic Forest reserve encompassing 332,000 ha (São Paulo 2005). Owned by the company Suzano S.A., PN was opened in 2004 and is managed by Instituto Ecofuturo as a reserve where ecotourism, environmental education, scientific research, forest management and restoration activities are developed with community participation, including bird-watching activities. It is inserted in the Itatinga river basin, with a relief varying from 700 to 1,200 m a.s.l. and a predominant vegetation of Dense Montane Ombrophilous Forest in different stages of ecological succession. The Köppen climate classification is Cwa, humid subtropical or warm temperate. Temperatures vary between a minimum of 0 °C in winter and above 27 °C in summer (Alvares et al. 2013). The region was part of the former Sertão dos Freires (I and II) and Pedra Branca farms, among others, and went through historical economic cycles of deforestation, charcoal production and eucalyptus culti-

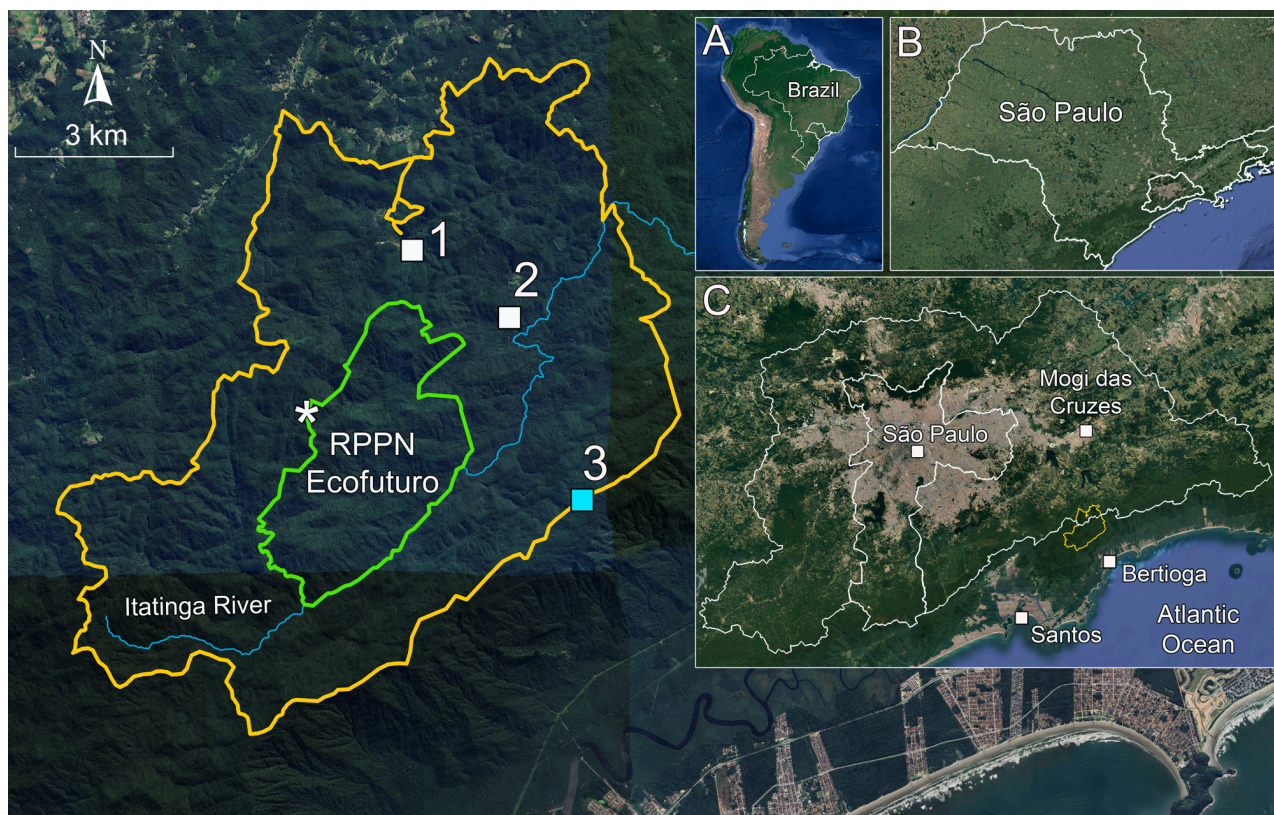


Figure 1. Location of Parque das Neblinas in the Southeast Region of Brazil: (A) South America, Brazil (large area outlined white) and state of São Paulo (small area outlined white); (B) State of São Paulo (large area outlined white) and Região Metropolitana de São Paulo (small area outlined white); (C) Região Metropolitana de São Paulo (large area outlined white), municipality of São Paulo (small area outlined white) and Parque das Neblinas (outlined yellow), including some of the region's main cities (indicated by white dots); (D) boundaries of Parque das Neblinas (outlined yellow), where 1 is the entrance to the reserve, 2 is the visitor center, 3 (blue) is the study area on the boundary of PN and Sesc Bertioga, and the green outline is RPPN Ecofuturo. The asterisk in RPPN indicates the entrance the "Caminhos de Tropa" trail, visited in December 2023. Google Earth (Landsat/Copernicus 2020 image).

vation (*Eucalyptus* spp.) for cellulose production. Parque das Neblinas includes the Ecofuturo Private Natural Heritage Reserve (RPPN) ($23^{\circ}46'45.82''\text{S}$, $46^{\circ}11'45.36''\text{W}$; 885 m; Fig. 1), established in 2009 to strengthen the legal protection of well-preserved forests within its boundaries. The Ecofuturo RPPN currently covers 518 ha.

Field data

Field data considered here came from occasionally produced species lists and a systematic field ornithological inventory. The occasional lists were produced individually by various authors in the years 2006, 2012, 2018 and 2023, in different areas of PN, totaling seven days and around 59.5 field hours (Table 1). Part of the data published by Bokermann

and Pivelli (2019) (41 species, identified with the letter c in Appendix 1) were obtained together with the authors T.S. and G.B., which only has the records with documentation presented in Appendix 1.

The ornithological inventory was carried out between 2021 and 2023 as part of a project to study birds in five areas of Serviço Social do Comércio (Sesc), Bertioga unit (called Sesc Bertioga, a national institution created by entrepreneurs in commerce, services and tourism with the aim of providing well-being and quality of life to workers and their families), which is located on the plateau that borders PN, in the municipality of Bertioga, so the produced data serves both properties. The studied location ($23^{\circ}46'35.1''\text{S}$; $46^{\circ}09'08.3''\text{W}$, 915 m, Fig. 1, Number 3) is about 800 m in

Table 1. Ornithological data produced between 2004 and January 2024 in Parque das Neblinas. The bird species from the respective sources are mentioned in Appendix 1.

Reference number (Appendix 1)	Date/Period	Field hours	Activity	Number of species	Researchers	Source
1	01/2004 to 02/2005, except 04/2004 and 10/2004	156	Ornithological study	213	Reginaldo J. Donatelli, Carolina D. Ferreira and Thiago Vernaschi V. Costa	Donatelli et al. 2011
2	07/11/2004	6.45	Bird watching activity	30	Centro de Estudos Ornitológicos - CEO	CEO 2023
3	23/08/2006	6	Bird watching activity	59	Fabio Schunck, Giulyana A. Benedicto and Carlos Cândia Gallardo	Present study
4	16/04/2012	3.5	Bird watching activity	80	Fernando I. Godoy	Present study
5	17/05/2015 (a)	5	Bird watching activity	118	Members of Clube de Observadores de Aves de Bertioga - COAB	Bokermann and Pivelli 2019
	27/11/2016 (b)	5				
	10/11/2018 (c)	5				
6	9–11/11/2018	40	Bird watching activity	26*	Tomas Sigrist and Gérard Baudet	Present study
7 (0)	04/11/2021	6	Field visit	54	Fabio Schunck, Marcelo Bokermann, Emerson Luís Costa, Gustavo X. Santos and PN Team	Present study
7 (1)	22-26/11/2021	61	Expedition 1	94	Fabio Schunck and João Bosco Freitas	Present study
7 (2)	17-21/01/2022	61	Expedition 2	108	Fabio Schunck and Bruno Rennó	Present study
7 (3)	02-06/05/2022	61	Expedition 3	74	Fabio Schunck and Bruno Rennó	Present study
7 (4)	12–16/09/2022	61	Expedition 4	76	Fabio Schunck and Rafael Indicatti	Present study
8	2022 and 2024	NA	Occasional records	4	PN Team	
9	21–22/12/2023	10	Bird watching activity	88	Fabio Schunck, Marcelo Bokermann, Gabriella Monteiro and Kleber E. Rodrigues	S156913857, S156915542, S156915980
10	2011–2024	NA	Bird watching activity	228	Various authors	e-Bird 2024

line from the Atlantic slope (summit of Serra do Mar). It has small streams and Dense Montane Ombrophylous Forest in initial and medium stages of development, with an average canopy height of 15 m, abandoned eucalyptus (*Eucalyptus* spp.) plantations and about 3 ha of high montane grassland vegetation. The study region is connected to a larger, well-preserved forest (which has never been deforested) of the summit of Serra do Mar. A reconnaissance visit and four five-day field campaigns, one in each season (spring, summer, autumn, and winter), were conducted over a 12-month period, totaling 21 days and approximately 250 hours of fieldwork (Table 1). Trails (about 2.5 km) and old eucalyptus removal roads were used. Direct observation and listening point methods were employed (five points 200 m apart, sampled for 10 minutes each), using Leica 10 x 42 and Nikon Monarch 10 x 42 binoculars. The species vocalization was documented using a Marantz PMD 660 recorder, a Sennheiser ME66 directional microphone and the Voice Record Pro application with a Boya microphone and a 46 cm circumference parabola. Photographic documentation was made with Canon 7D and Nikon D700 cameras with 300 mm 2.8 lenses. The files produced are in the database of authors F.S. and B.R. and Sesc Bertioga.

Third-party data

The ornithological data considered here come from Donatelli et al. (2011) and Bokermann and Pivelli (2019), the database of the Centro de Estudos Ornitológicos (CEO 2023), the PN team (collected on a daily basis), and the e-Bird online platform (until January 10, 2024, <https://ebird.org/home>, including records deposited in the Macaulay Library – ML). The online platforms WikiAves (<https://www.wikiaves.com.br/>) and Xeno-canto (<https://xeno-canto.org>) were not considered here, as the former has no system for filtering data by a particular location (only by municipality or public reserve) and the latter has only limited data referring to a list produced in the field, which is already considered in the current database. Records from e-Bird (Parque das Neblinas hotspot: <https://ebird.org/hotspot/L9303970>) that lack documentation were not included in the present study.

Donatelli et al. (2011) cite 222 bird species, 221 of which are mentioned in the article's table. We considered only 213 species from this reference as eight were excluded due to lack of documentation, being species that do not occur or are uncommon in the region of Mogi-das-Cruzes and Bertioga of Serra do Mar (Willis and Oniki 2003, Cavarzere et al. 2014, WikiAves 2024). Historical ornithological data from

the state of São Paulo (Willis and Oniki 2003) and current data available on the WikiAves platform (WikiAves 2024), indicate the following: the Planalto Slaty-Antshrike *Thamnophilus pelzelni* Hellmayr, 1924 and the Southern Antpiper *Corythopis delalandi* (Lesson, 1830) are exclusive to the interior of the state of São Paulo, and do not occur in Serra do Mar; the Ocellated Poorwill *Nyctiphrynus ocellatus* (Tschudi, 1844), the Gilded Hummingbird *Hylocharis chrysura* (Shaw, 1812), the Brown-crested Flycatcher *Myiarchus tyrannulus* (Statius Muller, 1776), the Mouse-colored Tyrannulet *Phaomyias murina* (Spix, 1825) and the Lesser Kiskadee *Philohydor lictor* (Lichtenstein, 1823) are typical of the interior of the state, being rare, uncommon and with restricted occurrences in Serra do Mar; and the Rufous-tailed Antbird *Drymophila genei* (Filippi, 1847) is restricted to above 1000 m altitude in Serra do Mar. The Scaled Woodcreeper *Lepidocolaptes squamatus* (Lichtenstein, 1822), which only occurs in the northern region of Serra do Mar of São Paulo, was reverted to the Scaloped Woodcreeper *Lepidocolaptes falcinellus* (Cabanis and Heine, 1859). These corrections also apply to Donatelli et al. (2017), who used the same data contained in Donatelli et al. (2011).

Bokermann and Pivelli (2019) cite 120 bird species for Parque das Neblinas, of which three were excluded and one was added from the present study, of which 118 species are considered valid (Appendix 1). Historical data from Sick (1997) and Willis and Oniki (2003), and current data from WikiAves (2024), indicate that the Buff-throated Woodcreeper *Xiphorhynchus guttatus* (Lichtenstein, 1820) does not occur in the Atlantic Forest, and the Yellow-legged Tinamou *Crypturellus noctivagus* (Wied, 1820) and the Scaled Antbird *Drymophila squamata* (Lichtenstein, 1823) are exclusive to lowland forest on the coast of São Paulo and do not occur on the plateau, with rare exceptions for *C. noctivagus*, which occurs in plateau regions close to less steep Atlantic slopes, such as in Vale do Ribeira (Antunes et al. 2013). The White-chested Puffbird *Malacoptila fusca* (Gmelin, 1788) and the Scarlet-throated Ant-Tanager *Habia rubra* (Vieillot, 1819) are Amazonian species and were converted to Crescent-chested Puffbird *Malacoptila striata* (Spix, 1824) and Red-crowned Ant-Tanager *Habia rubica* (Vieillot, 1817), respectively. The Whiskered Flycatcher *Myiobius barbatus* (Gmelin, 1789), which occurs exclusively in the lower part of Serra do Mar, was converted to the Black-tailed Flycatcher *Myiobius atricaudus* Lawrence, 1863, a plateau taxon according to Willis and Oniki (2003). The Tropical Parula *Setophaga pitiauyumi* (Vieillot, 1817) was added to the general list as it appeared in an original field spreadsheet of the authors

and was not included in the final version of the article by Bokermann and Pivelli (2019).

Occurrence status

Occurrence status was based on Frequency of Occurrence (FO: number of records divided by the number of systematic visits) of species detected in the field from just two sets of data — the studies carried out by Donatelli et al. (2011) and for the Sesc Bertioga (present study) between 2021 and 2022, being the only systematic and standardized inventories that collected information for a continuous period of 12 months, providing this type (F-O) of approach. The categories used were those proposed by Donatelli et al. (2011), namely: RC [reasonably common] – species recorded in at least 75% of the samples; C [common] – species recorded in 50% to 74% of the samples; I [uncommon] – species recorded in 15% to 49% of the samples; R [rare] – species that were poorly recorded and with low abundance; and O [occasional] – species recorded only once. In the inventory carried out by Sesc Bertioga, we renamed the category RC [reasonably common] to VC [very common], and I [uncommon] to U [uncommon], considering the two categories (R and O) for unique records. The rare and occasional categories may only be the result of a low number of records for a respective species in the general context of field sampling, being groups that need further studies to determine the true status of occurrence. For the general status of occurrence of PN species, resident species (R) were considered those in the RC/VC and C categories of the respective studies with sufficient data in the general data set, including the lists and on the e-Bird platform for the hotspot of Parque das Neblinas. Species were classified as migratory (M) and partially migratory (PM) at national level according to Somenzari et al. (2018) and as Status Not Defined (SND) when not covered by the respective criteria above.

The conservation status of species at international, national and state levels follow IUCN (2024), MMA (2022) and São Paulo (2018), respectively. The taxonomic order and vernacular names in Portuguese and English follow the Comitê Brasileiro de Registros Ornitológicos (Pacheco et al. 2021).

RESULTS

Two-hundred and ninety-three bird species have been detected in Parque das Neblinas (Fig. 2, Appendix 1), belonging to 23 orders and 60 families and representing 36.9% of the species known for the state of São Paulo (Silveira and

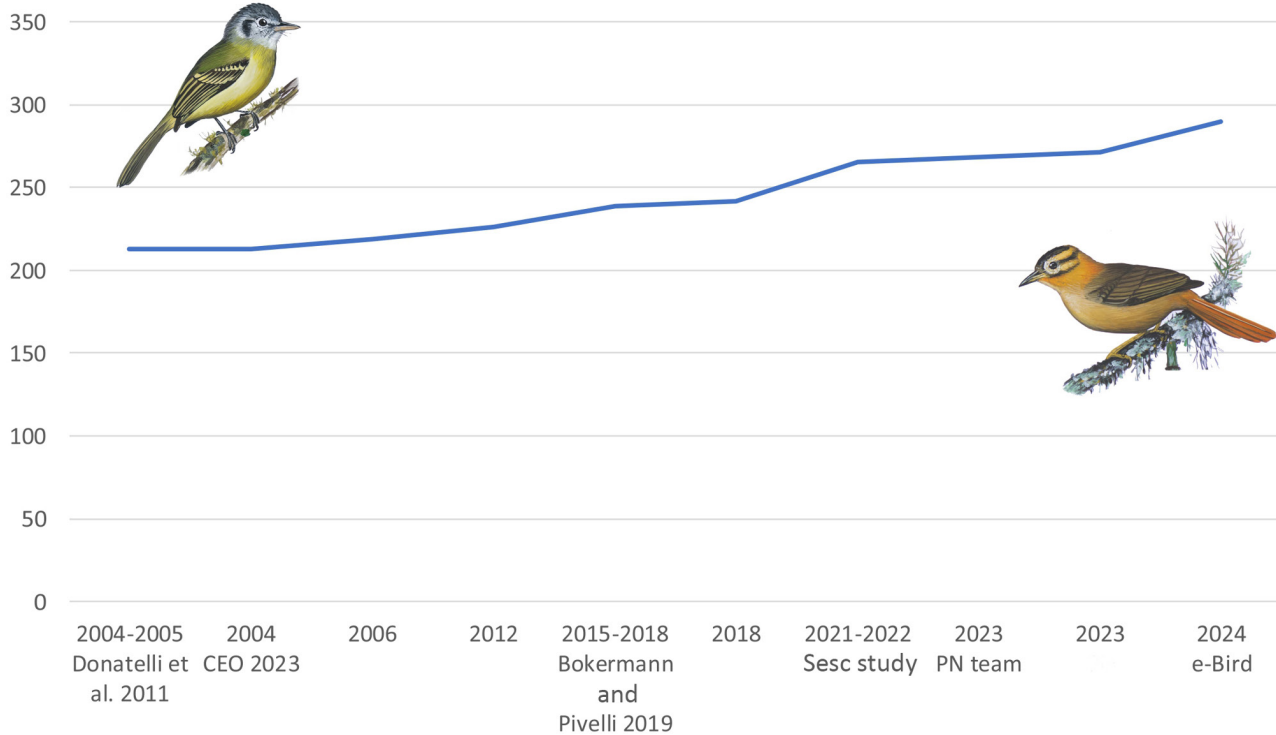


Figure 2. Historical cumulative curve of ornithological knowledge of Parque das Neblinas, according to sources in Table 1. The birds that illustrate the figure are: Yellow-olive Flycatcher *Tolmomyias sulphureus* (left) and Black-capped Foliage-gleaner *Philydor atricapillus* (right) by Fernando Igor de Godoy.

Uezu 2011). One-hundred and forty-seven of these species have some type of documentation, be it a photograph, video or vocalization recording. The most represented families were Tyrannidae (33), Thraupidae (31), Trochilidae (19), Thamnophilidae (19) and Furnariidae (17). Two-hundred and thirty-seven are forest species while 42 are from open areas and 15 are from humid environments. Eighty-eight species are endemic to the Atlantic Forest (Vale et al. 2018) and nine are threatened with extinction, with six at the global level (IUCN 2024), five nationally (MMA 2022), and nine at the state level (São Paulo 2018), in the categories Vulnerable, Endangered and Critically Endangered, with overlaps between lists. Five of the species are migratory and 27 are partially migratory (Somenzari et al. 2018). One taxon (*Picumnus* sp.) could only be identified to the level of genus, as it is a probable hybrid between *P. temminckii* Lafresnaye, 1845 and *P. cirratus* Temminck, 1825 (Appendix 1).

Ornithological knowledge for PN began to be produced in October 2004 by the team of researcher R.J. Donatelli, with a study carried out until February 2005 that detected 213 species (Donatelli et al. 2011). In November

2004, observers from the Centro de Estudos Ornitológicos (CEO) detected 30 bird species (CEO 2023). In August 2006, author F.S. and two researchers recorded 59 species in one morning of observations, adding six species to the total list for PN. In April 2012, the author F.I.G. and collaborators also carried out a morning of observations and detected 80 species of birds, with seven additions, including Atlantic Royal Flycatcher *Onychorhynchus swainsoni* (Pelzeln, 1858). Between 2015 and 2018, observers from Clube de Observadores de Aves de Bertioga (COAB) visited PN three times, detecting 118 species, adding 13 to the list. Still in 2018, the authors T.S. and G.B. visited for three days, recording three new species for the total list of PN. Between November 2021 and October 2022, the authors F.S., B.R. and M.B. undertook an ornithological inventory in a natural area of Sesc Bertioga that borders PN, detecting 140 species of birds and adding 23 to the total list, of which six have only been recorded at this location to date: Dark-billed Cuckoo *Coccyzus melacoryphus* Vieillot, 1817, Black-capped Screech-Owl *Megascops atricapilla* (Temminck, 1822) (Fig. 3A), Tawny-browed Owl *Pulsatrix koeniswaldiana* (Bertoni and Bertoni, 1901), Mottled Owl



Figure 3. Images of some bird species recorded in the Parque das Neblinas region: (A) Black-capped Screech-Owl *Megascops atricapilla*, (B) Solitary Tinamou *Tinamus solitarius*, (C) Black-fronted Piping-Guan *Aburria jacutinga*, (D) Brown-backed Parrotlet *Touit melanonotus*. Photos: (A, D) Sesc Bertioga, Fabio Schunck, (B) PN, PN Team, by trap camera, (C) PN, David de Almeida Santos by video.

Strix virgata (Cassin, 1849), Collared Forest-Falcon *Micrastur semitorquatus* (Vieillot, 1817) and Brown-backed Parrotlet *Touit melanonotus* (Wied, 1820), beyond Rufous-backed Antvireo *Dysithamnus xanthopterus* Burmeister, 1856 and Gray-capped Tyrannulet *Phyllomyias griseocapilla* Sclater, 1862, which were again detected in the RPPN Ecofuturo by the authors F.S., K.E.R. and M.B. in December 2023. In 2023 and 2024, the PN field team recorded six new species for the reserve: Rufescent Tiger-Heron *Tigrisoma lineatum* (Boddaert, 1783), Eared Dove *Zenaida auriculata* (Des Murs,

1847), Pearly-breasted Cuckoo *Coccyzus euleri* Cabanis, 1873, Green Ibis *Mesembrinibis cayennensis* (Gmelin, 1789), Buff-necked Ibis *Theristicus caudatus* (Boddaert, 1783) and Red-legged Seriema *Cariama cristata* (Linnaeus, 1766), in addition to species detected since 2018, such as Solitary Tinamou *Tinamus solitarius* (Vieillot, 1819) (Fig. 3B) and Black-fronted Piping-Guan *Aburria jacutinga* (Spix, 1825) (Fig. 3C). In December 2023, authors F.S., K.E.R. and M.B. visited PN and detected three species new to the total list, Rusty-barred Owl *Strix hylophila* Temminck, 1825, Buff-fronted Owl *Aegolius*

harrisii (Cassin, 1849) and Small-billed Elaenia *Elaenia parvirostris* Pelzeln, 1868. In addition to the ornithological records made since 2004, bird observers and photographers began to produce information from 2011 onwards, making the data available on the e-Bird platform, totaling 19 unique records for PN to date (Table 1, Appendix 1). This entire sampling effort (around 487 field hours) shows a gradual and expected increase in species richness between 2004 and 2023 (Fig. 2).

The study carried out by Donatelli et al. (2011) detected 26 bird species that remained undetected since 2005, including taxa from different groups, such as those from humid environments [e.g., South American Snipe *Gallinago paraguayae* (Vieillot, 1816)], open and anthropized areas [e.g., Short-tailed Hawk *Buteo brachyurus* Vieillot, 1816], and other varied environments [e.g., Orange-headed Tanager *Thlypopsis sordida* (d'Orbigny and Lafresnaye, 1837)], as well as those of unusual and cryptic identification [Ochre-breasted Foliage-gleaner *Anabacerthia lichtensteini* (Cabanis and Heine, 1859)]; typical of the interior of São Paulo and uncommon in Serra do Mar [e.g., Barred Antshrike *Thamnophilus doliatus* (Linnaeus, 1764)]; that undertake little-known regional movements [e.g., White-eared Puffbird *Nystalus chacuru* (Vieillot, 1816)]; typical of coastal lowland forests and uncommon on the plateau [e.g., Channel-billed Toucan *Ramphastos vitellinus* Lichtenstein, 1823]; from specific and restricted environments in Serra do Mar [e.g., Rufous-capped Antshrike *Thamnophilus ruficapillus* Vieillot, 1816]; and that colonized the southeast region in recent decades [e.g., Wing-banded Hornero *Furnarius figulus* (Lichtenstein, 1823)], among others (Appendix 1).

The bird community of PN possesses species typical of Planalto Paulista and the upper part of the Serra do Mar in the state of São Paulo, according to Willis and Oniki (2003), such as Long-trained Nightjar *Hydropsalis forcipata* (Nitzsch, 1840), Hooded Berryeater *Carpornis cucullata* (Swainson, 1821), Black-tailed Flycatcher *Myiobius atricaudus* Lawrence, 1863 and Dusky-tailed Antbird *Drymophila malura* (Temminck, 1825), among others. There are however occasional records of birds typical of the lowland forests of Serra do Mar and the coastal plain, such as Saw-billed Hermit *Ramphodon naevius* (Dumont, 1818), Reddish Hermit *Phaethornis ruber* (Linnaeus, 1758), Festive Coquette *Lophornis chalybeus* (Temminck, 1821), Glittering-throated Emerald *Chionomesa fimbriata* (Gmelin, 1788), White-necked Hawk *Amadonastur lacernulatus* (Temminck, 1827), Green-backed Trogon *Trogon viridis* Linnaeus, 1766, Channel-billed Toucan *Ramphastos vitellinus* Lichtenstein, 1823, Unicolored Antwren *Myrmotherula unicolor* (Ménétries, 1835), Spot-breasted

Antvireo *Dysithamnus stictothorax* (Temminck, 1823), Black-cheeked Gnateater *Conopophaga melanops* (Vieillot, 1818), White-bearded Manakin *Manacus manacus* (Linnaeus, 1766) and Red-rumped Cacique *Cacicus haemorrhous* (Linnaeus, 1766), among others, in addition to the occasional presence of the Magnificent Frigatebird *Fregata magnificens* Mathews, 1914 (Appendix 1).

Even though the region of PN has a long history of deforestation for charcoal production, and subsequent commercial production of eucalyptus, with many old eucalyptus plantations, secondary forests and degraded areas remaining, its avifauna still contains many species typical of preserved natural areas, including species that disappear from fragmented regions of the Atlantic Forest, such as Solitary Tinamou, Black-fronted Piping-Guan, White-browed Woodpecker *Piculus aurulentus* (Temminck, 1821), Blue-bellied Parrot *Triclaria malachitacea* (Spix, 1824), Rufous-backed Antvireo and Olive-green Tanager *Orthogonys chloricterus* (Vieillot, 1819), among others (Appendix 1).

Species of interest

Solitary Tinamou *Tinamus solitarius*. Threatened with extinction in the state of São Paulo (Vulnerable – São Paulo 2018). It lives in high, well-preserved forests, disappearing from most of the interior forests of the state of São Paulo (Willis and Oniki 2003, WikiAves 2024). Its threatened status is due to hunting and habitat destruction (Figueiredo 2009). The species has been detected in PN since 2004 (Donatelli et al. 2011), with several individuals being documented since 2018 through the monitoring system carried out by employees of the Instituto Ecofuturo using camera traps (Fig. 3B). The species is common in more preserved areas.

Black-fronted Piping-Guan *Aburria jacutinga*. Threatened with extinction at global and national levels (Endangered – IUCN 2024 and MMA 2022, respectively) and at the state level (Critically Endangered – São Paulo 2018). It lives in high, well-preserved humid forests, being extinct from the interior forests of the state of São Paulo. It is currently found only in forests of the eastern region, in Serra do Mar and Serra da Mantiqueira (Willis and Oniki 2003, WikiAves 2024). Its threatened status is due to hunting, deforestation, and illegal exploitation of Juçara Palm (*Euterpe edulis*) (Lopes 2009). The species was first recorded in PN in April 2018 by employees of the Instituto Ecofuturo, who filmed an adult bird (Fig. 3C). The same team made subsequent records in March 2020, the end of 2022, and the beginning of 2023, always in the RPPN area or on the PN boundary with PESM. An individual was detected auditorily in November 2021

during the first campaign of the study carried out on the border between PN and the area of Sesc Bertioga, within the limits of PESM. The species is restricted to the most preserved areas.

White-necked Hawk *Amadonastur lacernulatus*. Threatened with extinction at global, national and state levels (Vulnerable – IUCN 2024, MMA 2022 and São Paulo 2018, respectively). A species of tall, humid and well-preserved forests, it occurs only in the eastern region of the state of São Paulo, in Serra do Mar and Serra da Mantiqueira (Willis and Oniki 2003, WikiAves 2024). Its threatened status is due to habitat loss and forest fragmentation, mainly real estate speculation in the coastal plain and lowland forests, its typical habitat (Amaral 2009a). The only record of this species for PN was made by Clube de Observadores de Aves de Bertioga in November 2016 (Bokermann and Pivelli 2019), with the observation of an adult individual, but without documentation. This is an uncommon species in the region of PN.

Mantled Hawk *Pseudastur polionotus* (Kaup, 1847). Threatened with extinction in the state of São Paulo (Vulnerable – São Paulo 2018). It lives in high, humid and well-preserved forests, occurring only in the eastern region of the state of São Paulo, in Serra do Mar and Serra da Mantiqueira, preferably in mountainous areas (Sick 1997, Willis and Oniki 2003, WikiAves 2024). Its threatened status is due to habitat loss, deforestation and hunting (Amaral 2009b). The only record of this species for PN was made by the authors T.S. and G.B. in November 2018, with the observation of an adult individual in flight, but without documentation. This is an uncommon species in the region of PN.

Spot-billed Toucanet *Selenidera maculirostris* (Lichtenstein, 1823). Threatened with extinction in the state of São Paulo (Vulnerable – São Paulo 2018). It is a forest species but is extinct from the interior forests, occurring only in the eastern region of the state of São Paulo, in Serra do Mar and Serra da Mantiqueira (Willis and Oniki 2003, WikiAves 2024). Its main threat is habitat loss and forest fragmentation (working group for the list of threatened animals in the state of São Paulo pers. com.). The only records of this species for PN are available on the e-Bird platform and were made in May 2019 and September 2023, but without documentation. The species was detected auditorily in November 2021 in the Sesc Bertioga area on the slope of Serra do Mar, approximately 1000 m from the border with PN. The low number of records of this species in the region of PN may be a matter of poor detection, as, in addition to living in dark forests, it is very discreet and vocalizes little, generally in the early morning and late in the day.

Piculet *Picumnus* sp. There is a wide area of geographic contact between the Ochre-collared Piculet *P. temminckii* and the White-barred Piculet *P. cirratus* in the eastern region of the state of São Paulo, with the former occurring in this region and to the south and the latter in this region and to the north, being sympatric and syntopic species at many localities (Willis and Oniki 2003, WikiAves 2024). The Ochre-collared Piculet is a common species in PN. However, in August 2006, and during the study carried out between 2021 and 2022, some individuals with intermediate plumage were observed on the border between PN and the area of Sesc Bertioga, indicating possible hybrids. This finding is similar to that reported by Bokermann et al. (2021) for the Itaguapé region, Bertioga plain, where the two species are also in contact and there are several intermediate individuals. The few images available of the Ochre-collared Piculet for PN show a pattern of birds with little gold on the back of the head (ML 113393111, 608652763). This issue needs to be better investigated in the region of PN, with photographic documentation and vocalization recordings of found individuals.

Brown-backed Parrotlet *Touit melanonotus*. Threatened with extinction at global, national and state levels (Vulnerable – IUCN 2024, MMA 2022, and São Paulo 2018, respectively). It lives in well-preserved high forests but is also found in large forest fragments close to large areas of coastal forests, restingas and mangroves, occurring only in the eastern region of the state of São Paulo, in Serra do Mar and Serra da Mantiqueira (Willis and Oniki 2003, WikiAves 2024). Its threatened status is due to habitat loss and forest fragmentation, mainly in lowland forests and coastal restingas (Schunck 2009a). The only record of this species for PN was made in January 2022 during the second campaign of the study carried out on the border between PN and the area of Sesc Bertioga, within the limits of PESM, when a group of six individuals was observed and photographed in the crown of a tall tree (Fig. 3D). It is an uncommon species in the region of PN, but this may be a matter of poor detection as its vocalization can be confused with other parrots common in the region [e.g., Pileated Parrot *Pionopsitta pileata* (Scopoli, 1769)].

Atlantic Royal Flycatcher *Onychorhynchus swainsoni*. Threatened with extinction at global and state levels (Vulnerable – IUCN 2024 and São Paulo 2018, respectively). A typical species of humid and well-preserved forests, being extinct from the interior forests of São Paulo due to forest destruction and fragmentation, currently occurring only in Serra do Mar and Serra da Mantiqueira (Willis and Oniki

2003, WikiAves 2024). It is threatened due to habitat loss and forest fragmentation (Schunck 2009b). An adult individual was observed by author F.I.G. on 16 April 2012, around 11 am, in a riparian forest about 2 m from a small running stream. As the bird was approached, it flew out of sight. Several attempts to attract it via playback were unsuccessful. At the time, some local park rangers mentioned that the species had been seen for a few days, but in other parts of the same stream.

Buffy-fronted Seedeater *Sporophila frontalis* (Verreaux, 1869) and Temminck's Seedeater *S. falcirostris* (Temminck, 1820). Threatened with extinction at global and national levels (Vulnerable – IUCN 2024 and MMA 2022, respectively) and at the state level (Endangered – São Paulo 2018). Typical species of humid and well-preserved forests, the former is rare and the latter absent in the interior of São Paulo, being frequent or occurring only in Serra do Mar and Serra da Mantiqueira (Willis and Oniki 2003, WikiAves 2024). They feed exclusively on the seeds of different native bamboo species (e.g., *Chusquea* spp., *Merostachys* spp.), and make regional movements in search of this important resource, often in large flocks of both species together (Sick 1997). Its main threats are habitat loss and mainly capture for the illegal caged bird trade (Machado 2009a, 2009b). Records of both species have been made available on the e-Bird platform by observers and researchers. The Buffy-fronted Seedeater was detected in PN in November and December 2022, in addition to October and November 2023, always in large fruiting bamboo trees (*Chusquea* spp.). The Temminck's Seedeater was recorded in April 2012 by the author F.I.G., when some individuals were detected auditorily along some trails, and then only in January, October and November 2023, in the same bamboo trees where the Buffy-fronted Seedeater was seen, along with the Uniform Finch *Haplospiza unicolor* Cabanis, 1851, which is also a bamboo seed specialist.

DISCUSSION

The bird richness of Parque das Neblinas (293 species) is close to that of the Estação Biológica de Boracéia (which also includes the Bertioga and Padre Dória centers of PESM), an important reference in Serra do Mar of São Paulo, with 323 species (Cavarzere et al. 2010). It is also higher than the richness of Reserva Biológica do Alto da Serra de Paranapiacaba to the south, with 183 species (Silveira 2009). This information highlights the importance of PN as a source of ornithological knowledge of the Serra do Mar in Southeast Brazil.

The recovered and organized data show that, like other important locations in Serra do Mar, PN has a history of research and visits by ornithologists and bird watchers, which, although still modest, has effectively contributed to the production of ornithological data in the last 20 years. Emphasis should be given to the effective production of knowledge by scientific research, both through the pioneering study carried out by Donatelli et al. (2011), as well as the current research done in partnership between Sesc Bertioga and PN, which added several species to the region, including the municipality of Bertioga (Cavarzere et al. 2014). In a more occasional and still incipient, but very important, way we also highlight the production of ornithological data by bird observers and photographers, such as Centro de Estudos Ornitológicos (CEO 2023), Clube de Observadores de Aves de Bertioga (Bokermann and Pivelli 2019), and several observers who deposited their data on the e-Bird platform. The PN species accumulation curve (Fig. 2) shows that the number of species detected since 2004 continues to increase, indicating that ornithological knowledge of this region will increase with new field efforts (can easily exceed 300 species) and that there is potential to be explored by researchers and bird watchers.

The data available on online platforms is extremely important for the development of citizen science, an approach that has been revolutionizing several areas of scientific knowledge every year, including ornithology (Bonney et al. 2009, Randler 2021). However, some users of these platforms, mainly e-Bird, have been posting data obtained outside of the reserves as if it were from within them, hindering a more in-depth analysis of the true richness of species protected by these areas. This is the case for PN, where several species attributed to the reserve (and not considered in the present study), were detected either in Vila de Taiaçupeba (8 km away) or on the access road, according to consultations carried out with some observers. In the case of the WikiAves platform, the big problem is that images are posted only for a specific municipality, and it lacks a search system for particular locations, making it difficult to retrieve and use data. In recent years, different citizen science approaches have been carried out with Atlantic Forest birds, including studies on migrations (e.g., Lees and Martin 2015), regional occurrences (e.g., Dores and Melo 2020) and conservation (Farias et al. 2022), showing the importance and need to use this method in scientific studies.

The bird community of PN is typical of the plateau, with many species that only occur above 600–700 m of altitude. However, the detection of different species typical

of the slope and coastal plain suggests some occasional or even seasonal occurrences of these taxa at the top of the Serra do Mar. This is an important issue that needs to be better investigated and documented in future studies, as phenomena such as altitudinal migration or even seasonal altitudinal shifts are still poorly understood in Serra do Mar (Schunck et al. 2023). Another possible explanation that needs to be investigated is the occurrence of these species typical of the lower part occurring on the plateau due to current climate changes, an effect already observed in different mountainous regions of the world and unknown in the Atlantic Forest (Sekercioglu et al. 2008, Freeman et al. 2018). Another important issue is the presence of 88 species endemic to the Atlantic Forest and nine species threatened with extinction, including Critically Endangered taxa.

The mosaic of environments existing in PN supports a rich and diverse bird community, including species typical of the humid forests of Serra do Mar and even species typical of drier environments in the interior of São Paulo. This is due to its geographic location and proximity to areas that are well preserved by PESM and Sesc Bertioga, as mentioned by Donatelli et al. (2011). Even with the presence of old eucalyptus plantations, PN has important natural areas (including RPPN Ecofuturo). Thus, like other Suzano S.A. properties (Schunck et al. 2022), PN is an important conservation area for birds in the state of São Paulo and Southeast Brazil. However, 26 of these unusual species remain without recent records, indicating that they are possibly rare or vagrant in the region.

Final remarks

Current ornithological knowledge of Parque das Neblinas is very satisfactory, but the fact that the number of known species is still increasing with each field visit indicates a need for new systematic inventories. These studies need to include areas that have not yet been sampled in the reserve (boundaries with PESM and the rural area); qualitative and quantitative methods, including captures with mist nets and marking birds with CEMAVE/ICMBio rings; periods of at least 12 months (but preferably 24 months); and a team of ornithologists with experience in Serra do Mar, including people from the local community. We recommend that studies be carried out to investigate species without recent records (e.g., Ochre-breasted Foliage-gleaner, Pale-breasted Spinetail) and the possible hybrid population of Piculet (*Picumnus* sp.), as well as medium and long-term monitoring focused on some endangered taxa (e.g., Solitary Tinamou, Black-fronted Piping-Guan, Atlantic Royal Flycatcher), to

better assess the status of these unusual occurrences, possible hybrids and populations of threatened birds and to generate quality data that can contribute to their conservation.

Birdwatching activities carried out in the PN for the local community and the general public have contributed positively to regional ornithological knowledge, and should be maintained and expanded. We recommend investing in a physical accommodation structure to receive bird watchers who want to stay in PN for a few days (including the installation of feeders), as this is an activity carried out at different times and with slightly different logistics than traditional tourism. This audience has been growing significantly every year in Brazil and can contribute to both the production of local knowledge and the economic development of the activity in the region.

The transfer of technical-scientific knowledge produced in the PN to the local community and the general public is very important to expand knowledge about biodiversity and environmental awareness. We recommend expanding through educational actions in schools and regional institutions, technical courses (including the training of local birdwatching guides) and the production of audio-visual material and printed materials, such as field guides, booklets, coloring material, posters, etc.

ACKNOWLEDGMENTS

We are thankful to the following institutions and people: Instituto EcoFuturo and Parque das Neblinas for supporting, especially Paulo Groke, Michele Martins, David Almeida, Cléia Márcia Ribeiro de Araújo Souza, Carolina Vitória Cardoso Burgo and the team that helped in the fieldwork, Alexandre Oliveira da Silva, Marcos José Rodrigues Prado, Ricardo Silva de Souza, Mateus Frias Botelho, Adriano Ferreira de Souza, Edson Pinto de Souza, Juvenil Vitorino de Jesus, Elon Alves Machado, Marcos Rodrigues de Araújo and Vicente de Lima Rodrigues; Sesc Bertioga for the research Project, especially Juarez Michelotti, Emerson Luis Costa and Gustavo Xavier; João Bosco Freitas and Rafael Indicatti, for their important help on the field; Mario Campagnoli, Elisa Focante and Ronaldo Lebowski for information on field records and Reginaldo Donatelli for clarifications on some records published in 2011.

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-
- Submitted: May 8, 2024
Accepted: September 12, 2024
Editorial responsibility: Claudia Hermes
-
- Author Contributions**
FS: Conceptualization, Project administration, Investigation, Data curation, Writing – original draft, Writing – review & editing. BR, KER: Investigation, Writing – review & editing. FIG, GB, TS: Investigation, Data curation, Writing – review & editing. MB: Conceptualization, Investigation, Data curation, Writing – review & editing.
- Competing Interests**
The authors have declared that no competing interests exist.
- How to cite this article**
Schunck F, Rennó B, Godoy FI, Baudet G, Rodrigues KE, Sigrist T, Bokermann M (2025) Parque das Neblinas: an important reserve for Atlantic Forest bird conservation in Southeast Brazil. *Zoologia* 42: e24029. <https://doi.org/10.1590/S1984-4689.v42.e24029>
- Published by**
Sociedade Brasileira de Zoologia at Scientific Electronic Library Online – <https://www.scielo.br/zool>
- Copyright**
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Appendix 1. Species list of Parque das Neblinas. The number in parentheses after the family indicates the number of species. The symbols next to the scientific names are: # endemic species of the Atlantic Forest (Vale et al. 2018) and + typical species of coastal lowland forests (Willis and Oniki 2003). The Threatened Species column indicates: EN. Endangered and VU. Vulnerable. The numbers indicated in parentheses after the threat category correspond to the global, national and regional (state) threat lists respectively: 1. IUCN (2024), 2. MMA (2022) and 3. São Paulo (2018). The Rec/Doc column refers to the type of record and general documentation of the species: C. scientific collection; P. Photography and R. vocalization recording. The asterisk next to the letter indicates an image or recording deposited in e-Bird platform. Empty cells in the Rec/Doc column refer to e-Bird records without information. Column HAB (Habitat): FL - forest vegetation, OF - open field, including capoeiras and anthropized areas and HF - humid, flooded areas and swamps, with only one type of environment (the most typical) per species and AN. Anthropized. Status: R. resident species (R* based on e-Bird data), M. migratory species, PM. partially migratory species and SND. Status Not Defined (Somenzari et al. 2018). The Sources column refers to the data in Table 1. The Original Sources column refers to only five references in Table 1, with their respective original and descriptive data: Column 1: original abundance codes (based on Frequency of Occurrence) according to Donatelli et al. (2011): R. Rare, I. uncommon, RC. reasonably common, C. common, O. occasional, ?. and P. not informed; Column 7: we have a variation of codes (U. uncommon; VC. Very common, C. common, O. occasional, R. rare) and Column 10: X* refers to data from reference 9 of Table 1, which was posted on e-Bird. The nomenclature and taxonomic order follow the List of Birds of Brazil (Pacheco et al. 2021).

Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources				
								1	5	7	9	10
Tinamiformes												
Tinamidae (3)												
<i>Tinamus solitarius</i> #	macuco	Solitary Tinamou	VU (3)	O, A, R, V	FL	R	1,5,7,9,10	I	c	0,1,2,3,4 (VC)	A	X
<i>Crypturellus obsoletus</i>	inambuguaçu	Brown Tinamou		O, A, R	FL	R	1,3,5,7,9,10	RC	b	1,2,3,4 (VC)	B	X
<i>Crypturellus tataupa</i>	inhambu-chintã	Tataupa Tinamou		A	FL	R	1,7,10	RC		2 (R/O)		X
Anseriformes												
Anatidae (1)												
<i>Amazonetta brasiliensis</i>	marreca-ananaf	Brazilian Teal			HF	SND	10					X
Galliformes												
Cracidae (2)												
<i>Penelope obscura</i>	jacuguaçu	Dusky-legged Guan		O, V	FL	R	1,4,7,10	RC		3 (R/O)		X
<i>Aburria jacutinga</i> #	jacutinga	Black-fronted Piping-Guan	EN (1,2), CR (3)	O, A, V	FL		7,8			1 (R/O)		
Odontophoridae (1)												
<i>Odontophorus capueira</i> #	uru	Spot-winged Wood-Quail		O, A, R	FL	R	1,7,9,10	RC		1,2,3,4 (VC)	A	X
Columbiformes												
Columbidae (8)												
<i>Patagioenas cayennensis</i>	pomba-galega	Pale-vented Pigeon		A, R	FL	R*	7,10			2 (R/O)		X
<i>Patagioenas picazuro</i>	pomba-asa-branca	Picazuro Pigeon		O, A, P*, R	FL	R	1,4,5,7,10	RC	b	0,1,4 (C)		X
<i>Patagioenas plumbea</i>	pomba-amargosa	Plumbeous Pigeon		O, A, R	FL	R	1,3,5,7,9,10	C	b	1,2,3,4 (VC)	A	X
<i>Geotrygon montana</i>	pariri	Ruddy Quail-Dove		O, A, P	FL	R	1,7,9,10	RC		1,2 (U)	A	X*
<i>Leptotila verreauxi</i>	juriti-pupu	White-tipped Dove		O, A	FL	R	1,10	C				X
<i>Leptotila rufaxilla</i>	juriti-de-testa-branca	Gray-fronted Dove		A	FL	R	1,5,10	C	b			X
<i>Zenaida auriculata</i>	avoante	Eared Dove		O, P	OF	SND	8					
<i>Columbina talpacoti</i>	rolinha-roxa	Ruddy Ground-Dove		O, A	OF	R	1,4,10	C				X
Cuculiformes												
Cuculidae (6)												
<i>Guira guira</i>	anu-branco	Guira Cuckoo			OF	SND	10					X
<i>Crotophaga ani</i>	anu-preto	Smooth-billed Ani		O, A	OF	R	1,2,10	C				X
<i>Tapera naevia</i>	saci	Striped Cuckoo		A	FL	R	1,10	C				X
<i>Piaya cayana</i>	alma-de-gato	Squirrel Cuckoo		O, A, P*	FL	R	1,2,7,10	C		2 (R/O)		X
<i>Coccyzus melacoryphus</i>	papa-lagarta-acanelado	Dark-billed Cuckoo		O	FL	M	7			1 (R/O)		
<i>Coccyzus euleri</i>	papa-lagarta-de-euler	Pearly-breasted Cuckoo		O, R	FL	SND	8					
Nyctibiiformes												
Nyctibiidae (1)												
<i>Nyctibius griseus</i> **	urutau	Nyctibius griseus		A	FL		1,7,10	C		1,2 (U)		X
Caprimulgiformes												
Caprimulgidae (5)												

Continues



Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources			
								1	5	7	9 10
<i>Antrostomus rufus</i>	joão-corta-pau	Rufous Nightjar		A	FL	R	1	RC			
<i>Lurocalis semitorquatus</i>	tuju	Short-tailed Nighthawk		O, A, R	FL	PM	5,6,7		c	1,2 (U)	
<i>Nyctidromus albigollis</i>	bacurau	Lurocalis semitorquatus		O, A	OF	R	1,5,10	C	c		X
<i>Hydropsalis torquata</i>	bacurau-tesoura	Scissor-tailed Nightjar		O	OF	R	1	RC			
<i>Hydropsalis forcipata</i> #	bacurau-tesourão	Long-trained Nightjar		O	OF		1	I			
Apodiformes											
Apodidae (3)											
<i>Streptoprocne zonaris</i>	taperuçu-de-coleira-branca	White-collared Swift		O, A	FL	R	1,7,10	RC		3 (R/O)	X
<i>Chaetura cinereiventris</i>	andorinhão-de-sobre-cinzento	Gray-rumped Swift		O, A	FL	R	7,10			0,1,2 (C)	X
<i>Chaetura meridionalis</i>	andorinhão-do-temporal	Sick's Swift			OF	M	10				X
Trochilidae (19)											
<i>Florisuga fusca</i>	beija-flor-preto	Black Jacobin		O, A, P*	FL	PM	1,2,5,7,9,10	RC	c	1,2 (U)	A X
<i>Ramphodon naevius</i> #	beija-flor-rajado	Saw-billed Hermit		O	FL	R	1,5,7,10	RC	a, b	2 (R/O)	X
<i>Glaucis hirsutus</i>	balança-rabo-de-bico-torto	Rufous-breasted Hermit		O	FL	R	1,5,10	RC	c		
<i>Phaethornis ruber</i>	rabo-branco-rubro	Reddish Hermit		O	FL	SND	5,10		c		X
<i>Phaethornis pretrei</i>	rabo-branco-acanelado	Planalto Hermit		O	FL	R	1,2,5,10	RC	c		X
<i>Phaethornis eurynome</i> #	rabo-branco-de-garganta-rajada	Scale-throated Hermit		O, A, P*, R	FL	R	1,3,4,5,6,7,9,10	RC	b	0,1,2,3,4 (VC)	A X
<i>Colibri serrirostris</i>	beija-flor-de-orelha-violeta	White-vented Violetear		O, P*	OF	SND	10				X
<i>Anthracochoax nigricollis</i>	beija-flor-de-veste-preta	Black-throated Mango		O	OF	PM	7,10			2 (R/O)	X
<i>Lophornis chalybeus</i> #	topetinho-verde	Festive Coquette			FL	SND	10				X
<i>Heliodoxa rubricauda</i> #	beija-flor-rubi	Brazilian Ruby		O, A, P	FL	R	1,3,4,5,7,10	RC	a, b	1,2,3,4 (VC)	X
<i>Calliphlox amethystina</i>	estrelinha-ametista	Amethyst Woodstar			FL	SND	10				X
<i>Chlorostilbon lucidus</i>	besourinho-de-bico-vermelho	Glittering-bellied Emerald		O	FL	R	1,5,7,10	C	c	2 (R/O)	X
<i>Stephanoxis lalandi</i> #	beija-flor-de-topete-verde	Green-crowned Plovercrest		O	FL	SND	1,5	I	c		
<i>Thalurania glaucopis</i> #	beija-flor-de-fronte-violeta	Violet-capped Woodnymph		O, A, P*, R	FL	R	1,2,3,4,5,7,9,10	C	c	1,2,3,4 (VC)	A X
<i>Eupetomena macroura</i>	beija-flor-tesoura	Swallow-tailed Hummingbird		O	OF	R	1,10	RC			X
<i>Chrysornis versicolor</i>	beija-flor-de-banda-branca	Versicolored Emerald		O, A, P*	FL	R	1,5,7,9,10	RC	c	1,2 (U)	A X
<i>Leucochloris albigollis</i>	beija-flor-de-papo-branco	Leucochloris albigollis		O, A, P*	FL	R	1,2,7,10	C		2 (R/O)	X
<i>Chionomesa fimbriata</i>	beija-flor-de-garganta-verde	Glittering-throated Emerald			FL	SND	10				X
<i>Chionomesa lactea</i>	beija-flor-de-peito-azul	Sapphire-spangled Emerald			FL	SND	10				X
Gruiformes											
Rallidae (2)											
<i>Pardirallus nigricans</i>	saracura-sanã	Pardirallus nigricans		A	HF	SND	1	I/P			
<i>Aramides saracura</i> #	saracura-do-mato	Slaty-breasted Wood-Rail		O, A, P*	HF	R*	1,9,10	I			B X
Charadriiformes											
Charadriidae (1)											
<i>Vanellus chilensis</i>	quero-quero	Southern Lapwing		O, A, P*	OF	R	1,10	C			X
Scolopacidae (1)											
<i>Gallinago paraguayae</i>	narceja	South American Snipe		O	HF	R	1	C			
Suliformes											
Fregatidae (1)											
<i>Fregata magnificens</i>	fragata	Magnificent Frigatebird		O	HF	R	1	C			
Phalacrocoracidae (1)											
<i>Nannopterum brasilianum</i>	biguá	Neotropic Cormorant		O	HF	R	1	C			
Pelecaniformes											
Ardeidae (2)											
<i>Tigrisoma lineatum</i>	socó-boi	Rufescent Tiger-Heron		O, P	HF	SND	8				
<i>Ardea cocoi</i>	garça-moura	Cocoi Heron		O	HF	R	1	RC			
Threskiornithidae (2)											

Continues



Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources				
								1	5	7	9	10
<i>Mesembrinibis cayennensis</i>	coró-coró	Green Ibis		O, P	HF	SND	8					
<i>Theristicus caudatus</i>	curicaca	Buff-necked Ibis		O, P	OF	SND	8					
Cathartiformes												
Cathartidae (2)												
<i>Coragyps atratus</i>	urubu-preto	Black Vulture		O	OF	R	1,3,4,5,7,10	C	a, b	0,2,3 (C)		X
<i>Cathartes aura</i>	urubu-de-cabeça-vermelha	Turkey Vulture		O	OF	R	1,10	C				X
Accipitriformes												
Accipitridae (8)												
<i>Elanoides forficatus</i>	gavião-tesoura	Swallow-tailed Kite		O, A, P*	FL	PM	1,5,7,10	I	c	2 (R/O)		X
<i>Spizaetus tyrannus</i>	gavião-pegas-macaco	Black Hawk-Eagle		O	FL	R*	5,10			b		X
<i>Harpagus diodon</i>	gavião-bombachinha	Rufous-thighed Kite		O	FL	M	5			b		
<i>Ictinia plumbea</i>	sovi	Plumbeous Kite		O	OF	PM	1	C				
<i>Amadonastur lacernulatus</i> #	gavião-pombo-pequeno	White-necked Hawk	VU (1,2,3)	O	FL	SND	5			b		
<i>Rupornis magnirostris</i>	gavião-carijó	Roadside Hawk		O, A	OF	R	1,3,4,5,10	RC	b			X
<i>Pseudastur polionotus</i> #	gavião-pombo-grande	Mantled Hawk	VU (3)	O	FL	SND	6					
<i>Buteo brachyurus</i>	gavião-de-cauda-curta	Short-tailed Hawk		O	OF	R	1	C				
Strigiformes												
Strigidae (7)												
<i>Megascops choliba</i>	corujinha-do-mato	Tropical Screech-Owl		O, A, R	FL	R	1,7,9,10	C		2,3 (U)	B	X
<i>Megascops atricapilla</i> #	corujinha-sapo	Black-capped Screech-Owl		O, A, P, R	FL	R	7			2,3,4 (C)		
<i>Pulsatrix koeniswaldiana</i> #	murucututu-de-barriga-amarela	Tawny-browed Owl		O, A, P	FL	SND	7			2,3 (U)		
<i>Strix hylophila</i> #	coruja-listrada	Rusty-barred Owl		A	FL	SND	9,1				B	X*
<i>Strix virgata</i>	coruja-do-mato	Mottled Owl		O, A, P	FL	SND	7			1,2 (U)		
<i>Athene cunicularia</i>	coruja-buraqueira	Burrowing Owl		O	OF	R	1,10	RC				X
<i>Aegolius harrisii</i>	caburé-acanelado	Buff-fronted Owl		O, A, R*	FL	SND	9,1				B	X*
Trogoniformes												
Trogonidae (3)												
<i>Trogon viridis</i>	surucua-de-barriga-amarela	Green-backed Trogon		O, P*	FL	SND	5,10		a			X
<i>Trogon surrucura</i>	surucua-variado	Surucua Trogon		O, A, P*, R*	FL	R	1,2,3,4,5,6,7,9,10	C	a	0,1,2,3,4 (VC)	A	X
<i>Trogon chrysocloros</i> #	surucua-dourado	Southern Black-throated Trogon		O, A, P*	FL	R	1,3,5,6,7,9,10	I	a, b	0,1,2,3,4 (VC)	A	X
Coraciiformes												
Momotidae (1)												
<i>Baryphthengus ruficapillus</i> #	juruva	Rufous-capped Motmot		A	FL	SND	5,10		c			X
Alcedinidae (3)												
<i>Megaceryle torquata</i>	martim-pescador-grande	Ringed Kingfisher			HF	SND	10					X
<i>Chloroceryle amazona</i>	martim-pescador-verde	Amazon Kingfisher		O	HF	R	1,5,10	C	a, b			X
<i>Chloroceryle americana</i>	martim-pescador-pequeno	Green Kingfisher		O	HF	R	1,5	C	b			
Galbuliformes												
Bucconidae (2)												
<i>Malacoptila striata</i> #	barbudo-rajado	Crescent-chested Puffbird		O	FL	SND	4,5		a			
<i>Nystalus chacuru</i>	joão-bobo	White-eared Puffbird		O, A	FL	R	1	RC				
Piciformes												
Ramphastidae (4)												
<i>Ramphastos toco</i>	tucanuçu	Toco Toucan			FL	SND	10					X
<i>Ramphastos vitellinus</i>	tucano-de-bico-preto	Channel-billed Toucan		O	FL	R	1	RC				
<i>Ramphastos dicolorus</i> #	tucano-de-bico-verde	Red-breasted Toucan		O, A, R	FL	R	1,7,10	RC		2,4 (U)		X
<i>Selenidera maculirostris</i> #	araçari-poca	Spot-billed Toucanet	VU (3)		FL	SND	10					X
Picidae (8)												
<i>Picumnus temminckii</i> #	picapauzinho-de-coleira	Ochre-collared Piculet		O, P*	FL	R	1,4,5,7,10	RC	b	0,1,2,3,4 (VC)		X
<i>Picumnus</i> sp.	picapauzinho	Piculet		O, A	FL	SND	3,7,10			3 (R/O)		X
<i>Melanerpes candidus</i>	pica-pau-branco	White Woodpecker		O, A	FL	SND	1	I				

Continues

Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources			
								1	5	7	9 10
<i>Veniliornis spilogaster</i>	pica-pauzinho-verde-carijó	White-spotted Woodpecker		O, A, P	FL	R	1,4,7,9,10	C		0,1,2,3,4 (VC)	A X
<i>Dryocopus lineatus</i>	pica-pau-de-banda-branca	Lineated Woodpecker		O, A	FL	R	1,10	C			X
<i>Celeus flavescens</i>	pica-pau-de-cabeça-amarela	Blond-crested Woodpecker		O, A	FL	R	1,5,7,10	RC	c	0,2 (U)	X
<i>Piculus aurulentus</i> #	pica-pau-dourado	White-browed Woodpecker		O, A, R	FL	R	7,10			0,1,2 (C)	X
<i>Colaptes melanochloros</i>	pica-pau-verde-barrado	Green-barred Woodpecker			FL	SND	10				X
<i>Colaptes campestris</i>	pica-pau-do-campo	Campo Flicker		O, A	OF	R	1,10	C			X
Cariamiformes											
Cariamidae (1)											
<i>Cariama cristata</i>	seriema	Red-legged Seriema		O, V	OF	SND	8				
Falconiformes											
Falconidae (5)											
<i>Herpetotheres cachinnans</i>	acauã	Laughing Falcon		A	FL	R	1	RC			
<i>Micrastur ruficollis</i>	falcão-caburé	Barred Forest-Falcon		A	FL	R	1,7,10	C		1,2,4 (C)	X
<i>Micrastur semitorquatus</i>	falcão-relógio	Collared Forest-Falcon		A	FL	SND	7			2 (R/O)	
<i>Caracara plancus</i>	carcará	Crested Caracara		O, A, P*	OF	R	1,5,10	RC	b		X
<i>Milvago chimachima</i>	carrapateiro	Yellow-headed Caracara		O, A, P*	OF	R	1,2,3,4,5,7,10	C	a, b	4 (R/O)	X
Psittaciformes											
Psittacidae (7)											
<i>Touit melanonotus</i> #	apuim-de-costas-pretas	Brown-backed Parrotlet	VU (1,2,3)	O, A, P	FL	SND	7			2 (R/O)	
<i>Brotogeris tirica</i> #	periquito-rico	Brotogeris tirica		O, A	FL	R	1,4,5,7,9,10	C	b	1,2 (U)	A X
<i>Pionopsitta pileata</i> #	cuiú-cuiú	Pileated Parrot		O, A	FL	R	1,7,9,10	I		0,1,2,3 (VC)	A X
<i>Triclaria malachitacea</i> #	sabiá-cica	Blue-bellied Parrot		O, A, R	FL	SND	7,9,10			2,4 (U)	A X
<i>Pionus maximiliani</i>	maitaca-verde	Scaly-headed Parrot		O, A, P*	FL	R	1,7,10	RC		1,2,4 (C)	X
<i>Forpus xanthopterygius</i>	tuim	Blue-winged Parrotlet		O, A	FL	SND	7,10			1 (R/O)	X
<i>Pyrrhura frontalis</i> #	tiriba-de-testa-vermelha	Maroon-bellied Parakeet		O, A	FL	R	1,5,7,9,10	C	c	1,2,3,4 (VC)	A X
Passeriformes											
Thamnophilidae (19)											
<i>Terenura maculata</i> #	zidedê	Streak-capped Antwren		O, A, R	FL	R*	4,9,10				A X
<i>Myrmotherula unicolor</i> #	choquinha-cinzenta	Unicolored Antwren			FL	SND	10				X
<i>Rhopias gularis</i> #	choquinha-de-garganta-pintada	Star-throated Antwren		O, A, P*, R*	FL	R	3,4,5,7,9,10		a, b	0,1,2,3,4 (VC)	A X
<i>Dysithamnus stictothorax</i> #	choquinha-de-peito-pintado	Spot-breasted Antwren		A	FL	SND	5,10		a		X
<i>Dysithamnus mentalis</i>	choquinha-lisa	Plain Antwren		O, A, P*, R	FL	R	1,3,4,5,7,9,10	C	a, b	0,1,2,3,4 (VC)	A X
<i>Dysithamnus xanthopterus</i> #	choquinha-de-asa-ferugem	Rufous-backed Antwren		O, A, R	FL	R	7,9,10			1,2,3,4 (VC)	A X*
<i>Herpsilochmus rufimarginatus</i>	chorozinho-de-asa-vermelha	Southern Rufous-winged Antwren		O, A, R	FL	R	1,5,10	C	a, b		X
<i>Thamnophilus doliatus</i>	choca-barrada	Barred Antshrike		O, A	FL	R	1	C			
<i>Thamnophilus ruficapillus</i>	choca-de-chapéu-vermelho	Rufous-capped Antshrike		O	FL	R	1	RC			
<i>Thamnophilus caeruleus</i>	choca-da-mata	Variable Antshrike		O, A, R	FL	R	1,3,4,5,7,9,10	C	b	0,2,3,4 (VC)	A X
<i>Hypodaleus guttatus</i> #	chocão-carijó	Spot-backed Antshrike		O, A, R*	FL	R*	1,7,9,10	I		1 (R/O)	A X
<i>Batara cinerea</i>	matracão	Giant Antshrike		O, A, R*	FL	R	1,3,7,10	I		0,1,2,3,4 (VC)	X
<i>Mackenziaena leachii</i> #	borralhara-assobiadora	Large-tailed Antshrike		O, A	FL	SND	1,10	I			X
<i>Mackenziaena severa</i> #	borralhara	Tufted Antshrike		A, R*	FL	R*	1,5,7,10	I	c	3 (R/O)	X
<i>Myrmoderus squamosus</i> #	papa-formiga-de-grota	Squamate Antbird		O, A, P*, R*	FL	R	1,3,4,6,7,9,10	I		1,2,3,4 (VC)	A X
<i>Pyriglena leucoptera</i> #	papa-taoca-do-sul	White-shouldered Fire-eye		O, A, R	FL	R	1,2,3,4,5,7,9,10	C	b	0,1,2,3,4 (VC)	A X
<i>Drymophila ferruginea</i> #	dituí	Ferruginous Antbird		O, A, P*, R*	FL	R	1,3,6,10	C			X
<i>Drymophila ochropyga</i> #	choquinha-de-dorso-vermelho	Ochre-rumped Antbird		O, A, P, R	FL	R	1,7	RC		1,2,3,4 (VC)	
<i>Drymophila malura</i> #	choquinha-carijó	Dusky-tailed Antbird		O, A	FL	R	1,2,3,10	RC			X
Conopophagidae (2)											
<i>Conopophaga melanops</i> #	cuspidor-de-máscara-preta	Black-cheeked Gnateater		O, A, P, R	FL	R	7,10			1,2,4 (C)	X

Continues



Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources			
								1	5	7	9 10
<i>Conopophaga lineata</i>	chupa-dente	Rufous Gnateater		O, A, R	FL	R	1,4,7,10	C		0,1,2,3,4 (VC)	X
Grallariidae (2)											
<i>Grallaria varia</i>	tovacuçu	Variegated Antpitta		O, R	FL	R	1,7,10	I		0,1,2,4 (VC)	X
<i>Cryptopezus nattereri</i> #	pinto-do-mato	Speckle-breasted Antpitta		O, A, R	FL	R	1,7,10	RC		0,1,2,4 (VC)	X
Rhinocryptidae (3)											
<i>Merulaxis ater</i> #	entufado	Slaty Bristlefront		A, R	FL	R*	1,6,7,10	I		3 (R/O)	X
<i>Eleoscytalopus indigoticus</i> #	macuquinho	White-breasted Tapaculo		A, R*	FL	R*	1,5,7,10	I	c	0 (R/O)	X
<i>Scytalopus speluncae</i> #	tapaculo-preto	Mouse-colored Tapaculo		O, A, P, R	FL	R	1,5,7	C	a	2 (R/O)	
Formicariidae (3)											
<i>Formicarius colma</i>	galinha-do-mato	Rufous-capped Anthrush		O, A, P*, R*	FL	R*	7,10			2,3 (U)	X
<i>Chamaeza campanisona</i>	tovaca-campainha	Short-tailed Anthrush		O, A, R	FL	R	1,7,9,10	RC		0,1,2,3,4 (VC)	A X
<i>Chamaeza meruloides</i> #	tovaca-cantadora	Such's Anthrush		A	FL	R	1,10	C			X
Scleruridae (1)											
<i>Sclerurus scansor</i> #	vira-folha	Rufous-breasted Leaf-tosser		O, A, P*, R*	FL	R	1,3,4,7,9,10	I		2,3,4 (C)	A X
Dendrocolaptidae (6)											
<i>Sittasomus griseicapillus</i>	arapaçu-verde	Olivaceous Woodcreeper		O, A, P*, R*	FL	R	1,2,3,4,5,7,9,10	C	b	0,1,2,3,4 (VC)	A X
<i>Dendrocincla turdina</i> #	arapaçu-liso	Plain-winged Woodcreeper		O, A, R	FL	R*	7,10			1,3 (U)	X
<i>Dendrocolaptes platyrostris</i>	arapaçu-grande	Planalto Woodcreeper		O, A	FL	R	1,7,10	RC		3 (R/O)	X
<i>Xiphocolaptes albicollis</i>	arapaçu-de-garganta-branca	White-throated Woodcreeper		A	FL	R	1,7,10	I		0,1,3,4 (VC)	X
<i>Xiphorhynchus fuscus</i> #	arapaçu-rajado	Lesser Woodcreeper		O, A, P*	FL	R	1,3,4,5,7,9,10	RC	c	0,1,2,3,4 (VC)	A X
<i>Lepidocolaptes falcinellus</i> #	arapaçu-escamoso-do-sul	Scalloped Woodcreeper		O, A	FL	R	1,7	RC		2,4 (U)	
Xenopidae (2)											
<i>Xenops minutus</i>	bico-virado-miúdo	Plain Xenops		O, A, R	FL	R	1,4,5,7,10	RC	a, b	1,2,3,4 (VC)	X
<i>Xenops rutilans</i>	bico-virado-carijó	Streaked Xenops		O, P*	FL	R	1,5,10	RC	b		X
Furnariidae (17)											
<i>Furnarius figulus</i>	casaca-de-couro-da-lama	Wing-banded Hornero		O	AL	R	1,5	RC	c		
<i>Furnarius rufus</i>	joão-de-barro	Rufous Hornero		O, A	OF	R	1,10	C			X
<i>Lochmias nematura</i>	joão-porca	Sharp-tailed Streamcreeper		O, A, P*	FL	R	1,3,4,5,7,10	I	b	1,2,3 (C)	X
<i>Anabazenops fuscus</i> #	trepador-coleira	White-collared Foliage-gleaner		O, A	FL	SND	1,3,9,10	I			A X
<i>Cichlocolaptes leucophrus</i> #	trepador-sobrancelha	Pale-browed Treehunter		O, A, P	FL	R	7,9,10			1,2,3,4 (VC)	A X
<i>Heliobletus contaminatus</i> #	trepadorzinho	Sharp-billed Treehunter		O, A, P*	FL	R	1,7,9,10	RC		1,2,3,4 (VC)	A X
<i>Philydor atricapillus</i> #	limpa-folha-coroado	Black-capped Foliage-gleaner		O, A, P*	FL	R	1,3,4,5,7,9,10	RC	a	0,1,2,3,4 (VC)	A X
<i>Anabacerthia lichtensteini</i> #	limpa-folha-ocráceo	Ochre-breasted Foliage-gleaner		O	FL	R	1	C			
<i>Syndactyla rufosuperciliata</i>	trepador-quiete	Buff-browed Foliage-gleaner		O, A, P, R	FL	R	1,4,7,10	C		1,3 (U)	X
<i>Dendroma rufa</i>	limpa-folha-de-testa-baia	Buff-fronted Foliage-gleaner		O, A	FL	R	1,3,4,7,9,10	RC		2,4 (U)	A X
<i>Automolus leucophthalmus</i> #	barranqueiro-de-olho-branco	White-eyed Foliage-gleaner		O, A	FL	R	1,4,5,7,9,10	RC	a	1,2,3,4 (VC)	A X
<i>Phacellodomus erythrophthalmus</i> #	joão-botina-da-mata	Orange-eyed Thornbird		O, A, P*	FL	R*	1,10	?			X
<i>Phacellodomus ferrugineigula</i> #	joão-botina-do-brejo	Orange-breasted Thornbird		O, A, R	AL	R*	6,10				X
<i>Craniolauca pallida</i> #	arredio-pálido	Pallid Spinetail		O, A, P*, R	FL	R	1,3,5,6,7,9,10	RC	c	1,2,3,4 (VC)	A X
<i>Synallaxis ruficapilla</i> #	pichororé	Rufous-capped Spinetail		O, A, P, R	FL	R	1,2,3,4,5,7,10	RC	c	0,1,2,3,4 (VC)	X
<i>Synallaxis spixi</i>	joão-teneném	Spix's Spinetail		O, A	FL	R	1,7,9,10	C		4 (R/O)	B X
<i>Synallaxis albescens</i>	uí-pi	Pale-breasted Spinetail		O, A, R	FL	R	1,5	C	c		
Pipridae (4)											
<i>Neopelma chrysolophum</i>	fruxu	Serra do Mar Tyrant-Manakin		O, A, P*, R	FL	R*	1,3,6,10	I			X
<i>Ilicura militaris</i> #	tangarazinho	Pin-tailed Manakin		O, P*	FL	R	1,3,4,7,9,10	RC		1,3,4 (C)	A X
<i>Chiroxiphia caudata</i> #	tangará	Swallow-tailed Manakin		O, A, P*, R*	FL	R	1,2,3,4,5,6,7,9,10	C	a, b	0,1,2,3,4 (VC)	A X
<i>Manacus manacus</i>	rendeira	White-bearded Manakin		O, P*	FL	R	1,5,10	RC	a		X
Cotingidae (3)											
<i>Carpornis cucullata</i> #	corocoxó	Hooded Berryeater		O, A, P, R	FL	R	7,10			0,1,2,3,4 (VC)	X
<i>Pyroderus scutatus</i>	pavó	Red-ruffed Fruitcrow		O	FL	R*	1,5,6,9,10	R	a, b		B X
<i>Procnias nudicollis</i> #	araponga	Bare-throated Bellbird		O, A, P, R	FL	R	1,7,9,10	RC		0,1,2,4 (VC)	A X
Tityridae (6)											
<i>Schiffornis virescens</i> #	flautim	Greenish Schiffornis		O, A, R	FL	R	1,2,3,4,5,7,9,10	RC	b	0,1,2,3,4 (VC)	A X

Continues

Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources			
								1	5	7	9 10
<i>Tityra inquisitor</i>	anambé-branco-de-boche-cha-parda	Black-crowned Tityra		O	FL	R	1,5	RC	a		
<i>Pachyrhamphus viridis</i>	caneleiro-verde	Green-backed Becard		A	FL	R*	1,3,5	I	c		
<i>Pachyrhamphus castaneus</i>	caneleiro	Chestnut-crowned Becard		O, A, R	FL	R	1,3,4,5,6,7,9,10	RC	a	1,4 (U)	A X
<i>Pachyrhamphus polychropterus</i>	caneleiro-preto	White-winged Becard		O, A	FL	PM	1,2,4,7,9,10	C		1,2 (U)	A X
<i>Pachyrhamphus validus</i>	caneleiro-de-chapéu-preto	Crested Becard		O, A, P*	FL	PM	1,5,7,9,10	I	c	2 (R/O)	B X
Oxyruncidae (1)											
<i>Oxyruncus cristatus</i>	araponga-do-horto	Sharpbill		A	FL	SND	1,5	I	c		
Onychorhynchidae (2)											
<i>Onychorhynchus swainsoni</i> #	maria-leque-do-sudeste	Atlantic Royal Flycatcher	VU (1,3)	O	FL	SND	4				
<i>Myiobius atricaudus</i>	assanhadinho-de-cauda-preta	Black-tailed Flycatcher		O, P*	FL	R*	4,5,10		c		X
Platyrinchidae (1)											
<i>Platyrinchus mystaceus</i>	patinho	White-throated Spadebill		O, A, P*, R	FL	R	1,3,4,7,10	RC		1,2,3,4 (VC)	X
Rhynchocyclidae (11)											
<i>Mionectes rufiventris</i> #	abre-asa-de-cabeça-cinza	Gray-hooded Flycatcher		O, A, P*, R	FL	R	1,3,4,5,6,7,10	RC	c	1,2,3,4 (VC)	X
<i>Leptopogon amaurocephalus</i>	cabeçudo	Sepia-capped Flycatcher		O, A, R	FL	R	1,3,4,5,6,7,9,10	RC	a, b	0,1,2 (C)	A X
<i>Phylloscartes ventralis</i>	borboletinha-do-mato	Mottle-cheeked Tyrannulet		O, A, P, R	FL	R	1,4,5,7,9,10	RC	c	0,1,2,3,4 (VC)	A X
<i>Tolmomyias sulphurens</i>	bico-chato-de-orelha-preta	Yellow-olive Flycatcher		O, A, R	FL	R	1,3,4,5,6,7,9,10	RC	b	0,1,2,3,4 (VC)	A X
<i>Todirostrum poliocephalum</i> #	teque-teque	Gray-headed Tody-Flycatcher		O, A, P*	FL	R*	4,10				X
<i>Todirostrum cinereum</i>	ferreirinho-relógio	Common Tody-Flycatcher			FL	SND	10				X
<i>Poecilatriccus plumbeiceps</i>	tororó	Ochre-faced Tody-Flycatcher		O, A, P, R	FL	R	1,2,3,4,7,10	RC		1,2,3 (C)	X
<i>Myiornis auricularis</i>	miudinho	Eared Pygmy-Tyrant		O, A, P*, R	FL	R	1,3,4,6,10	RC			X
<i>Hemitriccus diops</i> #	olho-falso	Drab-breasted Pygmy-Tyrant		O, A	FL	R*	3,10				X
<i>Hemitriccus orbitatus</i> #	tiririzinho-do-mato	Eye-ringed Tody-Tyrant		O, A	FL	R	1,9,10	RC			A X*
<i>Hemitriccus nidipendulus</i>	tachuri-campainha	Hangnest Tody-Tyrant		O	FL	R	1,10	RC			X
Tyrannidae (33)											
<i>Hirundinea ferruginea</i>	gibão-de-couro	Cliff Flycatcher		O, A, P*	OF	R*	7,10			2 (R/O)	X
<i>Tyranniscus burmeisteri</i>	piolhinho-chiador	Rough-legged Tyrannulet		O	FL	SND	1,5	I	b		
<i>Camptostoma obsoletum</i>	risadinha	Southern Beardless-Tyrannulet		O, A	FL	R	1,4,5,10	RC	c		X
<i>Elaenia flavogaster</i>	guaracava-de-barriga-amarela	Yellow-bellied Elaenia		O, A	FL	R	1,2,9,10	C			B X
<i>Elaenia parvirostris</i>	tuque-pium	Small-billed Elaenia		O, A	FL	PM	9,1				B X
<i>Elaenia mesoleuca</i>	tuque	Olivaceous Elaenia		O, A, P*, R	FL	R*	5,6,7,10		c	1 (R/O)	X
<i>Elaenia obscura</i>	tucão	Small-headed Elaenia		O	FL	SND	1,10	I			X
<i>Phyllomyias fasciatus</i>	piolhinho	Yellow-bellied Elaenia		A, P*	FL	R*	3,9,10				B X
<i>Phyllomyias griseicapilla</i> #	piolhinho-serrano	Gray-capped Tyrannulet		O, A, P, R	FL	R	7,9,10			0,1,2,3,4 (VC)	A X*
<i>Serpophaga subcristata</i>	alegrinho	White-crested Tyrannulet		O, A	FL	R	1,10	RC			X
<i>Attila phoenicurus</i>	capitão-castanho	Rufous-tailed Attila		O, A, P*, R	FL	M	1,7,9,10	I		0,1,2 (C)	A X
<i>Attila rufus</i>	capitão-de-saíra	Gray-hooded Attila		O, A, P*, R	FL	R	1,3,4,5,7,10	RC	b	1,2,3,4 (VC)	X
<i>Legatus leucophaeus</i>	bem-te-vi-pirata	Piratic Flycatcher		O, A	FL	PM	1,5,9,10	C	a		B X
<i>Myiarchus swainsoni</i>	irré	Swainson's Flycatcher		O, A, R	FL	PM	1,7,9,10	RC		0,1,2 (C)	B X
<i>Myiarchus ferrox</i>	maria-cavaleira	Short-crested Flycatcher		O	FL	R	1	RC			
<i>Sirystes sibilator</i>	gritador	Sibilant Sirystes		O	FL	R	1,10	RC			X
<i>Pitangus sulphuratus</i>	bem-te-vi	Great Kiskadee		O, A, P*	FL	PM	1,4,5,7,9,10	C	a, b	1 (R/O)	B X
<i>Myiodynastes maculatus</i>	bem-te-vi-rajado	Streaked Flycatcher		O, A, P*	FL	PM	1,2,5,7,9,10	C	a, b	0,1,2 (C)	A X
<i>Megarynchus pitangua</i>	neinei	Boat-billed Flycatcher		O, A	FL	R	1,4,5,9,10	RC	b		B X
<i>Myiozetetes similis</i>	bentevizinho-de-penacho-vermelho	Social Flycatcher		O, A	FL	R	1,3,4,5,7,9,10	C	b	0 (R/O)	B X
<i>Tyrannus melancholicus</i>	suiriri	Tropical Kingbird		O, A, P*	FL	PM	1,4,5,9,10	C	b		B X
<i>Tyrannus savana</i>	tesourinha	Southern Fork-tailed Flycatcher		O, A, P*	OF	PM	1,10	C			X
<i>Empidonomus varius</i>	peitica	Variegated Flycatcher		O, A, P*	FL	PM	7,9,10			2 (R/O)	B X
<i>Colonia colonus</i>	viuvinha	Long-tailed Tyrant		A, P*, R	FL	R*	3,7,10			1 (R/O)	X
<i>Fluvicola nengeta</i>	lavadeira-mascarada	Masked Water-Tyrant		O	AL	R	1,10	RC			X

Continues



Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources				
								1	5	7	9	10
<i>Pyrocephalus rubinus</i>	príncipe	Vermilion Flycatcher			OF	PM	10					X
<i>Muscipira vetula</i> #	tesoura-cinzenta	Shear-tailed Gray Tyrant		O, A	FL	SND	1,7	I		4 (R/O)		
<i>Myiophobus fasciatus</i>	filipe	Bran-colored Flycatcher		O, A	FL	PM	1,10	RC				X
<i>Cnemotriccus fuscatus</i>	guaracavuçu	Fuscous Flycatcher		O, A	FL	R	1	RC				
<i>Lathrotriccus eulerei</i>	enferrujado	Euler's Flycatcher		O, A, P*, R*	FL	PM	1,7,9,10	RC		0,1,2 (C)	A	X
<i>Contopus cinereus</i>	papa-moscas-cinzento	Tropical Pewee		O	FL	R	1	RC				
<i>Satrapa icterophrys</i>	suiriri-pequeno	Yellow-browed Tyrant		O	OF	R	1,10	RC				X
<i>Knipolegus nigerrimus</i>	maria-preta-de-garganta-vermelha	Velvety Black-Tyrant		O	OF	SND	1,5	I	c			
Vireonidae (3)												
<i>Cyclarhis gujanensis</i>	pitiguari	Rufous-browed Peppershrike		O, A, P*	FL	R	1,2,3,4,5,7,10	C	a, b	0,1,2,3,4 (VC)		X
<i>Hylophilus poicilotis</i> #	verdinho-coroado	Rufous-crowned Greenlet		O, A, P*	FL	R	1,3,4,5,7,9,10	C	b	0,1,2,3,4 (VC)	A	X
<i>Vireo chivi</i>	juruvicara	Chivi Vireo		O, A, P*	FL	PM	1,2,4,5,7,9,10	C	a, b	0,1,2,4 (VC)	A	X
Hirundinidae (4)												
<i>Pygochelidon cyanoleuca</i>	andorinha-pequena-de-casa	Blue-and-white Swallow		O, A	OF	R	1,4,5,7,10	C	c	3 (R/O)		X
<i>Stelgidopteryx ruficollis</i>	andorinha-serradora	Southern Rough-winged Swallow		O, P*, R	OF	PM	1,5,6,9,10	C	c		B	X
<i>Progne tapera</i>	andorinha-do-campo	Brown-chested Martin		O	OF	PM	3,10					X
<i>Progne chalybea</i>	andorinha-grande	Gray-breasted Martin		O, A	OF	PM	1,7,10	C		2,3 (U)		X
Troglodytidae (2)												
<i>Troglodytes musculus</i>	corruíra	Southern House Wren		O, A	FL	R	1,4,5,10	C	b			X
<i>Cantorchilus longirostris</i>	garrinchão-de-bico-grande	Long-billed Wren		A	FL	SND	5,7,10		a, b	2 (R/O)		X
Poliptilidae (1)												
<i>Ramphocaenus melanurus</i>	chirito	Long-billed Gnatwren		O	FL	R	1,10	RC				X
Turdidae (6)												
<i>Turdus flavipes</i>	sabiá-uma	Yellow-legged Thrush		O, A, P*, R	FL	M	1,4,5,6,7,9,10	C	b	0,1,2,3,4 (VC)	A	X
<i>Turdus leucomelas</i>	sabiá-barranco	Pale-breasted Thrush		O, A	FL	R	1,4,5,10	C	c			X
<i>Turdus rufiventris</i>	sabiá-laranjeira	Rufous-bellied Thrush		O, A, R	FL	R	1,4,5,6,7,10	C	a, b	3 (R/O)		X
<i>Turdus amaurochalinus</i>	sabiá-poca	Creamy-bellied Thrush		O, A	FL	PM	1,5,9,10	C	a, b		B	X
<i>Turdus subalaris</i>	sabiá-ferreiro	Eastern Slaty Thrush		A	FL	PM	1,10	RC				X
<i>Turdus albicollis</i>	sabiá-coleira	White-necked Thrush		O, A, P*, R*	FL	R	1,3,4,5,6,7,9,10	RC	a	0,1,2,3,4 (VC)	A	X
Mimidae (1)												
<i>Mimus saturninus</i>	sabiá-do-campo	Chalk-browed Mockingbird		O, A	OF	R	1,10	C				X
Passeridae (1)												
<i>Passer domesticus</i>	pardal	House Sparrow		O, A	AN	R	1,10	C				X
Fringillidae (4)												
<i>Spinus magellanicus</i>	pintassilgo	Hooded Siskin		O	FL	R	1,10	C				X
<i>Euphonia chlorotica</i>	fim-fim	Purple-throated Euphonia		A	FL	R	1	C				
<i>Euphonia violacea</i>	gaturamo	Violaceous Euphonia		O, A	FL	R	1,5,10	C	a, b			X
<i>Euphonia pectoralis</i> #	ferro-velho	Chestnut-bellied Euphonia		O, A, P*, R	FL	R	1,3,4,5,7,9,10	C	a	1,2,3,4 (VC)	A	X
Passerellidae (1)												
<i>Zonotrichia capensis</i>	tico-tico	Rufous-collared Sparrow		O, A, P*	FL	R	1,2,5,9,10	C	c		B	X
Icteridae (5)												
<i>Cacicus chrysopterus</i>	japuira	Golden-winged Cacique		O, A, P*	FL	R	1,3,4,7,10	RC		0,4 (U)		X
<i>Cacicus haemorrhous</i>	guaxe	Red-rumped Cacique		O	FL	SND	5,10		b			X
<i>Icterus pyrrhopterus</i>	encontro	Variable Oriole			FL	SND	10					X
<i>Molothrus bonariensis</i>	chupim	Shiny Cowbird		O, P*	OF	R	1,2,5,10	C	b			X
<i>Gnorimopsar chopi</i>	pássaro-preto	Chopi Blackbird		O	FL	R	1	C				
Parulidae (5)												
<i>Geothlypis aequinoctialis</i>	pia-cobra	Masked Yellowthroat		O, A	OF	R	1,10	C				X
<i>Setophaga pitayumi</i>	mariquita	Tropical Parula		O, A, P*	FL	R	1,2,3,4,5,7,9,10	C	a, b	0,2 (U)	B	X
<i>Myiothlypis leucoblephara</i>	pula-pula-assobiador	White-browed Warbler		O, A, P*	FL	R	1,2,3,4,5,7,10	C	c	1,4 (U)		X
<i>Myiothlypis rivularis</i>	pula-pula-ribeirinho	Neotropical River Warbler		O, A, P*, R*	FL	R	1,2,3,4,5,10	RC	c			X

Continues

Taxon	Portuguese name	English name	Threatened species	Rec/Doc	Hab	Status	Sources	Original sources			
								1	5	7	9 10
<i>Basileuterus culicivorus</i>	pula-pula	Golden-crowned Warbler		O, A, P*, R	FL	R	1,2,3,4,5,7,9,10	C	a, b	0,1,2,3,4 (VC)	A X
Mitrospingidae (1)											
<i>Orthogonys chloricterus</i> #	catirumbava	Olive-green Tanager		O, A, P*, R	FL	R*	3,7,9,10			3 (R/O)	A X
Cardinalidae (2)											
<i>Habia rubica</i>	tiê-de-bando	Red-crowned Ant-Tanager		O, A, P*, R	FL	R	1,3,4,5,7,9,10	RC	a	0,1,2,4 (VC)	A X
<i>Cyanoloxia brissonii</i>	azulão	Ultramarine Grosbeak		O, R	FL	SND	6				
Thraupidae (31)											
<i>Orchesticus abeillei</i>	sanhaço-pardo	Brown Tanager		O	FL	SND	1	I			
<i>Hemithraupis ruficapilla</i> #	saíra-ferrugem	Rufous-headed Tanager		O	FL	R	1,10	C			X
<i>Tersina viridis</i>	saí-andorinha	Swallow Tanager		O, A, R	FL	PM	1,7,10	RC		1 (R/O)	X
<i>Dacnis cayana</i>	saí-azul	Blue Dacnis		O, A	FL	R	1,5,10	RC	b		X
<i>Saltator similis</i>	trinca-ferro	Green-winged Saltator		O, A, P*, R	FL	R	1,2,3,4,5,7,9,10	C	c	4 (R/O)	A X
<i>Saltator fuliginosus</i> #	bico-de-pimenta	Black-throated Grosbeak		O, A, R	FL	R	1,5,7,9,10	I	a	0,1,2,3 (VC)	A X
<i>Coereba flaveola</i>	cambacica	Bananaquit		O, A	FL	R	1,2,4,5,7,10	C	a, b	0,1,2 (C)	X
<i>Volatinia jacarina</i>	tiziu	Blue-black Grassquit		O, A	OF	R	1,10	C			X
<i>Trichothraupis melanops</i>	tiê-de-topete	Black-goggled Tanager		O, P*	FL	R	1,3,4,7,9,10	RC		1,2,3,4 (VC)	A X
<i>Loriotus cristatus</i>	tiê-galo	Flame-crested Tanager		O	FL	SND	5		b		
<i>Tachyphonus coronatus</i> #	tiê-preto	Ruby-crowned Tanager		O, A, P*	FL	R	1,2,4,5,7,9,10	C	c	0,1,2,3,4 (VC)	A X
<i>Ramphocelus bresilia</i> #	tiê-sangue	Brazilian Tanager		O, P*	FL	R	1,10	RC			X
<i>Sporophila frontalis</i> #	píxoxó	Buff-fronted Seedeater	VU (1,2,3)	O, A	FL	SND	10				X
<i>Sporophila falcirostris</i> #	cigarrinha-do-sul	Temminck's Seedeater	VU (1,2,3)	A	FL	SND	4,10				X
<i>Sporophila caerulea</i>	coleirinho	Double-collared Seedeater		O	OF	PM	1,5,10	C	c		X
<i>Sporophila angolensis</i>	curió	Chestnut-bellied Seed-Finch			OF	SND	10				X
<i>Thlypopsis sordida</i>	saí-canário	Orange-headed Tanager		O	FL	R	1	RC			
<i>Conirostrum speciosum</i>	figuinha-de-rabo-cas-tanho	Chestnut-vented Conebill		O	FL	SND	4,10				X
<i>Sicalis flaveola</i>	canário-da-terra	Saffron Finch		O, A	OF	R	1,5,9,10	C	c		B X
<i>Haplopiza unicolor</i> #	cigarra-bambu	Uniform Finch		O, A, R	FL	R	7,10			0,1,2,3,4 (VC)	X
<i>Pipraeidea melanonota</i>	saíra-viúva	Fawn-breasted Tanager		O, R	FL	R	1,4,6,7,10	RC		2 (R/O)	X
<i>Stephanophorus diadematus</i>	sanhaço-frade	Diademed Tanager		O	FL	R	1	RC			
<i>Schistochlamys ruficapillus</i>	bico-de-veludo	Cinnamon Tanager		P*	OF	SND	10				X
<i>Thraupis sayaca</i>	sanhaço-cinzento	Thraupis sayaca		O, A, P*	FL	R	1,4,5,9,10	C	a, b		A X
<i>Thraupis palmarum</i>	sanhaço-do-coqueiro	Palm Tanager		O, P*	FL	R*	5,10		a, b		X
<i>Thraupis ornata</i> #	sanhaço-de-encontro-amarelo	Golden-chevroned Tanager		O	FL	R	1,4,5,9,10	C	a		A X
<i>Thraupis cyanopectus</i> #	sanhaço-de-encontro-azul	Black-headed Tanager		O, A, P*	FL	R	1,4,7,9,10	I		0,1,2,3,4 (VC)	A X
<i>Stelgidopteryx serripes</i>	saíra-amarela	Burnished-buff Tanager		O, A	FL	R	1,10	RC			X
<i>Tangara seledon</i> #	saíra-sete-cores	Green-headed Tanager		O, A, P*	FL	R	1,4,5,7,9,10	C	a, b	1,4 (U)	A X
<i>Tangara cyanocephala</i> #	saíra-militar	Red-necked Tanager		O, A, P*	FL	R	1,4,5,7,10	C	a	2,3,4 (C)	X
<i>Tangara desmaresti</i> #	saíra-lagarta	Brassy-breasted Tanager		O, A, P*, R	FL	R	1,2,5,6,7,10	C	a	1 (R/O)	X