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ARTICLE

Birds of Upper Paraná River Basin in the State of Mato Grosso do Sul, Brazil

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ABSTRACT: The Upper Paraná River Basin covers approximately half of the territory of Mato Grosso do Sul state. There are two phytogeographic domains in this region: Cerrado and Atlantic Forest. Despite these domains have a high biological diversity and suffer intense anthropogenic pressure, little is known about their avifauna in this region. Thus, we presented a compilation of the avifauna based on field studies conducted by the authors, supplementary data from literature and institutional material deposited in museum collections. We recorded 472 species of birds belonging to 25 orders and 71 families. Eleven species are endemic to the Cerrado and 26 to the Atlantic Forest. Nine species with Amazonian distribution and four from the Chaco were also found in this region. Sixteen intercontinental migratory species were recorded and 20 species are considered endangered. These endangered species are rare or uncommon in the region, except for *Rhea americana* and *Alipiopsitta xanthops*, which are very common. These data reinforce the importance of the conservation of birds in these areas, as well as additional studies that will allow a better characterization of the avifauna of the region. We recommend the creation of new protected areas in the Upper Paraná River region, in addition to the full maintenance of Permanent Preservation Areas and Legal Reserves. This will ensure the conservation of these birds currently threatened by strong anthropic pressure due to the presence of pastures and large-scale agriculture in the region.

KEY-WORDS: Atlantic Forest, avian communities, biogeography, central-western Brazil, Cerrado.

INTRODUCTION

The state of Mato Grosso do Sul is located in central-western Brazil, and has an area with about 360.000 km^2 (IBGE 2002) originally covered by Cerrado, Pantanal and Atlantic Forest. In addition, there are small portions of Chaco vegetation in low areas of the Paraguay River watershed (Ab'Saber 1977, Mato Grosso do Sul 2010). Two major river basins in the state are the Upper Paraguay River Basin, located to the west, and the Upper Paraná River Basin, located east (Mato Grosso do Sul 2010).

The Upper Paraná River Basin embraces almost half of Mato Grosso do Sul and it is the richest region of the state due to the presence of pastures and agricultural activities, especially monocultures of soy bean, sugar cane, corn and *Eucalyptus* (Mato Grosso do Sul 2010). However, this region has an important role in biodiversity conservation, since it still has well preserved aquatic and terrestrial habitats of Cerrado and Atlantic Forest (Gimenes *et al.* 2007).

Despite the importance of the Upper Paraná River Basin for biogeography and conservation, little is known regarding the composition and distribution of birds, unlike the avifauna of the Upper Paraguay River Basin, which is much better known (Tubelis & Tomas 2003, Nunes *et al.* 2005, Pivatto *et al.* 2006, Straube *et al.* 2006a,b, Nunes *et*

al. 2008, Pivatto *et al*. 2008, Nunes *et al*. 2009, Nunes *et al*. 2010, Tomas *et al*. 2010, Nunes *et al.* 2013).

The main studies of the avifauna in the Upper Paraná River Basin in the state of Mato Grosso do Sul are Silva *et al*. (2006) and Gimenes *et al*. (2007). Silva *et al*. (2006) listed 241 bird species for the sub-basins of the Aporé and Sucuriú rivers in the Cerrado region (northeastern state). Gimenes *et al*. (2007) listed 295 species in the area between the lake of Porto Primavera and the upper region of the Ivinhema River (Atlantic Forest domains and floodplain of the Paraná river and tributaries). In addition, Faxina & Schlemmermeyer (2010) recorded 146 species of birds in the sub-basin of the river Amambaí in the Atlantic Forest in the southern part of the state, and Piratelli & Blake (2006) 99 species of birds in areas of Cerrado in Três Lagoas municipality, eastern of Mato Grosso do Sul.

As a result, the entire region of the Upper Paraná River in Mato Grosso do Sul still has a gap on the knowledge about birdlife. This fact is reinforced by the high frequency of species whose occurrence had not been expected or documented for this region (Zucca *et al*. 2007, Faxina *et al*. 2010, Godoi *et al*. 2011, 2012a, Morante-Filho & Godoi 2012).

Herein we present data on the avian composition, distribution and status of occurrence in the Upper Paraná River Basin in the state of Mato Grosso do Sul, focusing on bird conservation. These data are useful to increase the knowledge on distribution and also to determine the main areas to be preserved in this part of the Mato Grosso do Sul state.

MATERIAL AND METHODS

The Paraná River is the main river of the Plata Basin, responsible for draining the entire south-central part of South America. The Upper Paraná River comprises portions of the states of Goiás, Minas Gerais, São Paulo, Paraná and Mato Grosso do Sul, in the region from the confluence of the Paranaíba and Grande rivers to the Itaipu Hydroelectric dam (Agostinho *et al*. 2002). Its main tributaries on the right bank are the Iguatemi, Amambaí, Ivinhema, Pardo, Verde, Sucuriú, and Aporé rivers (Mato Grosso do Sul 2010).

The Upper Paraná River Basin covers about 170.000 km^2 in Mato Grosso do Sul, which equates to 47.5% of the territory of the state (Figure 1). This region is located on the plateau of the Paraná sedimentary basin, with extensive plateaus and flat surfaces located between 300-1000m above sea level. The climate is mostly tropical and subtropical in the extreme south of the region. It is markedly seasonal, with annual rainfall ranging from 1070-1800mm, concentrated in a rainy season from November to March, with a dry season from April to October (Mato Grosso do Sul 2010).

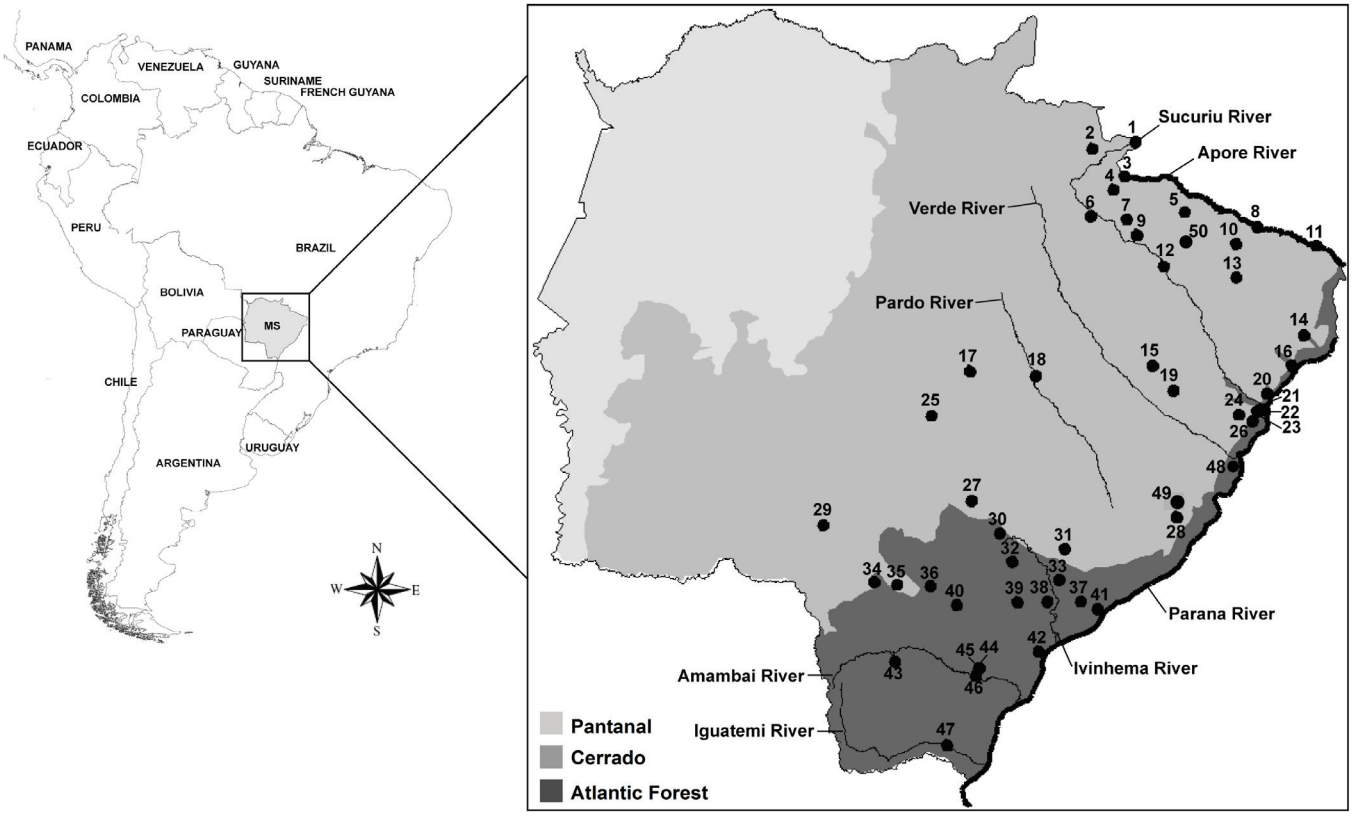

FIGURE 1. Upper Paraná River Basin in the state of Mato Grosso do Sul showing major rivers and phytogeographic domains. The numbers indicate the locations sampled in this study and summarized in Table1.

The phytogeographical domains are: a) Cerrado, distributed mainly in central, east, north and northeast of the Basin and b) Semideciduous forest (Atlantic Forest), present mainly in the south and southeast. Additionally, there are areas of ecotone distributed widely in the region of contact between the Cerrado and the Atlantic Forest (Mato Grosso do Sul 2010) (Figure 1).

The check-list assembled herein is based primarily on data collected in the field by the authors and also data available in the literature (Silva *et al*. 2006, Gimenes *et al*. 2007, Faxina & Schlemmermeyer 2010). Additionally, we used data obtained from: a) specimens deposited at museums (The Field Museum of Natural History -FMNH, Museu de Zoologia, Universidadede São Paulo-MZUSP, and Museu de História Natural Capão da Imbuia - MHNCI); b) photographic material hosted in the WikiAves website (www.wikiaves.com.br); and c) personal communications accompanied by photographic material to evidence the records.

The data collected in the field by the authors and those available in the literature are from 50 locations distributed throughout the study area, sampled between 2001 and 2012, both in Cerrado and in areas of Atlantic Forest (Figure 1). The municipalities sampled are shown in Table 1, which also contains information regarding the sampling methods used, sampling effort, study period and sources used.

The taxonomic list and scientific nomenclature adopted follow the Brazilian Ornithological Records Committee (CBRO 2011), with the exception of some recent deliberations for families Caprimulgidae, Thraupidae and Emberizidae, and temporary situations (incertae sedis) of some groups or species based on the previous edition of the same list (CBRO 2009). Also, we used the concepts and findings of D'Horta *et al*. (2008) and consider *I. pyrrhopterus* (Vieillot, 1819) as a valid species and the local representative of the *Icterus cayanensis* complex in the Paraná Basin.

We adopted Silveira & Straube (2008) and BirdLife International (2009) to identify endangered bird species in Brazil and globally, respectively. The recognition of Cerrado endemic species follows Silva (1995, 1997), while those endemic to the Atlantic Forest follow Goerck (1997) and Brooks *et al*. (1999). Additionally, bird species from the Amazon rainforest (Silva 1996) and Chaco (Straube *et al.* 2006b), which extend their geographic distribution to the Upper Paraná River Basin, were pointed out. The classification of migratory species follows the CBRO (2011).

We used the Index of Frequency of Occurrence, adapted from Naka *et al.* (2002), to determine the status of occurrence of bird species in the Upper Paraná River Basin. This index is based on the ratio between the number of locations where a species was recorded by the total number of sampling sites. The frequency of occurrence does not show how bird species are abundant in the study area in terms of absolute abundance or population density, but allows us to identify which species are rare and more common in the survey area. Thus, bird species were classified as follows: rare-species that occurred in one to five locations (10% of locations); uncommon-species that occurred in six to10 locations (11% - 20% of locations); common-species occurring in 11 to 25 locations (21% - 50% of locations); very common-species occurring in 26 to50 locations (51% - 100% of locations).

RESULTS AND DISCUSSION

We recorded 472 species of birds belonging to 25 orders and 71 families in the sampled area. The richest orders are Passeriformes (236 species), Accipitriformes (27), Apodiformes (23) and Piciformes (19). The richest families were Tyrannidae (60 species), Emberizidae (26), Thraupidae (25), Accipitridae (26), Trochilidae (19), Furnariidae (17), Psittacidae (16), Picidae (16) and Icteridae (16 species) (Table 2).

The Upper Paraná River Basin in the state of Mato Grosso do Sul has high bird richness, accounting for 70% of all bird species recorded in the state (Nunes *et al.* in press) and 23.5% of the birds recorded in Brazil (CBRO 2011). The richness is also high compared to the better preserved and more thoroughly sampled Pantanal floodplains to the west, where at least 582 species of birds were recorded (Tubelis & Tomas 2003, Nunes *et al.* 2008, Nunes 2011). However, the avian richness of the area sampled herein should be higher, since most locations were undersampled, and especially due to the fact that several locations throughout the Upper Paraná River Basin remain unsampled to this day. The avifauna of the Upper Paraná River presents both species typical of the Cerrado as well as of the Atlantic Forest. Eleven endemic species from Cerrado (Silva 1995, 1997) and 26 from the Atlantic Forest were recored in this study (Goerck 1997, Brooks *et al.*1999) (Table 2). This shows the importance of these phytogeographic domains to the regional species composition.

Areas of contact between different vegetations associated with the Cerrado and Atlantic Forest occur at several localities sampled in this study. In these ecotone areas, we can find endemic species of both domains, and this can occur even in the more southern portions of the state, such as sub-basins of Amambaí and Iguatemi rivers (Atlantic Forest). In areas close to the river Amambaí (locality 43), for example, endemic species of the Cerrado (*Antilophia galeata*, *Cyanocorax cristatellus* and *Basileuterus leucophrys*) and Atlantic Forest (*Pyrrhura frontalis*, *Trogon surrucura*, *Baryphthengus ruficapillus*, *Melanerpes flavifrons*, *Automolus leucophthalmus* and *Procnias nudicollis*) co-occur in the same region. As a result, the influence of these ecotone regions and their importance for the characterization and

conservation of birds of the Upper Paraná River deserv especial attention and additional sampling in the future.

The seasonal forests in southern Mato Grosso do Sul (sub-basins of the Ivinhema, Iguatemi and Amambaí rivers), as well as the forests of western Paraná, eastern Paraguay and northeastern Argentina, constitute the western limits of distribution for many Atlantic Forest endemic birds (Straube *et al.* 1996, Pivatto *et al.* 2006). Even in the mid-east and northeast of the state (sub-basins of the Pardo, Verde, Aporé and Sucuriú rivers) there are Atlantic Forest influences due to the presence of semideciduous forests fragments. This probably explains the occurrence of many Atlantic Forest endemic birds into the Cerrado, such as *Florisuga fusca*, *Thalurania glaucopis*, *Trogon surrucura*, *Melanerpes flavifrons*, *Schiffornis virescens*, *Campephilus robustus* and *Hylophilus poecilotis*.

In addition, four species (*Nystalus striatipectus*, *Celeus lugubris*, *Xiphocolaptes major* and *Agelaioides badius*) with their distributions centered in the Chaco (Straube *et al.* 2006b) and nine (*Pionus menstruus*, *Coccycua minuta*, *Hylocharis cyanus*, *Celeus flavus*, *Tityra semifasciata*, *Tyrannopsis sulphurea*, *Hylophilus pectoralis*, *Cyanerpes cyaneus* and *Euphonia laniirostris*) in Amazonia (Silva 1996) occur in the region (Table 2).

The occurrence of Amazonian species in the sampled area can be probably explained by dispersion throughout riparian forests of central Brazil, where they reach the southern part of the Cerrado (Silva 1996). Some Amazonian species recorded seem to occur only in the northern part of the Paraná Basin. This region is possibly the southern limit of distribution of many of them, including *Pionus menstruus*, *Celeus flavus* and *Euphonia laniirostris*, which occurred only in the northeastern portion of the area sampled in this study. For instance, *Tyrannopsis sulphurea* has only recently been recorded in the Paraná Basin (Pacheco *et al.* 2010). Other species (*Coccycua minuta*, *Cyanerpes cyaneus*, *Tityra semifasciata* and *Hylophilus pectoralis*) spread out to the southern Paraná Basin, with at least two recorded in the region by Godoi *et al.* (2011) and Pacheco *et al.* (2011).

Chaco species recorded are distributed mainly in the Upper Paraguay River Basin, both in the Pantanal and its eastern and western edges, and also in neighboring countries, such as Bolivia and Paraguay (Short 1975, Straube *et al.* 2006b). The *Celeus lugubris* and *Xiphocolaptes major* records in the Paraná Basin are unprecedented in this region, as in Mato Grosso do Sul were both found only in the Pantanal (Tubelis & Thomas 2003) and its surroundings, such as Serra da Bodoquena (Pivatto *et al.* 2006) and Serra de Maracaju (Nunes *et al.* 2013 in press).

Nystalus striatipectus and *Nystalus maculatus* were considered two different species recently (Silva 1991). Thus, their distribution in the region is still uncertain. Apparently, *N. striatipectus* is widely distributed throughout Mato Grosso do Sul, while *N. maculatus* seems to be restricted to the east and north-northeastern portion of the state, in a region already pointed out by Silva (1991) as a possible area of contact between the two species. Further studies on these two sympatric species in the region may provide more accurate information on their distributions in Mato Grosso do Sul.

We recorded 16 migratory species from the Northern Hemisphere (CBRO 2011): *Pandion haliaetus*, *Ictinia mississippiensis*, *Bartramia longicauda*, *Actitis macularius*, *Tringa solitaria*, *Tringa melanoleuca*, *Tringa flavipes*, *Calidris minutilla*, *Calidris fuscicollis*, *Phalaropus tricolor*, *Coccyzus americanus*, *Chordeiles minor*, *Vireo olivaceus*, *Riparia riparia*, *Hirundo rustica* and *Petrochelidon pyrrhonota* (Table 2). Many migratory species from southern South America occur in the Upper Paraná River and apparently some do not have resident populations in the region, such as *Pyrocephalus rubinus*. Other species (*Phimosus infuscatus*, *Xolmis cinereus*, *Myiodinastes maculatus*, *Empidonomus varius*, *Griseotyrannus aurantioatrocristatus*, *Tyrannus savana*, *Myiarchus swainsoni*, *Ictinia plumbea*, *Turdus amaurochalinus*, *Tersina viridis* and some *Sporophila* species) appear to have resident populations that increase seasonally in winter due to the arrival of migrants from southern areas (Nunes & Tomas 2008).

Twenty species are considered nationally (Silveira & Straube 2008) and/or globally endangered (BirdLife International 2009): *Rhea americana*, *Tinamus solitarius*, *Nothura minor*, *Odontophorus capueira*, *Tigrisoma fasciatum*, *Urubitinga coronata*, *Harpia harpyja*, *Primolius maracana, Alipiopsitta xanthops*, *Geositta poeciloptera*, *Procnias nudicollis*, *Euscarthmus rufomarginatus*, *Culicivora caudata*, *Alectrurus tricolor*, *Neothraupis fasciata*, *Poospiza cinerea*, *Sporophila frontalis*, *Sporophila cinnamomea*, *Sporophila palustris* and *Charitospiza eucosma* (Table 2). All endangered species were considered rare or uncommon in the region, except for *Rhea americana* and *Alipiopsitta xanthops*, classified as very common. Considering all species recorded, 183 species (38.8%) are rare, 54 (11.5%) uncommon, 98 (20.7%) common and 137 (29%) very common (Table 2). Concerning the 11 species endemic to the Cerrado, six (54.5%) are common or very common and five (45.5%) are rare. From 26 species endemic to the Atlantic Forest, 24 (92%) are rare or uncommon and only two (8%) are common. Finally, all Chaco and Amazonian species are rare or uncommon, except for *Nystalus striatipectus*, which is common in the region (Table 2).

Thus, the Upper Paraná River Basin in the state of Mato Grosso do Sul has many rare and/or endangered species, indicating the importance of preserving natural vegetation remnants for long-term conservation of these species. The presence of rare and large raptors in grasslands (*Urubitinga coronata*) and forests (*Harpya harpyja*, *Spizaetus ornatus*, *S. tyrannus* and *S. melanoleucus*), indicates that there are still spotted areas of native vegetation capable of maintaining these carnivorous species. Nevertheless,

they require relatively large areas and continuous habitat, and thus may become rare and even extinct regionally due to the lack of massive continuous forest in the Upper Paraná River. In the state of Mato Grosso do Sul, these species have been more commonly found in regions with larger and preserved natural habitats, especially in the Pantanal, Maciço do Urucum and Serras da Bodoquena and Maracajú (Godoi *et al.* 2012b).

Some large frugivorous species occur in the region, such as *Primolius maracana*, *Procnias nudicollis*, *Tinamus solitarius* and *Crypturellus obsoletus*. These species are naturally rare and the Upper Paraná River usually corresponds to the western limit of their distribution. This may partly explain their regional rarity. However, the absence of larger forest tracts also appears to be responsible for the rarity of large frugivorous birds in the region, since they usually depend upon preserved continuous forests (Aleixo & Vielliard 1995, Gimenes & Anjos 2003). The absence of some frugivorous and forest dwelling species, such as *Ramphastos dicolorus* and *Pyroderus scutatus*, present in the Serra da Bodoquena (Pivatto *et al.* 2006), and even *Aburria jacutinga*, with historical records in the region of the Upper Paraná River (Mendonça *et al.* 2009), can also be attributed mainly to the loss and fragmentation of semideciduous forests. These factors are commonly identified as the main cause of loss and reduced diversity of birds in Brazil (Marini & Garcia 2005, Tabarelli & Gascon 2005).

Some endangered and rare species in the region are typical inhabitants of savannas and open grasslands, such as *Nothura minor*, *Geositta poeciloptera*, *Melanopareia torquata*, *Culicivora caudata*, *Euscarthmus rufomarginatus*, *Alectrurus tricolor*, *Neothraupis fasciata*, *Poospiza cinerea* and *Charitospiza eucosma*. The grasslands of the Cerrado are among the world's most threatened environments (Stotz *et al.* 1996) with few remaining tracts (most of them fragmented) in central Brazil. These habitats have been largely converted to pastures and monocultures of soybean, corn and sugar cane. Collar *et al.* (1992) considered this process as one of the greatest ecological catastrophes in South America. Nowadays, the remaining native grasslands in central Brazil are restricted to a few protected areas, such as the Parque Nacional das Emas (Hass 2003). Thus, many typical bird species from these habitats are becoming rare across their entire range (Cavalcanti 1999, Vickery *et al.*1999). This seems to be the case, for example, with the very rare *Nothura minor* and *Geositta poeciloptera*, with historical records for the region (Pinto 1932, Straube 2011).

There are some endangered and rare species typical of humid habitats, such as *Sporophila frontalis*, *S.cinnamomea* and *S. palustris*, which occur in floodplains and swamps, and *Tigrisoma fasciatum*, found in rivers waterfalls, rocky with flagstones and rough waters (Nunes *et al.* 2012). The Upper Paraná River Basin still has large areas of river-floodplain ecosystem (Agostinho *et al.* 2004), not only near the Paraná River, but also in inland portions of the state, such as sub-basins of Ivinhema, Aporé and Sucuriú rivers. However, this whole region was subjected to intense anthropization, including the construction of a large hydroelectric project, such as the Porto Primavera dam. This dam possibly affected the conservation of many birds typically associated with the floodplains (Mendonça *et al.* 2009). Recently, the installation of several projects of small hydroeletrics, especially in sub-basins of the Rio Verde, Sucuriú and Aporé, and also the dry out of wetlands for the expansion of pasture and agriculture, are the main threats to aquatic birds. Many species, especially Emberizidae, are still targets for wildlife trafficking, a factor correlated with the decline and even local extinctions of many species (Marini & Garcia 2005).

Originally, the Cerrado covered approximately 61% of Mato Grosso do Sul territory (Sano *et al.* 2010), while the Atlantic Forest covered 18% (Fundação SOS Mata Atlântica & INPE 2010). However, with the occupation of state from the 1960's onward, there were drastic reductions of native vegetation with only 32% of the original Cerrado (Sano *et al.* 2010) and less than 5% of the original Atlantic Forest remaining (Fundação SOS Mata Atlântica & INPE 2010).

Today, only 0.85% of the Mato Grosso do Sul territory is legally protected by Conservation Units (CUs), with few protected areas in the Upper Paraná River Basin (Mato Grosso do Sul 2010). Thus, we recommend the creation of new CUs in the Upper Paraná River Basin, especially where large areas of native vegetation can be found and are representative of the biodiversity of both the Cerrado and Atlantic Forest domains.

The proper management of the landscape, respecting the Brazilian environmental legislation, maintaining the Permanent Preservation Areas (APP´s) and Legal Reserves (RL's), will ensure the long-term conservation of avifauna of the region. The APP's with riparian forests, Buriti (*Mauritia flexuosa*) palm groves, floodplains, as well as fragments of native vegetation established as RL's, are essential for the conservation of regional biodiversity. In fact they represent refuges for wildlife and act as corridors, allowing the movement and dispersal of different species across the landscape. The riparian forest, for instance, are a very important element in fragmented landscapes by allowing dispersal of forest species between forest fragments (Martensen *et al.* 2008). Keeping wide corridors of riparian forests in fragmented landscapes would provide the conservation of a higher diversity of bird species (Tubelis *et al.* 2004, Lees & Peres 2008). Buriti (*M. flexuosa*) palm groves are relatively continuous natural environments and also allow the dispersion and provide refuge for different species of forest birds, including species strongly associated with these areas, such as *Ara ararauna*, *Orthopsittaca manilata* and *Tachornis squamata* (Tubelis 2009).

TABLE 1. Information on the location, methods, sampling effort and sources of avian surveys carried out and analyzed during this study.

Points	Municipalities	Method and sampling effort	Source
1	Costa Rica	24 hs of observation (2004)	Silva *et al.* 2006
2	Costa Rica	72 hs of observation (2011)	This study
3	Chapadão do Sul	24 hs of observation (2004)	Silva *et al.* 2006
4	Chapadão do Sul	150 hs of observation (2009-2011)	This study
5	Chapadão do Sul	72 hs of observation (2010)	This study
6	Costa Rica	24 hs of observation (2004)	Silva *et al.* 2006
7	Paraíso	24 hs of observation (2004)	Silva *et al.* 2006
8	Cassilândia	67 hs of observation (2007)	This study
9	Chapadão do Sul	24 hs of observation (2004)	Silva *et al.* 2006
10	Cassilândia	72 hs of observation (2010)	This study
11	Paranaíba	24 hs of observation (2004)	Silva *et al.* 2006
12	Chapadão do Sul	128 hs of observation e 600 hs/mist nets (2007-2008)	This study
13	Inocência	24 hs of observation (2004)	Silva *et al.* 2006
14	Aparecida do Taboado	40 hs of observation (2010)	This study
15	Três Lagoas	60 hs of observation (2010-2012)	This study
16	Selvíria	72 hs of observation (2010)	This study
17	Jaraguari	25 hs of observation (2007)	This study
18	Ribas do Rio Pardo	72 hs of observation (2010)	This study
19	Três Lagoas	40 hs of observation (2009)	This study
20	Três Lagoas	30 hs of observation (2009)	This study
21	Três Lagoas	250 hs of observation (2009); 30 hs of point counts (2008-2012)	This study
22	Três Lagoas	70 hs of observation (2009-2011)	This study
23	Três Lagoas	18 hs of observation (2007)	This study
24	Três Lagoas	80 hs of observation (2009)	This study

Points	Municipalities	Method and sampling effort	Source
25	Campo Grande	50 hs of observation (2008)	This study
26	Três Lagoas	25 hs of observation (2011)	This study
27	Nova Alvorada do Sul	300 hs of observation (2009-2011)	This study
28	Bataguassú	20 hs of observation (2007)	This study
29	Maracaju	125 hs of observation (2009-2011)	This study
30	Rio Brilhante	200 hs de observation (2008-2011)	This study
31	Nova Andradina	160 hs of observation (2009-2012)	This study
32	Angélica	260 hs of observation (2009-2012)	This study
33	Nova Andradina	57 hs of observation (2009)	This study
34	Ponta Porã	250 hs of observation (2009-2011)	This study
35	Dourados	166 hs of observation (2010-2012)	This study
36	Fátima do Sul	76 hs of observation (2010)	This study
37	Batayporã	275 hs of observation (2009-2012)	This study
38	Ivinhema	30 hs of observation (2007)	This study
39	Ivinhema	130 hs of observation (2007-2012)	This study
40	Vicentina	300 hs of observation (2008-2011)	This study
41	Taquarussu, Jateí e Naviraí	Unrecorded (1999-2005)	Gimenes *et al.* 2007
42	Taquarussu, Jateí e Naviraí	320 hs of observation (2005-2007)	This study
43	Amambai	80 hs of observation (2011)	This study
44	Naviraí	10 hs of observation (2010)	This study
45	Naviraí	230 hs of observation (2003-2004)	This study
46	Naviraí	23 hs of observation (2007)	This study
47	Mundo Novo, Eldorado e Iguatemi	160 hs of observation and 750 hs/mist nets (2008-2009)	This study
48	Brasilândia	24 hs of observation e 100 hs/mist nets (2008-2010)	This study
49	Bataguassú	12 hs of observation (2012)	This study
50	Cassilândia	60 hs of observation (2012)	This study

TABLE 2. Composition, distribution and frequency of occurrence of birds in the Upper Paraná River Basin in the state of Mato Grosso do Sul. CS (Conservation status) = Threatened species globally (BI = BirdLife International) and in Brazil (IB = IBAMA): EN (endangered), VU (vulnerable), NT (near threatened). ENDEMIC: Endemic species to the Cerrado (CE) and Atlantic Forest (AF). FO (frequency of occurrence) in the region of this study: VC (very common), C (common), U (uncommon) and R (rare). Localities (see Figure 1 and Table 1 for the identity and location of sampling points).

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
STRUTHIONIFORMES						
Rheidae						
Rhea americana	NT				VC	1,2,4,5,8,10,12,13,14,15,16,17,19,20,21,22,25,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,46,47,49
TINAMIFORMES						
Tinamidae						
Tinamus solitarius	NT			X	R	48
Crypturellus obsoletus					R	6,21,41,48
Crypturellus undulatus					VC	1,2,4,5,7,8,9,10,12,13,14,16,18,20,21,27,29,30,31,32,33,34,35,40,41,42,43,48,50
Crypturellus parvirostris					VC	1,2,4,5,7,10,12,14,15,16,18,20,21,22,23,26,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,48,50
Crypturellus tataupa					VC	2,4,5,10,12,14,18,21,24,25,27,29,30,31,32,33,34,35,36,37,38,39,41,42,43,48,50
Rhynchotus rufescens					VC	2,3,4,5,10,14,15,20,21,24,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,47,48,49,50
Nothura minor	VU	VU	X		R	FMNH
Nothura maculosa					VC	2,4,5,7,10,12,14,15,17,19,20,21,22,26,27,29,30,31,32,33,35,36,37,38,40,41,42,43,45,46,48,50
ANSERIFORMES						
Anhimidae						
Anhima cornuta					U	12,20,21,26,37,41,42,48,49,50
Chauna torquata					R	29
Anatidae						
Dendrocygna viduata					VC	3,4,9,12,15,19,20,23,24,25,27,29,30,31,32,33,34,35,36,37,38,40,41,42,44,45,46,47
Dendrocygna autumnalis					C	4,12,14,15,16,20,21,23,24,26,27,28,30,32,34,35,36,37,39,40,41,42,48,49
Cairina moschata					VC	2,8,9,14,15,16,18,19,20,21,22,23,27,29,30,31,32,34,35,37,38,41,42,43,46,47,48,49,50
Amazonetta brasiliensis					VC	2,3,4,9,10,12,13,14,15,17,18,19,25,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,47,48,50
Anas bahamensis					R	12
Nomonyx dominica					R	45
GALLIFORMES						
Cracidae						
Penelope superciliaris					VC	1,2,4,5,8,10,11,12,13,16,18,19,20,24,27,29,30,31,32,35,36,37,39,41,42,48,50
Crax fasciolata					VC	2,4,5,6,8,10,12,13,14,15,18,19,20,21,25,27,29,30,31,32,33,34,37,41,42,48,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Odontophoridae						
Odontophorus capueira		EN		X	R	MZUSP
PODICIPEDIFORMES						
Podicipedidae						
Podilymbus podiceps					R	9,23,37,45,48
Tachybaptus dominicus					C	3,4,9,22,29,30,35,37,40,45,48
CICONIIFORMES						
Ciconiidae						
Ciconia maguari					U	30,34,35,37,41,42,47,48
Jabiru mycteria					C	3,4,27,29,30,32,34,38,41,42,47,48,49
Mycteria americana					C	9,14,23,26,27,30,32,34,35,37,38,39,40,41,42,47,48
SULIFORMES						
Phalacrocoracidae						
Phalacrocorax brasilianus					MC	4,9,14,16,17,19,21,22,23,24,27,30,31,32,33,34,35,36,37,38,40,41,42,45,47,48,49,50
Anhingidae						
Anhinga anhinga					C	2,6,8,15,16,21,27,30,32,34,37,41,42,43,45,47,48,49,50
PELECANIFORMES						
Ardeidae						
Tigrisoma lineatum					C	2,6,12,13,15,26,27,29,30,31,32,34,35,37,38,39,40,41,42,45,47,48,49
Tigrisoma fasciatum		EN			R	Nunes *et al.* (2012)
Botaurus pinnatus					R	30,34,37
Ixobrychus involucris					R	37
Nycticorax nycticorax					U	23,35,37,41,42,45,47,48
Butorides striata					VC	4,5,7,8,10,12,13,14,15,16,18,19,20,21,22,23,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,47,48
Bubulcus ibis					VC	2,5,7,9,11,12,14,15,16,17,22,23,24,27,28,30,31,32,35,36,37,40,41,43,45,46,47,48,49,50
Ardea cocoi					C	14,16,19,20,21,22,23,30,34,36,37,41,42,47,48,49,50
Ardea alba					VC	4,5,8,12,14,15,16,17,19,21,23,24,27,29,30,31,32,33,34,35,36,37,38,40,41,42,43,44,45,47,48,49,50
Syrigma sibilatrix					VC	2,4,5,8,10,11,12,13,14,15,17,18,19,20,21,22,23,24,25,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45, 46,47,48,49,50
Pilherodius pileatus					R	32,41
Egretta thula					VC	5,8,10,14,15,16,20,21,22,23,24,27,29,30,31,32,34,35,36,37,38,40,41,42,45,47,48,49,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Threskiornithidae						
Plegadis chihi					R	48
Mesembrinibis cayennensis					VC	2,3,4,5,7,8,10,11,12,14,15,16,17,18,19,20,21,22,24,25,27,29,30,31,32,34,35,36,37,38,40,41,43,47,48,50
Phimosus infuscatus					U	14,16,24,35,36,37,45,48
Theristicus caudatus					VC	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27,28,29,30,31,32,33,34,35,36,37,39,40,41,42, 43,45,47,48,49,50
Platalea ajaja					U	19,30,34,37,39,41,42,47
CATHARTIFORMES						
Cathartidae						
Catharters aura					VC	2,4,5,8,9,10,11,12,14,15,16,17,18,19,20,21,22,23,24,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44, 45, 46,47,48,49,50
Cathartes burrovianus					C	2,4,9,11,14,15,19,21,22,24,27,29,30,32,34,35,37,38,41,42,43,48,49,50
Coragyps atratus					VC	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41, 42,43,44,45,46,47,48,49,50
Sarcoramphus papa					C	7,12,15,29,30,31,33,37,38,39,41,42,46,47,50
ACCIPITRIFORMES						
Pandionidae						
Pandion haliaetus					R	20,41,47,48
Accipitridae						
Leptodon cayanensis					R	20,32,37
Chondrohierax uncinatus					R	27
Elanoides forficatus					U	16,21,27,30,31,32,47,48,50
Gampsonyx swainsonii					R	6,15,48
Elanus leucurus					C	4,27,31,32,34,35,37,40,41,42,43,45,47,48
Harpagus diodon					R	48
Circus buffoni					C	2,4,27,29,30,32,34,37,39,40,41,42,43,47,48,50
Accipiter superciliosus					R	24,48
Accipiter striatus					R	41
Rosthramus sociabilis					C	9,15,16,20,21,22,23,27,30,32,34,35,36,37,41,42,47,48,49,50
Ictinea mississippiensis					R	5,16,18,32
Ictinea plumbea					VC	2,4,8,11,12,13,14,15,20,21,23,25,26,27,29,30,31,32,33,34,36,37,38,39,41,42,43,44,45,47,48,50
Busarellus nigricollis					C	20,21,27,29,30,31,37,41,42,47,48

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Geranospiza caerulescens					U	2,5,14,27,30,34,47,48,50
Heterospizias meridionalis					VC	1,2,4,5,9,10,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27,30,31,32,33,34,35,37,38,39,40,41,42,43,47,48,49,50
Urubitinga urubitinga					U	4,7,20,25,37,41,47,49,50
Urubitinga coronota	EN	VU			R	5,41,43
Rupornis magnirostris					VC	2,3,4,5,6,10,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,37,38,39,40,41,42,43,44, 45,46,47,48,49,50
Geranoaetus albicaudatus					VC	2,4,5,10,12,13,14,15,17,18,27,29,30,31,32,33,34,36,39,40,42,43,46,47,50
Buteo nitidus					R	11
Buteo brachyurus					R	27,28,41
Buteo albonotatus					R	42,46
Harpia harpyja	NT				R	Dias, J. H. P. (*pers. comm.*)
Spizaetus tyrannus					R	37
Spizaetus melanoleucus					R	Godoi *et al.* (2012b))
Spizaetus ornatus					R	1,27
FALCONIFORMES						
Falconidae						
Caracara plancus					VC	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,44,45,46,47,48,49,50
Milvago chimachima					VC	2,3,4,5,6,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,37,38,39,40,41, 42,43,45,46,47,48,49,50
Herpetotheres cachinnans					C	3,4,5,6,7,9,12,13,14,15,20,21,27,29,30,32,35,37,39,40,41,42,43,47,48,50
Micrastur semitorquatus					C	2,3,5,10,12,16,30,34,35,40,41,47
Falco sparverius					VC	2,3,4,5,6,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42, 43,44,45,46,48,49,50
Falco rufigularis					U	9,27,41,43,46,50
Falco femoralis					VC	1,2,3,4,5,7,9,12,14,15,17,20,21,22,23,26,27,29,30,31,32,34,37,40,41,42,43,45,46,47,48
GRUIFORMES						
Aramidae						
Aramus guarauna					C	2,12,14,16,20,21,22,23,24,27,30,32,34,35,36,37,38,40,41,42,47,48,49,50
Rallidae						
Aramides cajanea					C	3,4,5,10,13,14,16,21,22,26,27,29,30,32,34,37,41,43,48,49,50
Aramides saracura				X	R	31,35,41,47
Amaurolimnas concolor					R	27

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Laterallus viridis					R	7,30,37,38,48
Laterallus melanophaius					R	38
Porzana albicollis					C	2,3,4,5,14,15,16,18,21,26,27,29,30,32,34,35,36,37,38,39,40,43,48,49,50
Pardirallus nigricans					U	30,31,32,39,41,42,45,47,48
Gallinula galeata					U	23,29,35,36,37,38,41
Porphyrio martinica					C	5,23,29,30,32,34,37,38,40,41,45,48
Porphyrio flavirostris					R	29,37,41
Heliornithidae						
Heliornis fulica					U	22,27,30,37,41,42,47
CARIAMIFORMES						
Cariamidae						
Cariama cristata					MC	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,46,47,48,49,50
CHARADRIIFORMES						
Charadriidae						
Vanellus cayanus					R	32,35,40,48
Vanellus chilensis					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39, 40,41,42,43,44,45,46,47,48,49,50
Charadrius collaris					R	41
Recurvirostridae						
Himantopus melanurus					C	2,3,4,14,22,23,26,28,29,30,31,32,35,37,38,40,41,43,45,47,48
Scolopacidae						
Gallinago undulata					R	15
Gallinago paraguaiae					R	18,40,41,45
Bartramia longicauda					R	FMNH
Actitis macularius					R	37
Tringa solitaria					C	14,16,19,26,27,30,31,33,34,35,37,39,40,41,45,46,47
Tringa melanoleuca					R	45
Tringa flavipes					U	14,25,27,38,41,45
Calidris minutilla					R	38
Calidris fuscicollis					R	23,41
Phalaropus tricolor					R	FMNH

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Jacanidae						
Jacana jacana					VC	4,8,12,14,15,17,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,45,46,47,48,49,50
Sternidae						
Sternula superciliares					R	32,37,41,42,48
Phaetusa simplex					U	14,20,21,22,23,37,41,42,47,48
Rynchopidae						
Rynchops niger					R	21,48
COLUMBIFORMES						
Columbidae						
Columbina minuta					C	3,4,8,24,25,30,33,35,37,41,45
Columbina talpacoti					VC	1,2,3,4,5,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,44,45,46,47,48,49,50
Columbina squammata					VC	1,2,4,5,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,39,40,41, 42,43,44,45,46,47,48,49,50
Columbina picui					VC	4,5,6,8,10,12,14,16,18,20,21,23,25,27,30,31,32,33,34,35,36,37,38,39,40,41,42,45,46,47
Claravis pretiosa					C	7,16,27,30,35,36,37,38,41,47,48,49
Columba livia					U	16,23,24,32,45,48
Patagioenas speciosa					R	1,10
Patagioenas picazuro					VC	1,2,3,4,5,7,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,44,45,47,48,49,50
Patagioenas cayennensis					VC	1,2,3,4,5,6,7,8,9,10,11,12,14,15,16,17,18,20,21,22,23,24,25,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42, 43,46,47,48,49,50
Patagioenas plumbea					U	2,7,9,27,31,37,39,45
Zenaida auriculata					VC	2,3,4,8,12,14,15,16,18,19,20,21,22,23,24,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,47,48,49
Leptotila verreauxi					VC	1,2,3,4,5,6,7,8,10,11,12,14,15,16,17,18,20,21,22,23,24,25,26,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,44, 45,47,48,49,50
Leptotila rufaxilla					VC	1,2,3,4,5,10,13,14,16,18,19,20,27,29,30,31,32,33,34,35,37,38,39,40,41,42,43,47,48,49
Geotrygon montana					R	35,41,48,49
PSITTACIFORMES						
Psittacidae						
Ara ararauna					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,30,31,32,33,37,38,39,40,41,42,45, 48,49,50
Ara chloropterus					C	4,6,8,12,27,29,30,31,32,33,37,38,39,41,42,46

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Orthopsittaca manilata					U	9,13,14,19,26,41,48,49,50
Primolius maracana	NT				R	41,42,48,49
Diopsittaca nobilis					VC	1,2,3,4,5,6,7,8,10,11,12,13,14,15,16,18,20,26,27,28,30,31,32,33,34,37,48,50
Aratinga leucophthalma					VC	2,4,5,7,10,13,14,16,18,20,21,22,23,24,25,26,27,30,31,32,33,34,35,37,38,39,40,41,42,43,44,45,46,47,48,50
Aratinga acuticaudata					R	4
Aratinga aurea					VC	1,2,3,4,5,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,32,33,34,35,36,37,39,40,41,42,43, 44,45,47,48,49,50
Pyrrhura frontalis				X	U	23,38,41,42,43,47
Forpus xanthopterygius					VC	5,8,10,14,16,18,19,20,22,23,24,27,30,31,32,33,35,36,37,39,40,41,42,45,47,48,49
Brotogeris chiriri					VC	1,2,3,4,5,6,7,8,10,12,13,14,15,16,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,39,40,41,43,45, 46,47,48,49,50
Alipiopsitta xanthops	NT		X		VC	1,4,5,8,9,10,12,13,14,15,19,20,22,23,24,25,26,27,30,31,32,33,34,37,39,40,42,48,49,50
Pionus menstruus					R	3,8
Pionus maximiliani					U	23,26,27,32,35,37,41,42,43,45
Amazona amazonica					C	2,4,12,15,20,22,23,27,30,34,35,37,40,48,49,50
Amazona aestiva					VC	1,2,4,5,8,10,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43, 44,45,46,47,48,49,50
CUCULIFORMES						
Cuculidae						
Coccycua minuta					R	30
Micrococcyx cinereus					R	FMNH
Piaya cayana					VC	1,2,3,4,5,7,8,10,11,12,13,14,15,16,17,18,20,21,22,23,24,25,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,45, 47,48,49,50
Coccyzus melacoryphus					C	5,7,14,16,18,23,27,30,34,35,36,38,39,40,41,45,47,48
Coccyzus americanus					U	40,41,42,45,47,48
Coccyzus euleri					U	12,20,21,24,31,35,39,50
Crotophaga major					C	22,27,29,30,31,32,34,35,37,38,39,41,42,45,46,47,48
Crotophaga ani					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39, 40,41,42,43,44,45,46,47,48,49,50
Guira guira					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39, 40,41,42,43,44,45,46,47,48,49,50
Tapera naevia					C	11,16,20,27,30,31,32,34,35,36,37,39,40,41,42,43,45,47,48,49,50
Dromococcyx phasianellus					R	49
Dromococcyx pavoninus					U	2,27,30,37,41,42,48

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
STRIGIFORMES						
Tytonidae						
Tyto alba					C	1,4,10,12,19,23,26,27,30,32,35,39,40,41,43,46,47,48
Strigidae						
Megascops choliba					C	1,4,13,15,20,21,22,23,27,30,36,37,39,40,41,42,43,47,48,50
Pulsatrix perspicillata					R	27
Pulsatrix koeniswaldiana				X	R	41
Strix huhula					R	4
Glaucidium minutissimum				X	R	MZUSP
Glaucidium brasilianum					VC	2,4,5,6,7,10,12,13,15,18,20,23,27,29,30,32,33,34,35,36,37,38,39,41,42,43,47,48
Athene cunicularia					VC	2,3,4,5,6,8,9,10,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41, 42,43,44,45,46,47,48,49,50
Asio flammeus					R	2
Asio clamator					R	27,32,41
CAPRIMULGIFORMES						
Nyctibiidae						
Nyctibius griseus					U	8,12,20,21,27,30,36,39,42,48
Caprimulgidae						
Nyctiphrynus ocellatus					R	21
Caprimulgus rufus					U	8,13,27,30,38,39,40,41
Caprimulgus parvulus					U	2,4,29,30,41,48,50
Lurocalis semitorquatus					R	35,41
Podager nacunda					C	2,5,9,10,13,14,15,20,21,22,24,26,27,30,32,35,37,38,40,42,43
Chordeiles minor					R	31
Chordeiles pusillus					R	15,48
Nyctidromus albicollis					VC	1,2,4,5,6,8,9,10,11,12,14,15,16,17,18,20,23,25,27,28,29,30,31,32,34,35,36,37,38,39,40,41,42,43,45,47,48,50
Hydropsalis torquata					U	2,23,27,28,30,34,41,43,48
APODIFORMES						
Apodidae						
Steptoprocne zonaris					R	3,4,41,48
Cypseloides senex					R	2,50
Chaetura meridionalis					R	15,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Tachornis squamata					U	5,10,14,26,30,41,48,50
Trochilidae						
Phaethornis pretrei					VC	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,22,23,24,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,46, 47,48,49,50
Eupetomena macroura					VC	2,4,5,6,8,9,10,11,12,15,16,17,18,23,24,25,26,28,30,31,34,37,40,41,48,50
Aphantochroa cirrochloris				X	R	21
Florisuga fusca				X	U	7,23,31,41,48
Colibri serrirostris					U	1,2,5,27,30,34
Anthracothorax nigricollis					VC	5,6,7,8,12,16,19,20,23,24,27,29,30,31,32,34,38,39,40,41,42,45,47,48
Chrysolampis mosquitus					R	22,48,50
Chlorostilbon lucidus					VC	2,4,5,8,10,11,12,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,39,40,41,42,45,47, 48,49,50
Thalurania furcata					C	2,3,4,5,6,8,9,12,19,23,30,34,35,37,50
Thalurania glaucopis				X	R	7,35,48
Hylocharis cyanus					U	14,30,34,37,41,48
Hylocharis chrysura					C	4,7,18,19,23,24,27,30,34,35,36,37,38,39,40,42,43,44,48
Polytmus guainumbi					VC	2,4,5,9,16,18,19,22,27,29,30,32,34,35,37,38,39,40,41,42,45,47,48,50
Amazilia fimbriata					C	1,2,4,5,6,10,12,16,19,22,24,30,31,33,39,42,48,50
Amazilia versicolor					U	16,23,27,35,37,40,47,48
Heliactin bilophus					R	2
Heliomaster squamosus					R	23,50
Heliomaster furcifer					R	48
Calliphlox ametistyna					R	26
TROGONIFORMES						
Trogonidae						
Trogon surrucura				X	C	7,10,12,14,29,30,32,34,35,36,37,38,39,41,42,43,47,48,50
Trogon curucui					U	2,10,16,27,29,30,32,35,36,39
Trogon rufus					R	43
CORACIIFORMES						
Alcedinidae						
Megaceryle torquata					VC	2,4,5,8,12,13,14,15,16,21,22,23,27,29,30,31,32,34,35,36,37,38,40,41,42,45,46,47,48,49,50
Chloroceryle amazona					VC	2,4,8,10,12,13,14,15,16,17,18,20,21,22,23,24,25,27,30,31,32,34,35,37,38,39,40,41,42,43,45,47,48,49,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Chloroceryle aenea					R	2,27,30,35,
Chloroceryle americana					C	4,5,6,11,19,23,27,28,30,31,32,34,35,36,39,41,42,45,46,47,48,49
Chloroceryle inda					R	30,37,42,50
Momotidae						
Baryphthengus ruficapillus				X	U	30,34,35,36,38,39,42,43,47
Momotus momota					VC	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,20,21,22,26,27,28,29,30,31,32,33,34,35,36,37,39,40,41,42,43,48,50
GALBULIFORMES						
Galbulidae						
Brachygalba lugubris					R	7,9,12,35,50
Galbula ruficauda					VC	1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18,19,20,22,23,25,26,27,28,29,30,31,32,33,34,35,36,37,39,40,41,42,43,45, 47,48,49,50
Bucconidae						
Notharchus swainsoni					R	27,30,37,41,43
Nystalus striatipectus					C	2,4,15,16,18,19,26,30,34,37,39,43,50
Nystalus maculatus					U	1,9,48
Nystalus chacuru					C	13,14,15,19,20,22,25,28,36,39,40,42,43,46,48,50
Nonnula rubecula					R	37,43
Monasa nigrifrons					C	4,5,6,7,8,10,11,12,13,14,18,21,22,30,32,34,37,43,48,49,50
Chelidoptera tenebrosa					R	10,16,50
PICIFORMES						
Ramphastidae						
Ramphastos toco					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39, 40,41,42,43,44,45,46,47,48,49,50
Ramphastos vitellinus					R	2,13,42
Pteroglossus castanotis					VC	2,3,4,5,7,10,12,14,15,16,20,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,45,46,47,48,49,50
Picidae						
Picumnus cirratus					C	7,23,26,29,35,36,40,42,43,45,47,48
Picumnus albosquamatus					VC	2,3,4,5,10,11,12,13,14,15,16,18,19,20,22,23,24,26,27,30,31,32,33,34,35,37,39,40,41,42,47,48,49,50
Melanerpes candidus					VC	2,4,5,6,8,9,10,11,12,14,15,16,17,18,19,20,22,23,25,26,27,29,30,31,32,33,34,35,37,39,40,41,42,43,45,46,47,48, 49,50
Melanerpes flavifrons				X	C	7,10,13,27,30,33,34,35,37,39,41,43,47
Veniliornis passerinus					VC	2,4,5,9,11,14,16,19,22,23,26,27,29,30,31,32,33,34,35,36,37,39,40,41,43,47,48,49,50
Veniliornis spilogaster				X	R	42,45

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Veniliornis mixtus					R	2
Piculus chrysochloros					R	46
Colaptes melanochloros					VC	1,2,4,5,6,7,8,9,10,12,13,14,15,16,18,19,20,21,22,23,25,26,27,30,31,32,34,35,36,37,38,39,40,41,42,43,45,47,48,49,50
Colaptes campestris					VC	2,4,5,6,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50
Celeus flavus					R	2
Celeus flavescens					U	9,13,14,37,41,42,48,50
Celeus lugubris					R	5,10,30
Dryocopus lineatus					VC	1,2,3,4,5,6,8,9,10,11,12,13,15,16,18,19,20,22,23,26,27,30,31,32,33,35,36,37,40,41,42,43,45,47,48,49,50
Campephilus robustus				X	R	12
Campephilus melanoleucos					C	1,4,5,6,10,12,14,17,27,30,31,32,36,37,48,50
PASSERIFORMES						
Thamnophilidae						
Taraba major					VC	2,8,10,11,13,14,16,20,21,23,26,27,28,29,30,31,32,34,35,36,37,38,39,40,41,42,43,44,45,47,48
Hypoedaleus guttatus				X	R	41
Thamnophilus doliatus					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50
Thamnophilus ruficapillus					R	41
Thamnophilus torquatus					R	15
Thamnophilus pelzeni					VC	2,3,5,8,10,11,12,13,14,15,16,19,20,21,22,24,26,27,28,30,31,33,39,48,50
Thamnophilus caerulescens					C	8,12,30,33,34,37,38,39,41,43,48
Dysithamnus mentalis					U	1,2,6,7,9,10,12,30,43,50
Herpsilochmus atricapillus					U	12,14,38,39,48
Herpsilochmus longirostris			X		VC	2,3,4,5,7,10,12,13,14,15,16,18,19,20,21,22,24,25,26,27,29,30,31,32,34,36,37,40,41,42,47,48,50
Formicivora rufa					VC	4,5,6,9,11,12,14,15,16,18,19,20,21,22,23,27,30,31,32,33,34,35,37,38,39,40,41,42,43,45,47,48,50
Melanopareiidae						
Melanopareia torquata			X		R	15
Conopophagidae						
Conopophaga lineata				X	R	41
Scleruridae						
Geositta poeciloptera		VU	X		R	MZUSP

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Dendrocolaptidae						
Sittasomus griseicapillus					VC	2,3,4,5,6,7,9,10,11,12,13,14,15,16,17,18,19,22,23,26,27,30,35,37,38,41,42,43,47,48,50
Dendrocolaptes platyrostris					VC	2,5,6,7,8,9,10,12,13,14,15,16,18,21,26,27,29,30,31,32,33,34,35,36,37,39,40,41,42,43,44,48,50
Lepidocolaptes angustirostris					VC	2,3,4,5,6,7,8,10,11,14,15,16,18,19,20,22,23,24,25,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,47, 48,49,50
Campylorhamphus trochilirostris					C	2,3,9,11,12,27,30,34,35,36,38,39,41,42,48
Xiphocolaptes albicollis					R	41,47
Xiphocolaptes major					R	35,40,48
Furnariidae						
Furnarius rufus					VC	2,4,6,7,8,11,12,14,15,17,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46, 47,48,49,50
Automolus leucophthalmus				X	R	30,34,41,43,48
Philydor lichtensteini				X	R	42
Philydor rufum					R	3,7
Pseudoseisura cristata					R	3
Schoeniophylax phryganophilus					U	15,18,27,30,32,34,39,40,48
Synallaxis ruficapilla				X	R	30,41,47,48
Synallaxis frontalis					VC	2,5,6,10,12,14,16,18,19,20,21,22,23,27,30,31,33,36,37,38,39,40,41,43,48,50
Synallaxis albescens					C	4,5,12,15,18,19,20,27,29,30,31,32,34,35,36,37,39,40,50
Synnalaxis hypospodia					R	37,38,46
Cranioleuca vulpina					C	18,20,30,31,32,34,36,41,42,47,48
Certhiaxis cinnamomeus					VC	2,4,10,14,15,16,18,20,22,23,27,29,30,31,32,34,35,36,37,38,39,40,41,42,45,47,48,49,50
Hylocryptus rectirostris					R	2,7,30,41,47
Syndactyla dimidiata					R	19
Phacellodomus rufifrons					U	20,22,23,26,27,28,30,32,48
Phacellodomus ruber					C	5,14,15,19,22,26,27,35,37,41,42,43,47,48,49,50
Xenops rutilans					R	37
Pipridae						
Neopelma pallescens					R	2,4,22,50
Antilophia galeata			X		VC	1,2,3,4,5,6,7,8,9,11,12,13,14,15,16,18,20,22,27,29,30,31,32,33,34,35,39,40,43,45,47,48,50
Pipra fasciicauda					C	2,3,5,7,9,10,11,12,13,27,29,30,34,35,37,39,41,43,47,50
Machaeropterus pyrocephalus					R	21

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Tityridae						
Schiffornis virescens				X	R	12
Tityra inquisitor					C	11,12,20,27,30,31,32,33,35,37,39,40,41,42,47,48,50
Tityra cayana					C	5,6,7,9,12,13,16,20,27,29,30,32,34,35,36,37,38,39,40,41,42,43,47,48,50
Tityra semifasciata					U	2,4,8,10,27,29,30,34,43,50
Pachyramphus viridis					R	23,37
Pachyramphus castaneus					R	48
Pachyramphus polychopterus					C	2,4,10,13,16,18,19,20,22,26,27,29,30,31,32,34,35,37,40,41,43,48,50
Pachyramphus marginatus					R	48
Pachyramphus validus					C	3,4,5,6,7,27,30,34,35,37,39,41,43,47,48,50
Xenopsaris albinucha					R	27
Contingidae						
Procnias nudicollis	VU			X	U	30,34,39,41,43,48
Rhynchocyclidae						
Leptopogon amaurocephalus					C	6,7,11,12,14,26,27,29,30,34,37,41,43,48,50
Corythopis delalandi					R	4,12
Phylloscartes ventralis					R	31,39,42
Tolmomyias sulphurescens					C	2,4,10,11,12,16,20,22,23,26,27,29,30,34,35,40,43,47,48,50
Todirostrum cinereum					VC	2,3,4,8,12,14,15,16,18,19,20,22,23,25,26,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,45,47,48,50
Poecilotriccus latirostris					C	4,5,14,15,16,20,22,27,30,34,36,37,38,41,48,50
Myiornis auricularis				X	R	41,50
Hemitriccus margaritaceiventer					VC	2,5,6,7,8,10,11,12,14,15,16,18,19,20,21,22,23,24,26,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,44,45,47, 48,50
Tyrannidae						
Myiopagis gaimardii					R	2,23,50
Myiopagis caniceps					C	2,4,27,29,30,34,37,40,41,43,48,50
Myiopagis viridicata					C	4,16,18,24,27,30,34,37,38,39,41,47,48,49
Capsiempis flaveola					R	35,41,47
Serpophaga subcristata					C	13,15,16,19,20,21,23,25,27,28,29,37,40,41,42,47
Platyrinchus mystaceus					R	1,5,48
Attila phoenicurus					R	35

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Elaenia flavogaster					VC	2,3,4,5,6,9,10,12,13,14,15,16,18,19,20,21,22,23,24,25,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44, 45,47,48,49,50
Elaenia spectabilis					C	4,16,18,27,29,30,32,34,37,40,41,48
Elaenia chilensis					R	50
Elaenia parvirostris					R	25,27,41,45,48
Elaenia mesoleuca					R	2,13,41,42
Elaenia cristata					U	2,3,4,16,18,48
Elaenia chiriquensis					C	4,12,15,27,31,33,35,36,37,41,48
Elaenia obscura					R	21
Euscarthmus meloryphus					R	24,38,39,43
Euscarthmus rufomarginatus	NT				R	18
Camptostoma obsoletum					VC	2,4,5,6,9,10,11,14,15,16,17,18,20,21,22,23,25,26,27,29,30,31,32,34,35,36,37,39,40,41,42,43,45,47,48,49,50
Suiriri suiriri					U	2,4,15,23,27,35,48,50
Phaeomyias murina					C	5,12,14,15,16,17,18,22,26,27,30,31,33,34,39,48,50
Culicivora caudata	VU	VU			R	48
Pseudocolopteryx sclateri					R	48
Serpophaga griseicapilla					R	48
Myiophobus fasciatus					C	2,4,5,10,15,16,18,26,27,28,29,30,32,34,37,40,41,43,45,48,50
Sublegatus modestus					R	2,4,15,
Cnemotriccus fuscatus					C	2,5,6,10,11,12,14,16,18,19,20,22,23,24,26,27,30,34,36,39,40,41,43,48
Hymenops perspicillatus					R	30,34
Pyrocephalus rubinus					VC	2,4,5,12,13,15,16,17,18,22,23,27,28,29,30,31,32,33,34,35,36,37,40,41,42,43,45,47,48,49,50
Fluvicola albiventer					R	35,41,48
Fluvicola nengeta					R	48,49
Satrapa icterophrys					C	4,23,27,30,31,32,34,35,39,40,45,50
Xolmis cinereus					VC	1,2,3,4,5,7,8,9,10,12,14,15,16,17,18,19,21,23,24,25,27,28,30,31,34,35,37,40,43,48,50
Xolmis velatus					VC	2,3,4,5,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,37,38,39,40,41,42,43,45, 46,48,49,50
Gubernetes yetapa					VC	2,4,5,6,10,12,13,14,15,16,17,18,19,25,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,45,46,47,48,49
Alectrurus tricolor	VU	VU			R	5,15
Lathrotriccus euleri					U	11,14,23,37,41,45,48,50
Contopus cinereus					R	2,4,37,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Knipolegus lophotes					R	8,47
Arundinicola leucocephala					VC	3,4,12,14,15,19,21,22,23,27,29,30,31,32,33,34,35,37,38,39,40,41,42,45,46,47,48,49,50
Machetornis rixosa					VC	1,2,3,4,5,6,7,8,9,10,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,44,45,46,47,48,50
Legatus leucophaius					VC	2,4,5,6,9,10,11,14,15,16,18,21,27,29,30,32,33,34,35,36,37,40,41,44,47,48,50
Myiozetetes cayanensis					VC	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,20,21,22,23,24,25,27,29,30,31,32,33,34,35,36,37,40,42,43,44,46,47,48,50
Myiozetetes similis					C	2,4,10,15,16,22,23,27,29,30,31,32,34,35,37,38,39,40,41,43,45,47,48
Pitangus sulphuratus					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39, 40,41,42,43,44,45,46,47,48,49,50
Philohydor lictor					C	8,11,12,25,31,32,33,35,36,45,48
Myiodynastes maculatus					VC	2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,21,23,24,25,26,27,29,30,31,32,34,35,36,38,39,40,41,42,43,44,45,47, 48,50
Megarynchus pitangua					VC	2,4,5,6,7,8,10,12,13,14,16,17,18,19,20,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44, 45,46,47,48,50
Empidonomus varius					C	2,4,5,8,10,14,16,18,21,26,27,29,31,32,35,37,38,39,40,41,42,47,48
Conopias trivirgatus					R	41
Colonia colonus					C	7,12,14,16,30,35,41,42,47,48,50
Griseotyrannus aurantioatrocristatus					U	4,6,16,20,21,23,26,27,48,50
Tyrannopsis sulphurea					R	5,50
Tyrannus albogularis					C	4,5,7,8,12,14,15,20,21,25,26,27,30,31,33,45,50
Tyrannus melancholicus					VC	2,4,5,7,8,9,10,11,12,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42, 43,44,45,46,47,48,49,50
Tyrannus savana					VC	1,2,4,5,6,8,9,10,11,12,14,15,16,17,18,20,21,23,25,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,46, 47,48,50
Casiornis rufus					VC	1,2,4,5,6,10,11,12,13,14,15,16,17,18,19,22,24,26,27,28,29,30,31,32,34,35,36,37,39,40,41,42,43,45,47,48,50
Myiarchus swainsoni					C	2,3,4,5,11,12,16,18,27,30,31,32,33,34,35,37,40,41,42,47,48,50
Myiarchus ferox					VC	2,3,4,5,6,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42, 43,44,45,47,48,49,50
Myiarchus tyrannulus					VC	2,4,5,6,7,10,12,13,14,15,16,18,19,20,21,22,23,24,26,27,28,30,33,34,35,36,37,39,40,41,43,48,49,50
Sirystes sibilator					C	2,4,7,12,17,25,35,36,41,43,48
Vireonidae						
Cyclarhis gujanensis					VC	1,2,3,4,5,6,7,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,37,38,39,40,41, 42,43,45,47,48,49,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Vireo olivaceus					C	1,2,3,6,7,9,10,11,13,14,15,16,18,23,27,30,41,47,48
Hylophilus pectoralis					R	37
Hylophilus poicilotis				X	R	16,48
Corvidae						
Cyanocorax cyanomelas					C	30,32,34,35,36,39,40,43,44,45,47
Cyanocorax cristatellus			X		VC	1,2,4,5,7,9,11,12,13,14,15,17,18,19,20,22,23,24,25,27,29,31,32,33,39,40,42,43,46,47,48,49,50
Cyanocorax chrysops					VC	2,5,10,13,14,16,19,20,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49
Cyanocorax cyanopogon					R	50
Hirundinidae						
Pygochelidon cyanoleuca					C	4,6,8,20,23,27,30,32,34,35,37,39,40,41,42,45,48,49,50
Alopochelidon fucata					R	21
Stelgidopteryx ruficollis					VC	1,2,4,5,6,7,10,11,13,15,16,18,22,23,27,30,31,34,35,37,38,39,40,41,42,45,47,48,49,50
Progne tapera					VC	3,4,5,8,10,12,13,14,15,16,17,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,44,46, 47,48,50
Progne chalybea					C	4,13,14,15,16,19,20,23,26,27,29,30,32,34,35,37,38,39,40,41,42,43,48,50
Tachycineta albiventer					C	8,11,21,23,30,33,35,41,42,47,48,49
Tachycineta leucorrhoa					C	4,12,14,15,17,27,30,31,35,37,39,40,41,42,43,45,47,48,49,50
Riparia riparia					R	27,35
Hirundo rustica					C	4,14,27,30,31,34,37,39,40,42,45
Petrochelidon pyrrhonota					R	30,34,38
Troglodytidae						
Troglodytes musculus					VC	4,10,12,15,16,19,20,23,25,26,27,29,30,31,32,34,35,36,37,38,39,40,41,42,43,45,46,47,48,50
Pheugopedius genibarbis					R	30,48
Campylorhynchus turdinus					R	29
Canthorchilus leucotis					U	41,42,47,48,50
Donacobiidae						
Donacobius atricapilla					VC	2,5,7,8,9,10,12,14,16,18,19,22,23,26,27,29,30,31,32,34,35,37,38,39,41,42,43,45,46,47,48,49,50
Polioptilidae						
Polioptila dumicola					C	4,5,6,10,11,14,15,16,18,19,20,21,22,23,24,26,27,28,35,38,48,50
Turdidae						
Turdus rufiventris					VC	2,3,4,5,6,7,8,9,10,11,12,13,14,15,17,18,21,22,23,24,25,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41,43,44,50

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Turdus leucomelas					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,44,45,47,48,49,50
Turdus amaurochalinus					VC	1,4,5,6,7,10,11,12,14,16,21,22,23,24,26,27,30,31,32,34,35,36,37,39,40,41,42,43,45,47,48
Turdus albicollis					R	23
Mimidae						
Mimus saturninus					VC	2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40, 41,42,43,45,46,47,48,49,50
Mimus triurus					R	FMNH
Motacillidae						
Anthus lutescens					VC	2,4,12,13,14,15,17,19,22,24,25,27,28,29,30,31,32,34,37,38,40,41,43,45,47,50
Coerebidae						
Coereba flaveola					C	3,5,7,8,11,12,13,14,16,21,22,23,26,27,30,35,38,44,48
Thraupidae						
Saltator maximus					R	MZUSP
Saltator coerulescens					R	11,48
Saltator similis					VC	2,6,7,8,10,12,14,15,16,17,20,22,23,25,26,27,30,31,32,34,35,39,40,41,42,45,47,48,50
Saltatricula atricollis			X		C	4,5,11,12,15,17,18,19,20,22,24,30,32,39,40,42,45,50
Nemosia pileata					VC	4,8,16,18,20,21,22,23,26,27,30,31,32,34,35,37,38,39,40,41,42,45,47,48,50
Thlypopsis sordida					U	19,24,29,37,40,48
Cypsnagra hirundinacea					R	5,11,15
Trichothraupis melanops					R	MHNCI
Eucometis penicillata					C	1,2,4,6,7,10,12,16,27,29,30,31,33,34,35,36,43,48,50
Tachyphonus rufus					C	6,7,10,11,14,15,16,20,26,27,28,30,31,32,34,37,40,43,48,50
Tachyphonus coronatus				X	R	45,48
Ramphocelus carbo					VC	2,5,7,11,12,14,18,20,21,27,28,30,31,32,33,34,35,36,37,38,39,40,41,42,45,46,47,48,50
Thraupis sayaca					VC	1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41, 42,43,44,45,46,47,48,50
Thraupis palmarum					VC	1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41, 42,44,45,46,47,48,49,50
Tangara cayana					VC	2,3,4,5,6,7,8,9,10,11,13,14,15,16,18,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,37,38,39,40,41,42,45,47, 48,50
Pipraeidea melanonota					R	27,45,48
Neothraupis fasciata	NT				R	5,11,15

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Cissopis leverianus					R	7,8,12,41
Schistochlamys melanopis					R	6,39,42,45,48
Paroaria capitata					U	30,31,33,41,42,45,47,48,49
Tersina viridis					VC	2,4,5,7,8,10,11,12,13,14,16,17,27,29,30,32,33,34,35,37,39,40,41,42,43,45,47,48,50
Dacnis cayana					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,20,21,22,23,25,26,27,29,30,31,33,34,35,40,41,42,43,44,46,48,50
Cyanerpes cyaneus					U	2,4,5,25,27,31,50
Hemithraupis guira					C	2,4,10,12,13,15,16,17,18,19,21,22,23,24,26,27,29,30,31,33,34,35,48,50
Conirostrum speciosum					C	14,16,22,23,30,35,37,38,40,41,42,45,48,49,50
Emberizidae						
Zonotrichia capensis					U	5,15,23,27,41,42,45,48,50
Ammodramus humeralis					VC	1,2,3,4,5,6,7,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41, 42,43,45,46,47,48,49,50
Haplospiza unicolor				X	R	48
Poospiza cinerea	VU		X		R	8,12
Sicalis flaveola					VC	2,3,4,5,6,8,10,11,12,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,37,38,39,40,41,42,43, 44,45,46,47,48,49,50
Sicalis luteola					R	30,34,40
Emberizoides herbicola					C	2,4,15,17,20,21,23,27,29,30,31,32,35,36,37,38,39,40,41,43,47,48,49
Emberizoides ypiranganus					R	42
Embernagra platensis					R	23,31,47
Volatinia jacarina					VC	2,3,4,5,7,8,10,11,12,14,15,16,18,19,20,21,22,23,24,26,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45, 46,47,48,49,50
Sporophila frontalis	VU	VU		X	R	23
Sporophila plumbea					C	2,4,5,6,9,15,18,30,34,48,50
Sporophila collaris					C	4,15,20,21,22,23,27,29,30,32,34,35,37,38,39,40,41,42,45,46,47,48,49
Sporophila lineola					C	8,12,16,20,23,26,30,31,32,34,37,42,45,47,48
Sporophila nigricollis					R	10,31,33
Sporophila caerulescens					VC	4,5,6,7,8,10,14,16,18,21,22,23,24,27,30,31,32,34,35,36,37,39,40,41,42,45,47,48,49,50
Sporophila leucoptera					C	4,16,20,21,23,26,27,30,32,34,39,40,41,48,49
Sporophila hypoxantha					R	23,30,34
Sporophila cinnamomea	VU	EN			R	30,34
Sporophila bouvreuil					U	4,19,26,41,42,48

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Sporophila palustris	EN	EN			R	4
Sporophila angolensis					VC	2,5,7,12,15,18,19,20,25,27,30,31,32,34,35,36,37,38,39,41,42,43,46,47,48
Arremon taciturnus					R	13
Arremon flavirostris					C	2,8,16,29,30,31,34,35,36,39,40,43,45,47,48
Charitospiza eucosma	NT		X		R	MZUSP, Bucci (2009)
Coryphospingus cucullatus					VC	2,4,5,6,8,10,11,12,13,14,15,16,18,19,20,21,22,23,26,27,29,30,31,32,33,34,36,37,38,39,40,41,42,43,45,47,48,50
Cardinalidae						
Piranga flava					R	8,17
Habia rubica					R	12,25,30,32
Pheucticus aureoventris					R	45
Cyanoloxia brissonii					R	FMNH
Cyanoloxia glaucocaerulea					R	45
Parulidae						
Parula pitiayumi					C	2,6,12,15,21,23,29,30,31,34,37,39,40,41,42,43,45,47,48
Geothlypis aequinoctialis					C	7,13,14,16,18,27,29,30,32,34,35,36,37,38,40,41,42,45,47,48,50
Basileuterus culicivorus					C	27,30,32,34,35,38,39,41,43,45,47,48
Basileuterus hypoleucus					VC	1,2,4,5,6,7,8,10,12,13,14,15,16,18,22,27,29,30,31,33,34,36,39,40,48,50
Basileuterus flaveolus					VC	1,2,4,5,6,7,8,10,11,12,13,14,15,16,17,18,19,20,22,23,24,26,27,29,30,31,32,33,34,35,36,39,40,42,43,48,50
Basileuterus leucophrys			X		C	1,2,3,4,5,6,7,12,14,15,18,19,22,30,31,34,40,43,45,50
Icteridae						
Psarocolius decumanus					R	9,13,35
Procacicus solitarius					R	7,29,47
Cacicus chrysopterus					R	41,48
Cacicus haemorrhous					C	5,7,12,13,14,18,27,29,30,31,32,34,35,37,38,39,41,42,43,47
Icterus pyrrhopterus					VC	5,7,8,10,11,13,14,15,16,17,18,19,20,22,23,24,27,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48, 49,50
Icterus croconotus					I	21,22,23,30,35,41,42,48
Gnorimopsar chopi					VC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,4 1,42,43,45,46,47,48,49,50
Amblyramphus holosericeus					R	41,47,48
Agelasticus cyanopus					I	20,26,37,40,41,42,48
Chrysomus ruficapillus					R	23,26,41

SCIENTIFIC NAMES	CS		ENDEMIC			LOCALITIES
	BI	IB	CE	AF	FO	
Pseudoleistes guirahuro					VC	2,3,4,5,7,10,11,12,13,14,15,17,18,19,21,22,23,26,27,28,29,30,31,32,33,34,35,37,38,39,40,41,42,43,45,46,47,48,49,50
Agelaioides badius					I	5,8,18,25,26,48
Molothrus rufoaxillares					C	4,12,14,15,26,27,30,35,37,40,41,43,50
Molothrus oryzivorus					R	41,47
Molothrus bonariensis					VC	2,4,5,6,7,8,10,11,12,13,14,15,16,18,19,20,21,23,24,25,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,45,46,47,48,49,50
Sturnella superciliares					VC	4,5,8,10,12,14,17,18,20,21,23,24,25,27,29,30,31,32,33,34,35,36,37,39,40,41,42,43,44,45,46,47,48,50
Fringillidae						
Sporagra magellanica					R	41,48
Euphonia violacea					R	4,35,48
Euphonia laniirostris					R	3,5
Euphonia chlorotica					VC	1,2,3,4,5,6,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50
Estrildidae						
Estrilda astrild					R	23
Passeridae						
Passer domesticus					C	4,8,12,14,17,22,23,24,26,27,30,32,34,36,37,38,41,42,43,44,45,46,48

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