

Checklist of birds from the municipal dam of São José do Rio Preto, São Paulo state, with a new record of the recently rediscovered and potentially critically endangered chachalaca *Ortalis remota* (Galliformes: Cracidae) and ways to promote local biodiversity conservation

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Abstract. The artificial municipal dam of São José do Rio Preto provides several ecosystem services including birdwatching that contribute significantly to local human welfare. However, there is no published paper evidencing the local biodiversity of birds at the municipal dam. Here, I produced a checklist of the birds inhabiting the *Córrego da Onça*, one part of the dam area that probably presents a higher richness of birds due to the heterogeneity of aquatic and terrestrial ecosystems. Eighteen surveys were sporadically conducted between 2013 and 2015. A total of 96 species of birds was registered in the region, including one individual of the recently rediscovered and potentially critically endangered chachalaca *Ortalis remota*. Given the results, I propose an urban re-planning with the restoration of native vegetation and proper infrastructure for visitors interested in birdwatching. These measures will increase the individual and collective knowledge of people about bird biology and conservation at the same time that they enjoy local ecosystem services.

Introduction

The flying habits of birds, together with their varied plumage coloration, diversity, and ease of visualization in natural

and anthropogenic habitats, may comprise a surplus cultural ecosystem service that birds provide to humanity (Sekercioglu 2002). Birds also influence numerous ecological functions such as pollination, seed dispersal, controlling of prey populations, and they may be easily used as a basis for disseminating ecological education (Wenny *et al.* 2011). In Brazil, birdwatching activity is increasing exponentially, meaningfully putting people in contact with nature (Athiê 2007, Farias 2007). However, due to the continental expanse of the Brazilian territory and lack of appropriate infra-structure to support birdwatchers (Olmos 2017), areas with high potential of biodiversity might be underestimated, including anthropogenic ecosystems where birds may be easily seen (Pena *et al.* 2017). Biodiversity losses due to intensive degradation of ecosystems are also occurring worldwide (Johnson *et al.* 2017) which may put local bird richness at risk. According to the United Nations (2014), by the year 2050 approximately two thirds of people will live in cities. This advancing urbanization process is causing negative impacts on biological taxa (McDonald *et al.* 2013). The knowledge of local biodiversity by people is of primary importance to the promotion of educational activities aiming ecological sustainability (Rands *et al.* 2010). It follows that the production of checklists, including paper lists and web-based

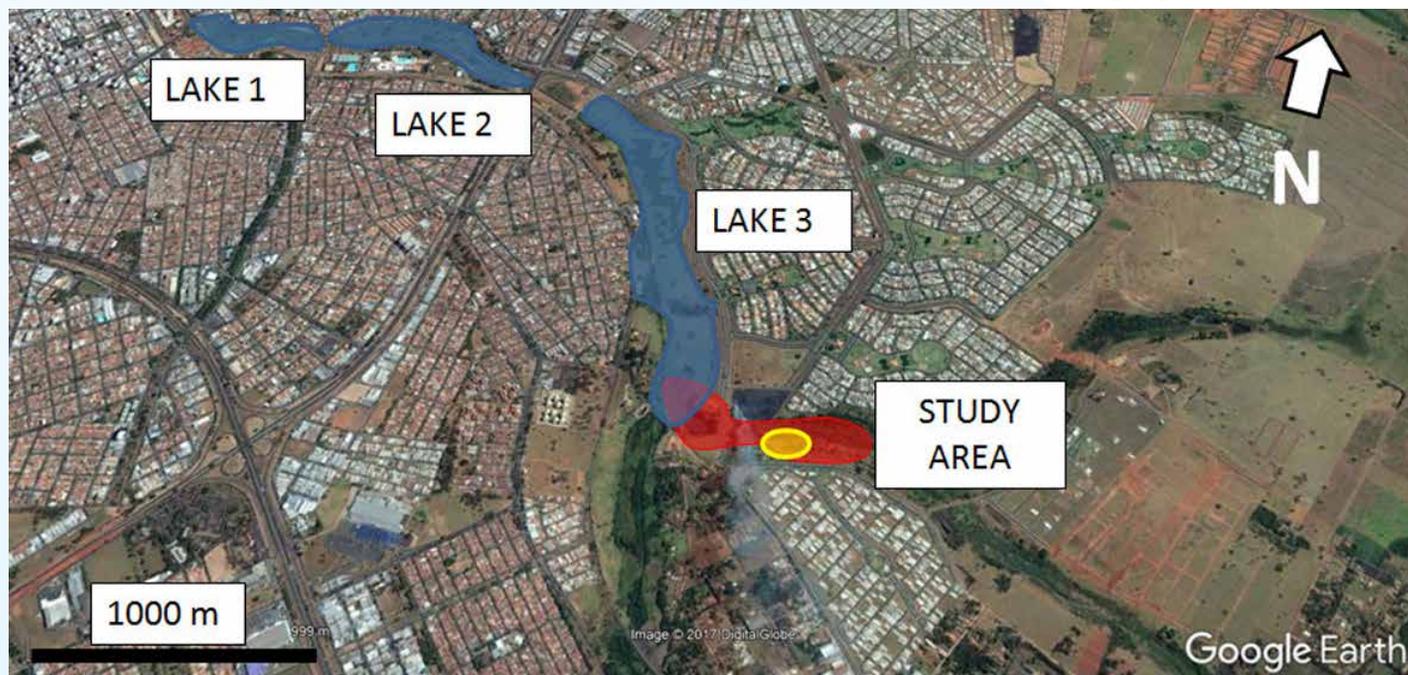


Figure 1. The red color indicates the study area where birds were sampled in the São José do Rio Preto dam. Blue indicates the lakes 1, 2, and 3. Yellow indicates the riparian forest where the endangered *Ortalis remota* was recorded.



Figure 2. The red color indicates the *Córrego da Onça* area, where this study was conducted. The white color indicates proposed trails that could be used for birdwatching and the spread of ecological knowledge to the visitants. Yellow indicates platforms for bird observation. Restoration with native vegetation to enrich biodiversity in the area is also indicated.

bird databases are the first steps in the process to promote sustainability (Lebbin 2009). In addition, checklists may fill the so-called Wallacean shortfall and improve data about the dynamics of species distribution on Earth (Neto & Loyola 2016).

The municipal dam of São José do Rio Preto provides an array of ecological services to people, such as water for consumption, recreational and cultural activities, and local temperature moderation. Despite the scarcity of published studies, the dam apparently maintains relatively high levels of biodiversity of aquatic and terrestrial vertebrates (Andrade 2003, Coelho 2008, Ramires 2017, Prefeitura Municipal de São José do Rio Preto 2018). In the present paper, I provide a checklist of birds that includes the frequency of species per habitat, based on bird surveys that I conducted between 2013 to 2015 in a specific portion of the dam with a high heterogeneity of habitats. I also present a strategy to help develop educational activities toward ecological sustainability in the area.

Material and methods

Study area

The municipal dam of São José do Rio Preto (20°49'34.04"S and 49°20'27.80"W) was inaugurated in 1956. It is composed of three connected lakes (named Lakes "one", "two", and "three") 0.65 km² in area and with a maximum water depth of 3.5 m (Figure 1). Nearly 7000 people visit the municipal dam on weekends to enjoy the ecosystem services in the area, such as water for consumption, recreational and cultural activities, and local temperature moderation (Prefeitura Municipal de São José do Rio Preto 2018). The municipal dam is responsible for 30-40% of water supply to local inhabitants. However, despite its ecological importance, the lack of vegetation along the three lakes contributes to increases in silting that compromise the water supply. Also, it receives a diffuse source of pollutants from flooding, domestic sewage, and agricultural runoffs (Melo *et al.* 2009). There are few studies about the biodiversity in the mu-

nicipal dam (Andrade 2003, Pinheiro & Taddei 2005, Coelho 2008, Ramires 2017), some of them as yet unpublished and others currently in the process of being published (i.e., Andrade 2003, Coelho 2008, Ramires 2017). Pinheiro & Taddei (2005) studied the biology of the freshwater crab *Dilocarcinus pagei*. Andrade (2003) registered 31 species of fish in the dam. More recently, Ramires (2017) registered 24 species of fish with an increase abundance of non-native fish compared to the Andrade's checklist. The unique checklist of birds of the municipal dam indicates 88 species (Coelho 2008). Several populations of capybara (*Hydrochoerus hydrochaeris*) inhabit the three lakes (Prefeitura Municipal de São José do Rio Preto 2018). Also, coatis (*Nasua nasua*) and broad-snouted caimans (*Caiman latirostris*) are frequently seen in the dam, mainly the *Córrego da Onça* tributary (C.C., pers. obs.).

The *Córrego da Onça* is the main tributary of the Rio Preto river that supplies the municipal dam (Figure 2). It is composed mainly of aquatic vegetation *Eichhornia crassipes* Mart. (Solms) and *Thypha dominguensis* (Pers.). Riparian forest bordering the water channel from *Córrego da Onça* is scarce due to deforestation. When present, the riparian vegetation is a mix of exotic and native species that do not exceed 15 species of plants (author, pers. obs.). *Schinus terebinthifolius* Raddi. and *Ceiba speciosa* (A. St.-Hil.) are some common native plant species in the area. *Leucaena leucocephala* (Lam.) is an exotic shrub species that predominates in the area. The grassland is located between riparian forest and the water and it is composed basically of exotic grasses (*Brachyaria* spp., *Melinis* spp.) and shrubs.

Bird surveys

I conducted 18 sporadic bird surveys between 2013 and 2015 in the interconnecting region between *Córrego da Onça* and Lake "three" (Figures 1 and 2) In 2013 surveys were conducted in March (3 surveys), April (1), July (3), and August (2). In 2014 surveys were conducted in January (1), September (1), and Oc-



Figure 3. One individual of *Ortalis remota* recorded in the riparian forest of *Córrego da Onça*, the main tributary of São José do Rio Preto dam. Photo: César Cestari

tober (1). In 2015 surveys were conducted in January (1), March (1), April (1), May (1), July (1), and September (1).. Surveys began at 7:00 and lasted for two hours. All the bird species seen and heard were registered as well as the habitat that they were recorded (i.e., water, aquatic vegetation, grassland and riparian forest). Species of birds were classified as accidental, sporadic, and regular when they were recorded in < 25%, 25 - 50%, and > 50% of the total frequency of bird surveys, respectively (Dajoz 1983). The conservation status of species was verified according to the IUCN Red List (2017). The migratory status of the species followed Somenzari *et al.* (2018). The adopted nomenclature of species is from the Brazilian Ornithological Records Committee (Piacentini *et al.* 2015).

Results and discussion

A total of 96 species of birds was registered in the *Córrego da Onça*. The majority of species (i.e., 41) were regular, 31 species were sporadic and 24 species were accidental (Table 1). The riparian forest supported the majority of the species (60), followed by grassland (35), aquatic vegetation (28), and water (21). Similarly, the riparian forest had the highest number of exclusive species (26), followed by grassland (8), aquatic vegetation (5), and water (4). It also had the highest number of accidental species (15), followed by grassland (6) and aquatic vegetation (6) and water (3) (Table 1). Among the accidental species *Estrelita astrild* is exceptionally an exotic species in the grassland of the dam. Some species, such as *Platalea ajaja*, *Rosthramus sociabilis*, *Porphyrio martinicus*, *Rhyncops niger*, *Pitangus sulphuratus*, *Tyrannus melancholicus*, *Tyrannus savanna*, *Turdus amaurochalinus*, *Tersina viridis*, *Sporophila lineola*, and *S. caeruleus* may be considered partially migratory species, i.e., part of the population is migratory and part is resident (Somenzari *et al.* 2018). No threatened birds were registered in the area, except the recently rediscovered *Ortalis remota* that is potentially a critically endangered and endemic species of chachalaca in the region (Silveira *et al.* 2017).

The unique individual of *O. remota* was registered on January 19, 2014, perched in the canopy of a *Cecropia* sp. tree (Figures 1 and 3). This was the first record of this species in São José do Rio Preto. This individual was likely using the riparian forest as an ecological corridor once the city is included in the range of this species' distribution in the upper Paraná River (Silveira *et al.* 2017). Actually, the distribution of *O. remota* encompasses one of the most degraded regions in São Paulo state; scarce and small fragments of woodlands and riparian forest is probably contributing (together with hunting activity) to the decline of birds that depend of those ecosystems to survive (Silveira *et al.* 2017, Olmos 2018).

Human impacts in cities frequently decrease with appropriate planning and management of urban vegetation (Pena *et al.* 2017). Birdwatching supported by an appropriate infrastructure of trails, restora-

tion of vegetation along these trails, and information about bird biology would likely promote conservation and tourist visitation to the dam. It would also increase income to the municipality thus helping to make it sustainable. Despite the high human impact in the region, the dam and its surroundings areas have a great potential for sustained bird diversity. This wide variety of birds potentially will attract more birdwatchers and visitors to the city, and the money raised from tourist activities can be used to maintain infrastructure associated with the sustainable development of the municipality. This model of self-maintenance is broadly used in cities around the world that contemplate prosperity of biodiversity associated with human welfare (Secretariat of the Convention on Biological Diversity 2012). In figure 2 I propose a sketch of what would be a simple tour with trails and platform observations with information kiosks about bird species that could be used to spread ecological knowledge among visitors.

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References

- Andrade, V.L.X. (2003) *Ictiofauna da represa municipal de São José do Rio Preto, SP, Rio Preto, afluente do rio Turvo, drenagem do rio Grande: diversidade e reprodução*. Dissertação Mestrado. Jaboticabal: Universidade Estadual Paulista (UNESP).
- Athiê, S. (2007) A observação de aves e o turismo ecológico. *Biotemas* 20: 127-129.
- Coelho, D.A. (2008) *Avifauna de quatro áreas urbanizadas da cidade de São José do Rio Preto, SP*. Trabalho de Conclusão de Curso. São José do Rio Preto: Universidade Estadual Paulista (UNESP).
- Dajoz, R. (1983) *Ecologia geral*. Petrópolis: Vozes.
- Farias, G.B. (2007) A observação de aves como possibilidade ecoturística. *Revista Brasileira de Ornitologia* 15: 474-477.
- IUCN (2018) *Red List of Threatened Species*. Version 2017-3. Available at <www.iucnredlist.org>. Access in 20 February 2018.

- Johnson, C.N., A. Balmford, A.B. Brook, J.C. Buettel, M. Galetti, L. Guandchum & J.M. Wilmshurst (2017) Biodiversity losses and conservation responses in the Anthropocene. *Science* 356: 270-275.
- Lebbin, D. (2009) Sharing your bird sightings to help conservation. *Neotropical Birding* 4: 13-18.
- McDonald, R.I., P.J. Marcotullio & B. Guèneralp (2013) Urbanization and global trends in biodiversity and ecosystem services, p. 31-52. *In*: Elmqvist, T., M. Fragkias, J. Goodness, B. Guèneralp, P.J. Marcotullio, R.I. McDonald, S. Parnell, M. Scheweneus, M. Sendstad, K.C. Seto & C. Wilkinson (eds.). **Urbanization, biodiversity and ecosystem services: challenges and opportunities**. Springer Netherlands: Springer.
- Melo, C.A.; A.B. Moreira & M.C. Bisinoti (2009) Seasonal and spatial trend of pollutants in the waters of the São José do Rio Preto, São Paulo State, Brazil. *Química Nova* 32: 1436-1441.
- Neto, P.L. & R. Loyola (2016) Biogeografia da Conservação, p. 168-179. *In*: Carvalho, C.J.B. & E.A.B. Almeida (eds.). **Biogeografia da América do Sul: analisando espaço, tempo e forma**. São Paulo: Roca, São Paulo.
- Olmos, F. (2017) **O país onde alimentar passarinhos é crime**. Available at <<http://www.oeco.org.br/blogs/olhar-naturalista/o-pais-onde-alimentar-passarinhos-e-crime/>>. Access in 20 February 2018.
- Olmos, F. (2018) **Aracua do Pinto, uma ave que sobreviveu ao agro e o hidro**. Available at <http://www.oeco.org.br/blogs/olhar-naturalista/aracua-do-pinto-uma-ave-que-sobreviveu-ao-agro-e-o-hidro/?utm_campaign=shareaholic&utm_medium=facebook&utm_source=socialnetwork>. Access in 21 February 2018.
- Pena, J.C.C., F. Martello, M.C. Ribeiro, R.A. Armitage, R.J. Young & M. Rodrigues (2017) Street trees reduce the negative effects of urbanization on birds. *Plos One*, <<https://doi.org/10.1371/journal.pone.0174484>>
- Piacentini, V.Q., A. Aleixo, C.E. Agne, G.N. Maurício, J.F. Pacheco, G. Bravo, G.R.R. Brito, L.N. Naka, F. Olmos, S. Posso, L.F. Silveira, G.S. Betini, E. Carrano, I. Franz, A.C. Lees, L.M. Lima, D. Pioli, F. Schunck, F.R. Amaral, G.A. Bencke, M. Cohn-Haft, L.F.A. Figueiredo, F.C. Straube & E. Cesari (2015) Annotated checklist of the birds of Brazil by the Brazilian Ornithological Records Committee. *Revista Brasileira de Ornithologia* 23(2): 91-298.
- Pinheiro, M.A.A., G.G. Taddei (2005) Relação peso/largura e fator de condição em *Dilocarcinus pagei* Stimpson (Crustacea, Trichodactylidae), em São José do Rio Preto, São Paulo, Brasil. *Revista Brasileira de Zoologia* 22: 825-829.
- Prefeitura Municipal de São José do Rio Preto (2018) Available at <http://www.riopreto.sp.gov.br/PortalGOV/do/subportais_Show?c=225>. Access in 07 February 2018.
- Ramires, B. M. S. (2017) **Alteração em médio prazo na composição de espécies e diversidade funcional da ictiofauna em uma represa urbana**. Trabalho de Conclusão de Curso. São José do Rio Preto: Universidade Estadual Paulista (UNESP).
- Rands, M.R.W., W.M. Adams, L. Bennum, S.H. Butchart, A. Clements, D. Coomes, A. Entwistle, I. Hodgde, V. Kapos, J.P. Scharlemann, W.J. Sutherland & B. Vira (2010) Biodiversity conservation: challenges beyond 2010. *Science* 329: 1298-1303.
- Secretariat of the Convention on Biological Diversity (2012) **Cities and Biodiversity Outlook**. Montreal.
- Sekercioglu, C.H. (2002) Impacts of birdwatching on human and avian communities. *Environmental Conservation* 29: 282-289.
- Silveira, L.F., B.M. Tomotani, C. Cestari, F.C. Straube & V.Q. Piacentini (2017) *Ortalis remota*: a forgotten and critically endangered species of chachalaca (Galliformes: Cracidae) from Eastern Brazil. *Zootaxa* 4306: 524-536.
- Somenzari, M.; P.P., Amaral, V.C. Cueto, A.C. Guaraldo, A. Jahn, R.M. Lima, P.C. Lima, C. Lugarini, C.G. Machado, J. Martinez, J.L.X. do Nascimento, J.F. Pacheco, D. Paludo, N.P. Prestes, P.P. Serafini, L.F. Silveira, A.E.B.A. de Sousa, N.A. de Sousa, M.A. de Souza, W.R. Telino-Júnior & B.M. Whitney (2018) An overview of migratory birds in Brazil. *Papeis Avulsos de Zoologia* 58: e20185803.
- United Nations (2014) **World urbanization prospects**. New York.
- Wenny, D.G.; T.L. DeVault, M.D. Johnson, D. Kelly, C.H. Sekercioglu, D.F. Tomback & C.J. Whelan (2011) The need to quantify ecosystem services provided by birds. *The Auk* 128: 1-14.

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Table 1. Checklist of birds in the *Córrego da Onça*, São José do Rio Preto municipal dam, São Paulo, Brazil. Habitats where birds were recorded include: water (W), aquatic vegetation (AV), riparian forest (RF), and grassland (G). Migratory status: * indicates partially migratory species.

Order, Family and bird species	Common name (Portuguese/ English)	Frequency of occurrence	Ecosystem
Anseriformes			
Anatidae			
<i>Dendrocygna viduata</i>	Irerê/White-faced Whistling-Duck	10/18 (55.5%) – regular	W, AV, G
<i>Dendrocygna autumnalis</i>	Marreca-cabocla/Black-bellied Whistling-Duck	14/18 (77.8%) – regular	W, AV, G
<i>Cairina moschata</i>	Pato-do-mato/Muscovy Duck	5/18 (27.8%) – sporadic	W, AV
<i>Amazonetta brasiliensis</i>	Ananaí/Brazilian Teal	13/18 (72.2%) – regular	W, AV
Galliformes			
Cracidae			
<i>Ortalis remota</i>	Aracua guarda-faca/Chachalaca	1/18 (5.5%) – accidental	RF
Ciconiiformes			
Ciconiidae			
<i>Mycteria americana</i>	Cabeça-seca/Wood Stork	2/18 (11.1%) – accidental	W, AV
Suliformes			
Phalacrocoracidae			
<i>Nannopterum brasilianus</i>	Biguá/Neotropical Cormorant	17/18 (94.4%) – regular	W
Anhingidae			
<i>Anhinga anhinga</i>	Biguatinga/Anhinga	6/18 (33.3%) – sporadic	W
Pelecaniformes			
Ardeidae			
<i>Tigrisoma lineatum</i>	Socó-boi/Rufescent Tiger-Heron	12/18 (66,7%) – regular	W, AV

<i>Nycticorax nycticorax</i>	Socó-dorminhoco/Black-crowned Night-Heron	3/18 (16.2%) – accidental	AV, RF
<i>Butorides striata</i>	Socozinho/Striated Heron	11/18 (61.1%) – regular	W, AV, RF, G
<i>Bubulcus ibis</i>	Garça-vaqueira/Cattle Egret	12/18 (66,7%) – regular	RF, G
<i>Ardea cocoi</i>	Garça- moura/Cocoi Heron	10/18 (55.5%) – regular	W, AV, RF
<i>Ardea alba</i>	Garça-branca/Great Egret	17/18 (94.4%) – regular	W, AV, RF, G
<i>Egretta thula</i>	Garça-branca pequena/Snowy Egret	7/18 (38.9%) – sporadic	W, AV, RF, G
Threskiornithidae			
<i>Mesembrinibis cayennensis</i>	Coró-coró/Green Ibis	8/18 (44.4%) – sporadic	RF
<i>Phimosus infuscatus</i>	Tapicuru/Bare-faced Ibis	8/18 (44.4%) – sporadic	W, AV
<i>Platalea ajaja</i> *	Colhereiro/Roseate Spoonbill	1/18 (5.5%) – accidental	W
Cathartiformes			
Cathartidae			
<i>Coragyps atratus</i>	Urubu/Black Vulture	5/18 (27.8%) – sporadic	RF
Accipitriformes			
Accipitridae			
<i>Busarellus nigricollis</i>	Gavião-belo/Black-collared Hawk	2/18 (11.1%) – accidental	RF
<i>Rostrhamus sociabilis</i> *	Gavião-caramujeiro/Snail Kite	16/18 (88.9%) – regular	W, AV, RF
Gruiformes			
Aramidae			
<i>Aramus guarauna</i>	Carão/Limpkin	18/18 (100.0%) – regular	W, AV, RF
Rallidae			
<i>Laterallus melanophaius</i>	Sanã-parda/Rufous-sided Crake	3/18 (16.2%) – accidental	AV
<i>Gallinula galeata</i>	Galinha-d'água/Common Gallinule	17/18 (94.4%) – regular	W, AV
<i>Porphyrio martinicus</i> *	Frango-d'água-azul/Purple Gallinule	10/18 (55.5%) – regular	W, AV
Charadriiformes			
Charadriidae			
<i>Vanellus chilensis</i>	Quero-quero/Southern Lapwing	17/18 (94.4%) – regular	G
Recurvirostridae			
<i>Himantopus melanurus</i>	Pernilongo-de-costas-brancas/White-backed Stilt	7/18 (38.9%) – sporadic	W, AV
Jacanidae			
<i>Jacana jacana</i>	Jacana/Wattled Jacana	18/18 (100.0%) – regular	W, AV
Rhyncopidae			
<i>Rynchops niger</i> *	Talha-mar/Black Skimmer	1/18 (5.5%) – accidental	W
Columbiformes			
Columbidae			
<i>Columbina talpacoti</i>	Rolinha/Ruddy Ground-Dove	15/18 (83.3%) – regular	RF, G
<i>Columbina squammata</i>	Fogo-apagou/Scaled Dove	11/18 (61.1%) – regular	RF, G
<i>Patagioenas picazuro</i>	Asa-branca/Picazuro Pigeon	18/18 (100.0%) – regular	RF, G
<i>Zenaida auriculata</i>	Avoante/Eared Dove	15/18 (83.3%) – regular	RF, G
Cuculiformes			
Cuculidae			
<i>Crotophaga ani</i>	Anú-preto/Smooth-billed Ani	13/18 (72.2%) – regular	RF, G
Strigiformes			
Strigidae			
<i>Athene cunicularia</i>	Coruja-buraqueira/Burrowing Owl	11/18 (61.1%) – regular	G

Apodiformes**Trochilidae**

<i>Eupetomena macroura</i>	Beija-flor-tesoura/Swallow-tailed Hummingbird	5/18 (27.8%) – sporadic	RF
<i>Chlorostilbon lucidus</i>	Besourinho-de-bico-vermelho/Glittering-bellied Emerald	5/18 (27.8%) – sporadic	RF
<i>Amazilia sp.</i>		5/18 (27.8%) – sporadic	RF

Coraciiformes**Alcedinidae**

<i>Megaceryle torquata</i>	Martim-pescador-grande/Ringed Kingfisher	10/18 (55.5%) – regular	RF, AV
<i>Chloroceryle amazona</i>	Martim-pescador-verde/Amazon Kingfisher	10/18 (55.5%) – regular	RF, AV

Piciformes**Ramphastidae**

<i>Ramphastos toco</i>	Tucanuçu/Toco Toucan	3/18 (16.2%) – accidental	RF
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Picidae

<i>Colaptes campestris</i>	Pica-pau-do-campo/Campo Flicker	7/18 (38.9%) – sporadic	G
<i>Colaptes melanochloros</i>	Pica-pau-verde-barrado/Green-barred Woodpecker	1/18 (5.5%) – accidental	RF
<i>Melanerpes candidus</i>	Pica-pau-branco/White Woodpecker	3/18 (16.2%) – accidental	RF, G
<i>Veniliornis passerinus</i>	Pica-pau-pequeno/Little Woodpecker	2/18 (11.1%) – accidental	RF

Falconiformes**Falconidae**

<i>Caracara plancus</i>	Carcará/Southern Caracara	5/18 (27.8%) – sporadic	RF, G
<i>Herpetotheres cachinnans</i>	Acauã/Laughing Falcon	1/18 (5.5%) – accidental	RF
<i>Falco femoralis</i>	Falcão-de-coleira/Aplomado Falcon	1/18 (5.5%) – accidental	RF

Psittaciformes**Psittacidae**

<i>Psittacara leucophthalmus</i>	Periquitão/White-eyed Parakeet	7/18 (38.9%) – sporadic	RF, G
<i>Aratinga auricapillus</i>	Jandaia-de-testa-vermelha/Golden-capped Parakeet	7/18 (38.9%) – sporadic	RF, G
<i>Eupsittula aurea</i>	Periquito-rei/Peach-fronted Parakeet	8/18 (44.4%) – sporadic	RF, G
<i>Forpus xanthopterygius</i>	Tuim/Blue-winged Parrotlet	8/18 (44.4%) – sporadic	RF, G
<i>Brotogeris chiriri</i>	Periquito-de-encontro-amarelo/Yellow-chevroned Parakeet	16/18 (88.9%) – regular	RF
<i>Amazona aestiva</i>	Papagaio/Turquoise-fronted Parrot	2/18 (11.1%) – accidental	RF

Passeriformes**Furnariidae**

<i>Furnarius rufus</i>	João-de-barro/Rufous Hornero	12/18 (66.7%) – regular	RF, G
<i>Phacellodomus ruber</i>	Graveteiro/Greater Thornbird	7/18 (38.9%) – sporadic	RF
<i>Certhiaxis cinnamomeus</i>	Curutié/Yellow-chinned Spinetail	16/18 (88.9%) – regular	AV, G

Rhynchocyclidae

<i>Todirostrum cinereum</i>	Ferreirinho-relógio/Common Tody-Flycatcher	10/18 (55.5%) – regular	RF
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Tyrannidae

<i>Camptostoma obsoletum</i>	Risadinha/Southern Beardless-Tyrannulet	5/18 (27.8%) – sporadic	RF
<i>Elaenia flavogaster</i>	Guaracava-de-barriga-amarela/Yellow-bellied Elaenia	5/18 (27.8%) – sporadic	RF
<i>Serpophaga subcristata</i>	Alegrinho/White-crested Tyrannulet	5/18 (27.8%) – sporadic	RF
<i>Pitangus sulphuratus*</i>	Bem-te-vi/Great Kiskadee	18/18 (100.0%) – regular	RF, AV, G
<i>Machetornis rixosa</i>	Suiriri-cavaleiro/Cattle Tyrant	6/18 (33.3%) – sporadic	G
<i>Tyrannus melancholicus*</i>	Suiriri/Tropical Kingbird	17/18 (94.4%) – regular	RF, G
<i>Tyrannus savana*</i>	Tesourinha/Fork-tailed Flycatcher	2/18 (11.1%) – accidental	RF, G

<i>Pyrocephalus rubinus</i> *	Príncipe/Vermilion Flycatcher	2/18 (11.1%) – accidental	RF, G
<i>Fluvicola nengeta</i>	Lavadeira-mascarada/Masked Water-Tyrant	4/18 (22.2%) – sporadic	G
<i>Gubernetes yetapa</i>	Tesoura-do-brejo/Streamer-tailed Tyrant	8/18 (44.4%) – sporadic	RF, G
Vireonidae			
<i>Cyclarhis gujanensis</i>	Pitiguari/Rufous-browed Peppershrike	2/18 (11.1%) – accidental	RF
Hirundinidae			
<i>Progne tapera</i>	Andorinha-do-campo/Brown-chested Martin	7/18 (38.9%) – sporadic	G
<i>Progne chalybea</i>	Andorinha-grande/Gray-breasted Martin	11/18 (61.1%) – regular	G
<i>Tachycineta albiventer</i>	Andorinha-do-rio/White-winged Swallow	15/18 (83.3%) – regular	AV, G
Troglodytidae			
<i>Troglodytes musculus</i>	Corruíra/Southern House Wren	8/18 (44.4%) – sporadic	RF, G
Donacobiidae			
<i>Donacobius atricapilla</i>	Japacanim/Black-capped Donacobius	13/18 (72.2%) – regular	AV
Poliopitidae			
<i>Poliopitila dumicola</i>	Balança-rabo-de-máscara/Masked Gnatcatcher	10/18 (55.5%) – regular	RF
Turdidae			
<i>Turdus amaurochalinus</i> *	Sabiá-poca/Creamy-bellied Thrush	5/18 (27.8%) – sporadic	RF
Mimidae			
<i>Mimus saturninus</i>	Sabiá-do-campo/Chalk-browed Mockingbird	10/18 (55.5%) – regular	RF, G
Motacillidae			
<i>Anthus lutescens</i>	Caminheiro-zumbidor/Yellowish Pipit	15/18 (83.3%) – regular	G
Passerellidae			
<i>Zonotrichia capensis</i>	Tico-tico/Rufous-collared Sparrow	10/18 (55.5%) – regular	RF, G
Parulidae			
<i>Geothlypis aequinoctialis</i>	Piá-cobra/Masked Yellowthroat	7/18 (38.9%) – sporadic	AV
Icteridae			
<i>Icterus cayanensis</i>	Inhapim/Epaulet Oriole	5/18 (27.8%) – sporadic	RF, G
<i>Amblyramphus holosericeus</i>	Cardeal-do-banhado/Scarlet-headed Blackbird	3/18 (16.2%) – accidental	AV
<i>Chrysomus ruficapillus</i>	Garibaldi/Chestnut-capped Blackbird	13/18 (72.2%) – regular	AV
<i>Pseudoleistes guirahuro</i>	Chopim-do-brejo/Yellow-rumped Marshbird	1/18 (5.5%) – accidental	AV
Thraupidae			
<i>Tangara sayaca</i>	Sanhaço-cinzento/Sayaca Tanager	13/18 (72.2%) – regular	RF
<i>Sicalis flaveola</i>	Canário-da-terra/Saffron Finch	5/18 (27.8%) – sporadic	RF, G
<i>Tersina viridis</i> *	Sai-andorinha/Swallow Tanager	2/18 (11.1%) – accidental	RF
<i>Coereba flaveola</i>	Cambacica/Bananaquit	6/18 (33.3%) – sporadic	RF
<i>Sporophila lineola</i> *	Bigodinho/Lined Seedeater	2/18 (11.1%) – accidental	G
<i>Sporophila collaris</i>	Coleiro-do-brejo/Rusty-collared Seedeater	3/18 (16.2%) – accidental	AV, G
<i>Sporophila caerulescens</i> *	Coleirinho/Double-collared Seedeater	10/18 (55.5%) – regular	RF, G
<i>Sporophila leucoptera</i>	Chorão/White-bellied Seedeater	2/18 (11.1%) – sporadic	G
<i>Thlypopsis sordida</i>	Sai-canário/Orange-headed Tanager	1/18 (5.5%) – accidental	RF
<i>Volatinia jacarina</i>	Tiziu/Blue-black Grassquit	12/18 (66,7%) – regular	G
Fringillidae			
<i>Euphonia chlorotica</i>	Fim-fim/Purple-throated Euphonia	11/18 (61.1%) – regular	RF
Estrildidae			
<i>Estrilda astrild</i>	Bico-de-lacre/Common Waxbill	1/18 (5.5%) – accidental	G