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BIRDS OF CAATINGA IN THE CENTRAL REGION OF PERNAMBUCO, BRAZIL - A BIRD CONSERVATION PRIORITY AREA

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ABSTRACT

Birds of Caatinga in the central region of Pernambuco, Brazil - A bird conservation priority area. The Region of Maravilha (RM), in the central portion of Pernambuco State is considered a priority area for bird conservation in the Caatinga, but no inventory of its avifauna has ever been done. In this study, the sampling of five areas in RM during dry and rainy seasons resulted in a total of 210 species including 11 endemic to the biome and three on the list of endangered species (*Penelope jacucaca*, *Xiphocolaptes falcirostris* and *Sporagra yarrellii*). Some relevant records related to the distribution of birds in the biome (especially *Rhea americana, Laterallus exilis, Elaenia cristata,* and *Campsiempis flaveola*) were found. Given the composition of bird communities presented and compared with other researches conducted in areas of the Caatinga, it may be assumed that RM shows a satisfactory ecological importance, being necessary actions focused on its avifauna conservation.

Key words: Inventory; Caatinga; conservation; Bird Community; Pernambuco

RESUMO

Aves da Caatinga na regão central de Pernambuco, Brasil - Uma área prioritária para conservação de aves. A Região de Maravilha (RM), na porção central de Pernambuco é considerada uma área prioritária para conservação das aves na Caatinga, porém nenhum inventário visando o conhecimento de sua avifauna havia sido realizado até o momento. No presente trabalho, a amostragem de cinco áreas na RM durante estação seca e chuvosa

resultaram em um total de 210 espécies sendo 11 endêmicas do bioma e três incluídas na lista de espécies ameaçadas de extinção (*Penelope jacucaca, Xiphocolaptes falcirostris* e *Sporagra yarrellii*). Alguns registros relevantes relacionados à distribuição das aves no bioma foram encontrados (destaque para *Rhea Americana, Laterallus exilis, Elaenia cristata* e *Campsiempis flaveola*). Diante da composição da comunidade de aves apresentada e da comparação com outros inventários realizados em áreas de caatinga, pode se considerar que a RM apresenta uma importância ecológica satisfatória, sendo necessárias medidas que busquem a conservação de sua avifauna.
Palavras-chave: Inventário; Caatinga; Conservação; Comunidade de Aves; Pernambuco.

INTRODUCTION

The Caatinga region covers an area of approximately 800,000 km² of the Brazilian territory including parts of Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia and Minas Gerais States (AB'SABER, 1977). It is composed by a mosaic of dry forests and shrublands (stepic-savanna), with relicts of Atlantic Forest and Cerrado (PRADO, 2003). Regarding its conservation status, the Caatinga has been suffering severe changes in its physiognomy (GIULIETTI *et al*., 2004).

The number of bird species of the Caatinga varies according to different authors. SOUTO and HOAZIN (1995) counted 338 species of birds; PACHECO (2004) mentioned the occurrence of 348 bird species. SILVA *et al.* (2003) listed 510 species, including a considerable number of species restricted to relicts of savanna (Cerrado) and rainforests (called "brejos de altitude") in the biome what makes debatable their inclusion as elements of the Caatinga's biota (OLMOS and ALBANO, 2012).

In the last few years, the knowledge of birds of the semi-arid region has been increasing through several avifaunal inventories, mostly in protected areas (OLMOS, 1993; NEVES *et al.,* 1999; NASCIMENTO, 2000; LIMA *et al.,* 2003; OLMOS *et al*., 2005; SANTOS, 2008; FARIAS, 2009; PEREIRA and AZEVEDO-JUNIOR, 2011; ARAUJO *et al.,* 2012; NUNES and MACHADO, 2012; SILVEIRA and SANTOS, 2012). However, the biodiversity is still unknown in some regions of the Caatinga, (PACHECO *et al*., 2004), especially the areas located outside conservation units.

This study reports a bird community in the Region of Maravilha, a little known area of conservation priority in the Caatinga of Pernambuco investigating its species richness, trophic structure, habitat usage, sensitivity to environmental disturbances and similarities among the sampled areas.

MATERIAL AND METHODS

Study Area. The Region of Maravilha (RM) includes the municipalities of Floresta and Custódia both in the central portion of Pernambuco state. It has an average annual precipitation of 500 mm and the rainy season is concentrated in the months of March and April (PRADO, 2003). According to PACHECO *et al.,* (2004) the avifauna

of this region is insufficiently known, its ecological significance is due to the likely occurrence of rare and endemic taxa, besides a high richness of species.

The vegetation type, described by ANDRADE-LIMA (1981) and PRADO (2004), has the associations of *Myracrodruon urundeuva*, *Schinopsis brasiliensis* (Anacardiaceae) and *Poincianella pyramidalis* (Fabaceae) as the most striking elements. It occurs on soils formed by Precambrian crystalline rocks and is characterized by a medium size forest of caatinga with variable density in the tree strata, which vary from 7 to 15m tall. Other elements occur more sparsely in such community, as the *Anadenanthera colubrina, Amburana cearensis* (Fabaceae), *Aspidosperma polyneuron* (Apocynaceae) and *Commimophora leptophloeos* (Burseraceae).

Sampling Locations. Five different sampling locations were selected in the region adjacent to the District of Maravilha (Fig. 1). The areas were selected based on their high environmental diversity on various successional stages and soil usage.

Area A - Floresta, PE - Locality of Cacimbinha (8º27'13"S - 37º54'50"W). This area was the only one with three samplings (two in the wet season and one in the dry one). It proved possible to recognize two types of vegetation in this area: open shrubby caatinga and dense shrubby caatinga.

The areas of open shrubby caatinga are characterized by the sparse

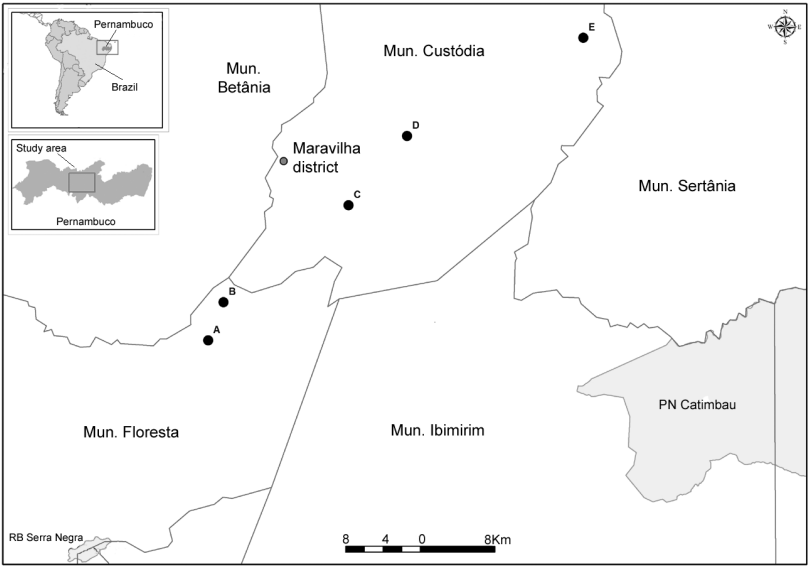

Figure 1 – Map of the study area showing the sampling localities A, B, C, D and E as well as the municipalities limits.

presence of large sized trees of *Commiphora leptophloeos*, *Myracrodruon urundeuva*, *Schinopsis brasiliensis*, *Spondias tuberosa* (Anacardiaceae), and high quantities of *Pilosocereus gounellei* (Cactaceae). The soil is mostly exposed or has small clumps of Bromeliaceae. In these places, there are many outcrops, forming so-called "lajedos". Stretches of dense shrubby caatinga are characterized by the presence of the elements afore mentioned in an agglomerated way, aside from *Mimosa* sp. (Fabaceae), *Poincianella pyramidalis* and *Cnidoscolus phyllacanthus* (Euphorbiaceae), many caatinga bromeliads and *Calliandra* sp. (Fabaceae) covering the ground.

The Jacaré River, that crosses the sampled area, favors the occurrence of a locally distinctive environment with the presence of large trees, such as *Tabebuia caraiba* (Bignoniaceae), *Schinopsis brasiliensis* and large quantities of *Ziziphus joazeiro* (Rhamnaceae). Meanwhile, nearby Jacaré River as well as its tributaries, it is possible to see landscape changes in virtue of the removal of trees for opening fields to agriculture, livestock and small dams along the river. At these locations the presence of temporary puddles becomes crucial for the maintenance of aquatic bird species.

Area B – Floresta, PE – Outskirts of Serra Branca and Serra do Olho d'Água (8º25'02"S - 37º53'57" W). At this location, the arboreal vegetation is restricted to small stretches in the valleys, on the borders of intermittent streams, where the soil is visibly deep and argillaceous. *Anadenanthera colubrina* has a highlighted presence due to its high density distribution. *Sapium* sp. (Euphorbiaceae), *Schinopsis brasiliensis* and *Myracroduon urundeuva* occur sparsely. The rest of the vegetation is mostly shrubby, being the most common elements *Poincianella pyramidalis* and *Croton* sp. (Euphorbiaceae), as *Commiphora leptophloeos*. The soil is stony, with clumps of *Neoglaziovia variegata* (Bromeliaceae) and *Encholirium spectabile* (Bromeliaceae).

Area C – Custódia, PE – Samambaia, District of Maravilha (8º19'25"S – 37º46'43"W). This location is characterized by the presence of arboreal caatinga, an emerging, dense stratum formed by Schinopsis *brasiliensis*, *Myracrodruon urundeuva* and *Anadenathera colubrina*, and a , few specimens of *Amburana cearensis*. The stratum, which is just below it, is composed by *Spondias tuberosa*, *Commiphora leptophloeos*, *Sapium* sp. and a higher density of *Poincianella pyramidalis*. The soil is covered by *Croton* spp., *Neoglaziovia variegata* and *Bromelia lacinosa*. Serra do Sítio, a large geological formation of the region, crosses the sample unit providing a unique environment of tree and shrubby vegetation interspersed with rocky outcrops.

Area D – Custódia, PE – Caititu River, Samambaia, District of Maravilha (8º15'24"S – 37º43'20"W). The predominant vegetation is open shrubby caatinga with small spots of dense shrubby caatinga and arboreal caatinga. The wide wood exploitation for charcoal production in this area, especially of *Prosopis juliflora* (Fabaceae) and *Mimosa hostilis* (Fabaceae) is noticeable. Other species that compose the flora, *Poincianella pyramidalis*, *Amburana cearensis*, *Spondias tuberosa*, *Croton* sp., *Neoglaziovia variegata*, *Bauhinia cheilantha* (Fabaceae), *Anadenanthera colubrina* and *Melocactus zehntneri* (Cactaceae) can be mentioned.

Livestock, especially cattle and goats, is intense at this sampling unit, which

causes impacts on vegetation and soil and fragments the area.

Area E – Custódia, PE – Malhadinhas (8º09'45"S – 37º33'09"W). Overall, the location features a shrubby caatinga during its initial stage of succession, with a dense predominance of *Croton* sp. in the lower stratum. The top stratum is formed by *Myracrodruon urundeuva*, *Anadenanthera colubrina*, *Ceiba glaziovii* (Malvaceae), and *Schinopsis brasiliensis*, as they occur densely in some spots of the sampling unit. The area seemes to have suffered from selective logging of trees that have commercial value or to produce charcoal.

Sampling Approach. Each area was sampled twice (in dry and wet season), in the years 2012 and 2013, for ten consecutive days. A qualitative/ quantitative inventory was developed by using three methods: point counts, unsystematic observations and mist nets.

In each sample, 50 point counts were implemented, five points per day, alternated between mornings and afternoons. All points were spaced 200m from each other and had 15 minutes of observation in every plot for a total of 12 hours and 30 minutes of effort per sampling area in each semester.

Occasional observations in several environments in the sample units were also made during 4 hours per day, which resulted in 40 hours of effort per sample.

The capture of birds was conducted by using eight mist nets (size 12 x 2.5 m, mesh 25 mm). The nets were set in four rows with two nets in each transect from 5 a.m. to 11 a.m. and from 3 p.m. to 6 p.m., for a total effort of 72h/m² net in each area.

Following the capture and identification, the specimens were banded with metal rings provided by CEMAVE / ICMBio (Centro Nacional de Pesquisa para Conservação das Aves Silvestres). The nomenclature used in this paper follows the Comitê Brasileiro de Registros Ornitológicos (CBRO, 2014).

The species richness was estimated using the Jacknife 1 and Chao 1 estimators, in the EstmateS 8.2 software (COWELL, 2009). To calculate the cumulative curve only species observed in the sample units were used, excluding sporadic records also presented in this work.

The trophic group of bird communities definition was based on field observations and literature data (MOTA-JUNIOR, 1990; POULIN *et al.,* 1994; SICK, 1997; NASCIMENTO, 2000; PIRATELLI and PEREIRA, 2002; SANTOS, 2004; TELINO-JUNIOR *et al.,* 2005), being defined as insectivore, omnivore, granivore, carnivore, piscivore, frugivore, nectarivore and scavenger.

Patterns of disturbance (Low, Medium and High) and dependence (Dependent, Semi-dependent and Independent) sensitivities on forest environments were determined based on the definition presented by STOTZ *et al.* (1996). The endemics were classified following PACHECO (2004).

The similarity index of the sampled areas was calculated using the Jaccard Similarity Index. For a better understanding among the sampling sites, an analysis of agglomerative hierarchical clustering was performed using the averaging group's method with the variables presented by the Jaccard Index.

RESULTS

A total of 210 species of birds belonging to 24 orders and 52 families was found (see Appendix). The Non-Passerines group is composed of 104 species, representing 49.5% of the total recorded. Representatives of the Passerines order are 106 species, which correspond to 50.5% of the total.

Among the non-passerines, the most representative families were Columbidae and Accipitridae with 10 species each, followed by Picidae (8), Caprimulgidae and Ardeidae (7) and Cuculidae (5). Among Passerines, as expected, the Tyrannidae family presented the highest species richness (36), followed by Thraupidae (14), Furnariidae (11) and Icteridae with seven species.

The cumulative curve of species, performed only with the birds recorded in the sampling units, showed a slight tendency to stabilization (Fig. 2) and indicated that, despite the effort expended, the species richness of the area tends to be higher than the current one. The 14 species observed sporadically nearby the sampling locations, which were not counted in the analysis and are shown in the overall list can support this trend.

From the 22 endemic birds species of the Caatinga (PACHECO, 2004), 11 were sampled in this study: *Penelope jacucaca, Eupsitulla cactorum, Hydropsalis hirundinacea, Anopetia gounelleii, Picumnus fulvescens, Sakesphorus cristatus, Thamnophilus capistratus, Xiphocolaptes falcirostris, Synallaxis hellmayri, Paroaria dominicana* and *Sporophila albogularis* which corresponds to half of the endemism to this biome. We recorded also some birds considered to be native of Caatinga by other authors (STOTZ *et al*., 1996; SIGRIST, 2006): *Megaxenops parnaguae, Icterus jamacaii* and *Agelaioides fringillarius* (included by PACHECO (2004) as *A. badius*).

Three of all taxa recorded can be found on the National List of Threatened Species (SILVEIRA and STRAUBE, 2008) and on the list of Endangered Birds, compiled by BirdLife International (2013), all in the "Vulnerable" category: *Penelope jacucaca, Xiphocolaptes falcirostris* and *Sporagra yarrellii*. The list of Endangered Birds also has the "near threatened" category for species that are about to be considered threatened. Four taxa belong to it: *Rhea americana, Primolius maracana, Picumnus fulvescens* and *Synallaxis hellmayri*.

When comparing species richness, the areas with water bodies and a larger variety of environments and successional stages showed higher values. The sample area "*E*" showed the greatest species richness (155), followed by "*A*" (150) and "*D*" (139). The lowest species richness occurred in areas "*B*" (124) and "*C*" (122).

According to Jaccard Similarity Index, locations with most similar avifauna composition were areas A and B (SI = 0.696); C and D (SI = 0.692). Area E appeared the most different comparing to the others (Fig. 3).

Most of the bird species observed were insectivores, followed by omnivore, carnivore and granivore, feature common to all sampled areas (Fig. 4). Piscivore birds were more commonly found in areas B and E due to the presence of water bodies, even during the dry season.

The majority of observed species (54.3%) did not depend on forest environments. Among the remaining species, 64 (30.5%) are considered semi-dependent and 32 (15.2%) dependent on forest or arboreal caatinga.

Regarding the sensitivity to disturbance, the majority, 140 species (66.6%) had low sensitivity, whereas 63 (30.0%) had a medium sensitivity and only seven (3.3%) had a high susceptibility to disturbances.

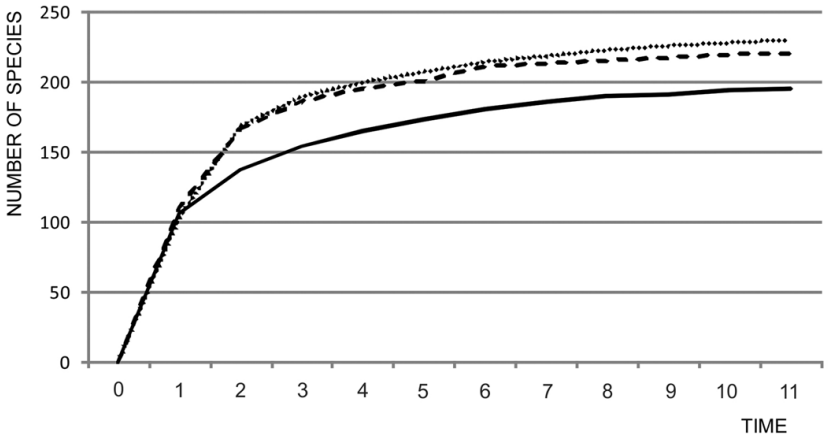

Figure 2 - Cumulative curve of bird species recorded in the Region of Maravilha, state of Pernambuco, during the period 2012 - 2013. Dotted line: Jacknife estimator; dashed line: Chao 1 estimator and solid line: number of species observed (sobs)

DISCUSSION

The species richness observed in this study corresponds to 60.3% of the total recorded in the Caatinga *sensu stricto* (PACHECO, 2004). The diversity of existing environments locally, with the occurrence of arboreal caatinga, shrubby caatinga and related ecosystems, rivers and streams with water accumulation, promotes the occurrence of several groups of birds.

Other studies conducted in similar vegetation types had lower richness than that observed in the RM. FARIAS *et al*. (2005) found 165 species in an area adjacent to the RM, located in the municipalities of Floresta and Betânia. OLMOS *et al.* (2005) sampled portions of Caatinga *sensu stricto* in the states of Ceará and Pernambuco and recorded the occurrence of 209 species. SILVEIRA and MACHADO (2012) reported 162 bird species for the Salitre River Basin, Bahia. ARAUJO *et al.* (2012) observed 162 species in the Fazenda das Almas, in the Cariri region, state of Paraíba. NUNES and MACHADO (2012) studied the birds in the Raso da Catarina and recorded 156 species. Such comparisons corroborate what PACHECO *et al.* (2004) proposed, and indicate the ecological importance of RM.

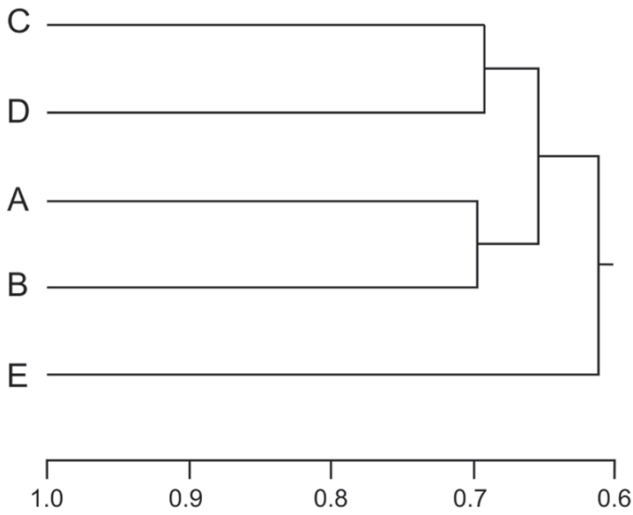

Figure 3 - Hierarchical clustering showing the similarity among the localities sampled (A to D) from the Jaccard index.(See Fig. 1)

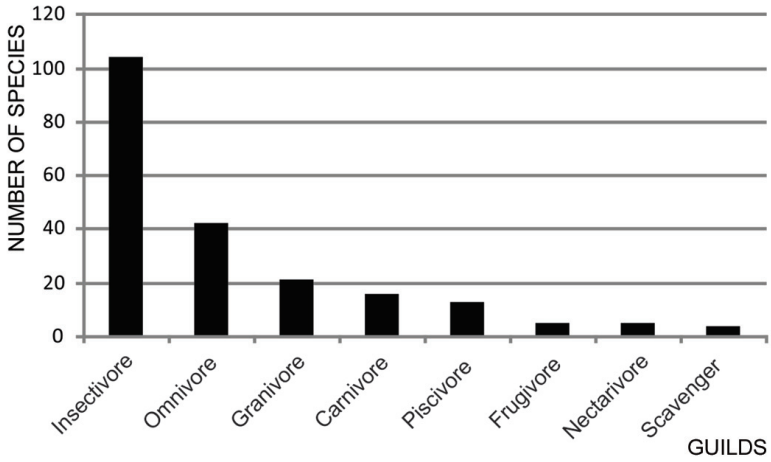

Figure 4 - Species richness of birds recorded in the Region of Maravilha, state of Pernambuco, between 2012 and 2013, according to trophic guilds.

Even in ecotone areas between Caatinga and Cerrado as in Serra Vermelha, the state of Piauí, (SANTOS *et al.,* 2012), the birds species richness (n = 179) was lower than that observed in the RM. In Serra da Capivara National Park - SCNP 238 species were cited (OLMOS and ALBANO, 2012), a higher number but similar to the one observed in this study. However, the differences in geographical locations and sampling periods should be considered when comparing SCNP and RM.

Areas with several successional stages of vegetation had greater bird richness. It was also found that the presence of aquatic environments in certain areas promoted an increase of the species number locally, a pattern also reported by OLMOS *et al*. (2005) and SOUSA *et al.* (2012). The increment given by waterfowl ensures greater similarity values between areas with this type of habitat, besides an increase in richness.

When comparing the areas here sampled, the area C, in spite of containing alternating stretches of arboreal and shrubby caatinga, obtained the lowest richness. This was likely due to the extended drought occurred during sampling in the rainy season. Although precipitations had been occurring nearby, there was no water accumulation in the sampling unit and the vegetation was still dry, which may impair the establishment and maintenance of some species, especially migratory ones.

The Jaccard similarity indices presented in each sample unit denoted that the areas closest to each other and the ones which presented similar structure of vegetation were more similar in its avifauna composition. The sites of samples A and B are located in the southern portion of RM, about five kilometers from each other, with altitudes between 430m and 480m above sea level. They have similar vegetation types, with predominance of shrubby caatinga and some elements of arboreal caatinga near intermittent bodies of water, reflecting the similar avifauna between the points (SI = 0.696).

The sampling points C and D, located in the central part of the study area (SI = 0.692), have shrubby caatinga as predominant vegetation. However, along the mountain side of Serra do Sítio, there are arboreal caatinga and exposed rocks, environmental conditions which favor *Hirundinea ferruginea*, exclusive species to these points, as well as *Machetornis rixosa*. Although two relatively common species, the restricted occurrence in these areas directly influences the similarity of the values presented.

The remarkable difference between area E and the others is probably due to the mosaic of existing environments at this site. Although the vegetation continues to be predominantly dense shrubby caatinga, there is some arboreal caatinga throughout the study area. Furthermore, the proximity to the agreste region may influence the values obtained. According to PRADO (2004), the vegetation and climate of the “agreste” are different from those of the “sertão”(where the remaining samples are inserted). This may result in a different avifauna. Besides the higher environmental diversity, the areas with accumulated water also showed considerable values of similarity, as in the areas A and D (SI = 0.680); and D and E (SI = 0.674). Aquatic birds represent a significant species richness at these sites, a factor that influences the results.

The species richness of Tyrannidae, Columbidae and Thraupidae present in the RM, is similar to that of other studies conducted in the Caatinga (TELINO-JÚNIOR *et al.,* 2005; ROOS *et al.,* 2006; ARAUJO and RODRIGUES, 2011; ARAUJO *et al.,* 2012). When compared to the works of NASCIMENTO *et al.* (2005) and SANTOS (2004) that were performed in areas of ecological transition, there was a poor representation of Thamnophilidae, a pattern reported by OLMOS *et al.* (2005). Natural history aspects, geographical distribution and greater susceptibility to environmental changes (ALEIXO, 1999) can be related to this deficit. The main habitat of these species is the understory which has been impacted by the extensive goat populations overgrazing. This can lead to a decrease in the occurrence of some species in the RM.

Trophic guilds of the sampled fauna reflect the availability of resources in constrained environments with well-defined rainy and dry seasons, with most birds having insectivorous diet. The large representation of omnivores may be related to the greater availability of non-specialized food resources, since the seasonality and intense human action can lead to increase this guild as well as less specialized insectivores (WILLIS, 1979).

The patterns of dependence on forest environments and sensitivity were similar to the patterns found in other studies in the Caatinga region (PEREIRA and AZEVEDO-JUNIOR, 2011; ARAUJO *et al.,* 2012; LAS-CASAS *et al.,* 2012; SILVEIRA and MACHADO, 2012) with most species showing low sensitivity and independence on forest environments. According to STOTZ *et al.* (1996), the birds associated with forms of shrub vegetation and hydric seasonality tend to be more tolerant of disturbance, thus being more adapted to the stress brought about by seasonal changes in their environments.

There was a correlation between the birds with high and medium sensitivity and dependence or semi-dependence on the forest environments, a pattern that was already reported by SILVA *et al*. (2003). Among the seven species with high sensitivity, four are dependent (*Anopetia gounelleii, Campyloramphus trochilirostris, Megaxenops parnaguae* and *Sporagra yarrellii*) and three are semi-dependent (*Penelope jacucaca, Picumnus fulvescens* and *Compsothraupis loricata*) on forest environments. However, our field observations showed that all the species mentioned above were also found in areas of shrub caatinga, or even in disturbed habitats. Although widely used in many works, the standards proposed by STOTZ *et al.* (1996) should be revised. Other taxa have shown to have greater sensitivity and relation to forest environments. This requires the definition of patterns of habitat use and sensitivity, according to local conditions in the biome.

Some insectivore species migrate between Caatinga and other regions, being absent or in a much reduced number during the dry season (OLMOS *et al.,* 2005). These cyclical movements may occur due to the availability of food resources, that are scarce during dry periods (SILVA *et al.,* 2003), but these patterns are still poorly understood. Twenty species considered residents (CBRO, 2014) were viewed only during the rainy season, being absent in the dry season: *Coccyzus melacoryphus, Pachyramphus viridis, P. polychopterus, P. validus, Xenopsaris*

albinucha, Elaenia chilensis, E. aff. chiriquensis, E aff. mesoleuca, E. cristata, Legatus leucophaius, Empidonomus varius, Myiodinastes maculatus, Myiophobus fasciatus, Lathrotriccus euleri, Progne chalybea, Progne tapera, Sporophila bouvreil, S. albogularis and *S. nigricollis.*

In area E sampling took place just after the rain during the dry season. Due to this a number of migratory species mentioned above, like T. *melancholicus* were sampled, in low density, in areas B, C, and D.

SANTOS and SILVEIRA (2012), observed 225 species in the Serra das Confusões National Park, stating that this was a fairly accurate estimate of the bird richness of the little or not disrupted Caatinga. The area studied by the authors is a place where the vegetation is an ecotone complex between Caatinga, Cerrado and Semi deciduous Forest (ANDRADE-LIMA, 1978). If we consider only the avifauna occurring in the Caatinga *sensu stricto*, without the presence of elements of Semi deciduous Forest (such as *Platyrinchus mystaceus, Tolmomyias sulphurescens, Leptopogon amaurocephalus, Geothlypis aequinoctialis*) and local endemism (*Conopophaga roberti*), it can be said that the avifauna of RM, even with the human impacts on the vegetation, remains well preserved and provides a significant portion of the bird richness of the semiarid.

In the Catimbau National Park (SOUSA *et al.,* 2012), 202 species were found. This conservation unit is located fairly close to RM and has greater environmental diversity with a higher level of conservation when compared to the sampling sites, reinforcing the importance of RM for the local avifauna. Note that the sites sampled are located between this UC and the Reserva Biológica de Serra Negra, both areas of ecological interest, which increase the importance of RM in establishing a connection between these two conservation units.

Relevant records. *Rhea Americana* – The presence of this species was registered in areas A, B and E. In addition to free individuals, some local residents maintain captive specimens, probably originated from the neighborhood. The species was also observed in the neighboring municipality of Serra Talhada, where the only records for Pernambuco took place. Although it has a wide distribution in the Caatinga, this is a hunting target species, being extinct even in some places of preserved Caatinga (OLMOS and ALBANO, 2012).

Dendrocygna autumnalis – It was visualized in the area A, during both dry and rainy season. Solitary or in pairs, always was seen using temporary lakes and small water reservoirs. Along with *Sarkirdiornis sylvicola* are important records of aquatic birdlife of the region. Its occurrence was mentioned in Petrolina, Pernambuco (OLMOS *et al.,* 2005); Boqueirão da Onça, Bahia (SCHUNCK *et al.,* 2012); Cariri Paraibano, Serra da Capivara, Piauí (OLMOS and ALBANO, 2012) and two locations in Rio Grande do Norte (OLMOS *et al.,* 2005; OLMOS and ALBANO, 2012; SCHUNCK *et al.*, 2012; ARAUJO *et al.,* 2012; SILVA *et al.,* 2012).

Laterallus exilis – It was seen twice in Area E. In either case, the individual was sitting on the bank of a stream surrounded by grass (Poaceae) and a large amount of macrophytes. This species presents discreet habits, which results in a pour

knowledge of its distribution in the Caatinga. It was observed only in the Chapada Diamantina, Bahia (PARRINI *et al*., 1999) as well as in the Estação Ecológica de Seridó e Macaíba, both in Rio Grande do Norte (SILVA *et al*., 2012), being the first record for the Sertão Region.

Accipiter striatus – It was observed near a mist net, after chasing a female of *Veniliornis passerinus*, captured by the net. Its recent records in the Caatinga are limited by the São Francisco river areas, as Boqueirão da Onça (SCHUNCK *et al.,* 2012), Natural Monument of Talhado do São Francisco (LYRA-NEVES *et al.,* 2012) and the borders between Bahia and Minas Gerais (KIRWAN *et al.,* 2001).

Melanerpes candidus – Small groups of four to six individuals of this species were heard and observed. Although it is uncommon in the Caatinga, there are quotes from their occurrence in Serra Vermelha, Piauí (SANTOS *et al.,* 2012), Sobradinho, Bahia (SCHUNCK *et al.,* 2012) and Rio Grande do Norte (SILVA *et al.*, 2012). The species was also recorded in Cabrobó and Salgueiro, Pernambuco and São José de Piranhas, Paraíba by the authors of this study.

Xiphocolaptes falcirostris – It is endemic of Brazil (CBRO, 2014) and has a "vulnerable" conservation status (SILVEIRA and STRAUBE, 2008). Although it is considered endemic of the Caatinga (CRACRAFT, 1985; SILVA *et al*., 2003; PACHECO, 2004), the records of this species throughout its distribution range are reported mostly in areas of ecotone and in humid vegetation relicts (locally called Brejos de Altitude), being few the references in the Caatinga *sensu stricto*. The populations mentioned are located to the east of the areas where the species occurrence is known, occupying a dryer region of arboreal caatinga stretches (GIULIETTI *et al.;* 2004). Further details about this species at the sites mentioned are cited in KAMINSKI *et al.* (2013).

Elaenia cristata – It was seen and heard during the rainy season in area B. Although it is widespread in the Cerrado there are few records in the Caatinga (LIMA *et al.,* 2003). The first record for the Caatinga of Pernambuco is cited by SOUSA *et al.* (2012) in Catimbau National Park, near the RM. Some studies (FRY, 1970; RIDGELY and TUDOR, 1989; SICK, 1997) indicated that this species may be nomad or even migratory, corroborating the data presented in this paper.

Capsiempis flaveola – An individual observed during the dry season was foraging in vegetation on the stream bed of Caititu River, area C. The species was also recorded in the same month in the city of Arcoverde. Despite the quotations about its wide distribution in the Caatinga (STOTZ *et al.,* 1996; SICK, 1997), this species was recorded only in Chapada Diamantina (PARRINI *et al.,* 1999).

Penelope jacucaca – An individual was observed in area E, in a fragment of dense shrubby caatinga. Although this species has a satisfactory number of records for this biome (KIRWAN *et al.,* 2001; OLMOS and ALBANO, 2005; SANTOS *et al.*, 2012; SCHUNCK *et al.,* 2012; ARAUJO *et al.,* 2012; NUNES and MACHADO, 2012; REDIES, 2012; SILVEIRA and SANTOS, 2012), it was included into the vulnerable category on both lists of national and global endangered fauna (SILVEIRA and STRAUBE, 2008), mainly due to the habitat loss, illegal hunting and the restriction of its range, which includes only the Caatinga biome (PACHECO, 2004).

Sporagra yarrellii – It was included in the vulnerable category (SILVEIRA and STRAUBE, 2008). In Brazil, it occurs in the north eastern region and it is also distributed in Venezuela. A couple was observed while feeding on seeds of grass in the same place where *Laterallus exilis* was found.

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APPENDIX

Check-list of bird species recorded at Maravilha Region, Pernambuco state, Brazil. HABITAT USE: **1=** independent of forest environments, **2=** semi dependent of forest environments, **3=** dependent of forest environments or arboreal Caatinga. SENSITIVITY TO ENVIRONMENTAL DISTURBANCES**: L=** Low, **M=** Medium, **H=** High. TROPHIC GUILDS**: IN=** insectivore, **ON=** Omnivore, **FR=** Frugivore, **PI=** Piscivore, **CA=** Carnivore, **GR=** Granivore, **NE=** Nectarivore, **SC=** Scavenger. PRESENCE DURING DRY AND RAINY SEASONS IN THE FIVE STUDIED AREAS AND NEARBY LOCATIONS (**Near Locs**) (See Fig. 1). * = Endemic species. Systematics and nomenclature follows CBRO (2014).

Scientific name	Common name	Habitat use	Sensitivity	Trophic Guild	Area A			Area B		Area C		Area D		Area E		Near Locs
					Rainy 1	Dry	Rainy 2	Dry	Rainy	Dry	Rainy	Dry	Rainy	Dry	Rainy	
RHEIFORMES RHEIDAE																
Rhea americana	ema	1	L	ON	X			X	X						X	
TINAMIFORMES TINAMIDAE																
Crypturellus parvirostris	inhambu-chororó	1	L	ON					X			X		X		
Crypturellus tataupa	inhambu-chintã	3	L	ON		X	X	X	X		X	X		X	X	
Rhynchotus rufescens	perdiz	1	L	ON								X				
Nothura boraquira	codorna-do-nordeste	1	L	ON	X	X		X	X						X	
Nothura maculosa	codorna-amarela	1	L	ON	X	X						X				
ANSERIFORMES ANATIDAE																
Dendrocygna viduata	irerê	1	L	IN			X								X	
Dendrocygna autumnalis	asa-branca	1	L	IN	X		X									
Cairina moschata	pato-do-mato	1	M	IN	X		X								X	
Sarkidiornis sylvicola	pato-de-crista	1	M	IN	X											
Amazonetta brasiliensis	pé-vermelho	1	L	IN	X		X		X		X		X	X	X	
GALLIFORMES CRACIDAE																

Scientific name	Common name	H	S	G	R	D	R	D	R	D	R	D	R	D	R	NL
Penelope jacucaca *	jacucaca	3	H	ON										X		
PODICIPEDIDAE																
Tachybaptus dominicus	mergulhão-pequeno	1	L	PI											X	
Podilymbus podiceps	mergulhão-caçador	1	M	PI												X
SULIFORMES PHALACROCORACIDAE																
Phalacrocorax brasilianus	biguá	1	L	PI								X			X	
PELECANIFORMES ARDEIDAE																
Tigrisoma lineatum	socó-boi	1	M	PI	X				X			X			X	
Nycticorax nycticorax	savacu	1	L	PI								X		X	X	
Butorides striata	socozinho	1	L	PI								X			X	
Bubulcus ibis	garça-vaqueira	1	L	IN		X					X	X	X	X	X	
Ardea cocoi	garça-moura	1	L	PI											X	
Ardea alba	garça-branca-grande	1	L	PI	X		X		X		X	X		X	X	
Egretta thula	garça-branca-pequena	1	L	PI			X				X	X	X		X	
CATHARTIFORMES CATHARTIDAE																
Cathartes aura	urubu-de-cabeça-vermelha	1	L	SC	X	X	X	X	X	X	X	X	X	X	X	
Cathartes burrovianus	urubu-de-cabeça-amarela	1	M	SC	X	X	X	X	X	X		X	X	X	X	
Coragyps atratus	urubu-de-cabeça-preta	1	L	SC	X	X	X	X	X	X	X	X	X	X	X	
Sarcoramphus papa	urubu-rei	2	M	SC		X										
ACCIPITRIFORMES PANDIONIDAE																
Pandion haliaetus	águia-pescadora	1	M	PI										X		
ACCIPITRIDAE																
Gampsonyx swainsonii	gaviãozinho	1	L	CA												X
Accipiter striatus	gavião-miúdo	2	M	CA						X						
Rostrhamus sociabilis	gavião-caramujeiro	1	L	IN			X									
Geranospiza caerulescens	gavião-pernilongo	2	M	CA		X			X				X		X	

Scientific name	Common name	H	S	G	R	D	R	D	R	D	R	D	R	D	R	NL
Heterospizias meridionalis	gavião-caboclo	1	L	CA	X	X									X	
Rupornis magnirostris	gavião-carijó	1	L	CA	X	X	X	X	X	X	X	X	X	X	X	
Parabuteo unicinctus	gavião-asa-de-telha	1	L	CA											X	
Geranoaetus albicaudatus	gavião-de-rabo-branco	2	M	CA												X
Geranoaetus melanoleucus	águia-chilena	1	M	CA	X			X		X						
Buteo albonotatus	gavião-de-rabo-barrado	1	M	CA				X							X	
GRUIFORMES ARAMIDAE																
Aramus guarauna	carão	1	M	ON								X				
RALLIDAE																
Laterallus exilis	sanã-do-capim	1	L	ON											X	
Gallinula galeata	frango-d'água-comum	1	L	ON											X	
Porphyrio martinicus	frango-d'água-azul	1	L	ON												X
CHARADRIIFORMES CHARADRIIDAE																
Vanellus chilensis	quero-quero	1	L	IN	X	X	X	X	X	X	X	X	X	X	X	
RECURVIROSTRIDAE																
Himantopus mexicanus	pernilongo-de-costas-negras	1	M	IN											X	
SCOLOPACIDAE																
Tringa solitaria	maçarico-solitário	1	L	IN							X		X	X	X	
Tringa flavipes	maçarico-de-perna-amarela	1	L	IN							X				X	
JACANIDAE																
Jacana jacana	jaçanã	1	L	IN												X
COLUMBIFORMES COLUMBIDAE																
Columbina minuta	rolinha-de-asa-canela	1	L	GR	X	X	X		X		X	X	X	X	X	
Columbina talpacoti	rolinha-roxa	1	L	GR			X					X		X	X	
Columbina squammata	fogo-apagou	1	L	GR		X			X	X	X	X	X	X	X	
Columbina picui	rolinha-picui	1	L	GR	X	X	X	X	X	X	X	X	X	X	X	

Scientific name	Common name	H	S	G	R	D	R	D	R	D	R	D	R	D	R	NL
Claravis pretiosa	pararu-azul	2	L	GR				X								
Columba livia	pombo-doméstico	1	L	GR												X
Patagioenas picazuro	pombão	2	M	GR	X	X	X	X	X	X	X	X	X	X	X	
Patagioenas cayennensis	pomba-galega	3	M	GR	X										X	
Zenaida auriculata	pomba-de-bando	1	L	GR	X	X	X		X		X		X		X	
Leptotila verreauxi	juriti-pupu	2	L	GR						X	X	X	X	X	X	
CUCULIFORMES CUCULIDAE																
Piaya cayana	alma-de-gato	2	L	IN	X	X			X	X	X		X	X	X	
Coccyzus melacoryphus	papa-lagarta-acanelado	2	L	IN	X		X						X			
Crotophaga ani	anu-preto	1	L	ON		X								X	X	
Guira guira	anu-branco	1	L	ON		X	X	X	X		X	X		X	X	
Tapera naevia	saci	1	L	IN	X	X			X	X		X		X		
STRIGIFORMES TYTONIDAE																
Tyto furcata	coruja-da-igreja	1	L	CA												X
STRIGIDAE																
Megascops choliba	corujinha-do-mato	2	L	CA	X	X	X	X	X	X	X		X		X	
Glaucidium brasilianum	caburé	2	L	CA	X	X	X	X	X	X	X	X		X	X	
Athene cunicularia	coruja-buraqueira	1	M	IN	X	X	X	X	X		X	X		X	X	
NYCTIBIIFORMES NYCTIBIIDAE																
Nyctibius griseus	mãe-da-lua	2	L	IN			X		X			X		X	X	
CAPRIMULGIFORMES CAPRIMULGIDAE																
Antrostomus rufus	joão-corta-pau	2	L	IN	X			X			X					
Hydropsalis albicollis	bacurau	2	L	IN	X			X	X	X	X	X				
Hydropsalis parvula	bacurau-chintã	1	L	IN	X	X	X		X		X	X	X	X	X	
Hydropsalis hirundinace *	bacurauzinho-da-caatinga	1	M	IN	X		X									
Hydropsalis torquata	bacurau-tesoura	1	L	IN	X	X	X			X			X			

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Chordeiles pusillus	bacurauzinho	1	M	IN	X				X	X	X					
Chordeiles minor	bacurau-norte-americano	1	L	IN											X	
APODIFORMES APODIDAE																
Tachornis squamata	andorinhão-do-buriti	2	L	IN		X		X								
TROCHILIDAE																
Anopetia gounellei *	rabo-branco-de-cauda-larga	3	H	NE				X	X	X	X	X		X	X	
Eupetomena macroura	beija-flor-tesoura	1	L	NE	X	X	X	X	X	X	X	X	X	X	X	
Chrysolampis mosquitus	beija-flor-vermelho	1	L	NE	X					X				X		
Chlorostilbon lucidus	besourinho-de-bico-vermelho	2	L	NE	X	X	X	X	X	X	X	X	X	X	X	
Heliomaster squamosus	bico-reto-de-banda-branca	3	M	NE	X	X	X	X	X	X	X	X	X	X	X	
TROGONIFORMES TROGONIDAE																
Trogon curucui	surucuá-de-barriga-vermelha	3	M	ON		X			X	X		X		X		
CORACIIFORMES ALCEDINIDAE																
Megaceryle torquata	martim-pescador-grande	1	L	PI												X
Chloroceryle amazona	martim-pescador-verde	2	L	PI												X
Chloroceryle americana	martim-pescador-pequeno	2	L	PI								X			X	
GALBULIFORMES GALBULIDAE																
Galbula ruficauda	ariramba-de-cauda-ruiva	2	L	IN		X						X	X		X	
BUCCONIDAE																
Nystalus maculatus	rapazinho-dos-velhos	2	M	ON	X		X	X	X	X	X	X	X	X	X	
PICIFORMES PICIDAE																
Picumnus fulvescens *	pica-pau-anão-canela	2	H	IN			X	X		X			X		X	
Melanerpes candidus	pica-pau-branco	2	L	IN	X				X	X		X				
Veniliornis passerinus	picapauzinho-anão	2	L	IN	X	X	X	X	X	X	X	X	X	X	X	
Piculus chrysochloros	pica-pau-dourado-escuro	3	M	IN		X					X	X	X	X	X	
Colaptes melanochloros	pica-pau-verde-barrado	2	L	IN	X		X	X	X	X	X		X	X		

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Colaptes campestris	pica-pau-do-campo	1	L	IN											X	
Celeus ochraceus	pica-pau-ocráceo	3	M	IN			X			X			X			
Campephilus melanoleucos	pica-pau-de-topete-vermelho	3	M	IN	X	X	X	X	X	X	X	X		X	X	
CARIAMIFORMES CARIAMIDAE																
Cariama cristata	seriema	1	L	IN	X	X	X	X	X	X	X	X	X	X	X	
FALCONIFORMES FALCONIDAE																
Caracara plancus	caracará	1	L	ON	X	X	X	X	X	X	X	X	X	X	X	
Milvago chimachima	carrapateiro	1	L	CA				X								
Herpetotheres cachinnans	acauã	2	L	CA	X	X	X	X		X			X	X	X	
Falco sparverius	quiriquiri	1	L	CA				X				X			X	
Falco femoralis	falcão-de-coleira	1	L	CA	X	X	X	X	X	X		X		X		
PSITTACIFORMES PSITTACIDAE																
Primolius maracana	maracanã-verdadeira	2	M	FR												X
Thectocercus acuticaudatus	aratinga-de-testa-azul	2	M	FR												X
Eupsittula cactorum *	periquito-da-caatinga	2	M	FR	X	X	X	X	X	X	X	X	X	X	X	
Forpus xanthopterygius	tuim	1	L	FR	X	X	X	X	X	X	X	X	X	X	X	
Amazona aestiva	papagaio-verdadeiro	3	M	FR	X	X	X	X	X	X	X	X	X	X	X	
PASSERIFORMES THAMNOPHILIDAE																
Myrmorchilus strigilatus	piu-piu	2	M	IN	X	X	X	X	X	X	X	X	X	X	X	
Formicivora melanogaster	formigueiro-de-barriga-preta	2	M	IN	X	X	X	X	X	X	X	X	X		X	
Sakesphorus cristatus *	choca-do-nordeste	2	M	IN								X	X			
Thamnophilus capistratus *	choca-barrada-do-nordeste	2	L	IN	X	X		X	X	X	X	X	X	X	X	
Taraba major	choró-boi	2	L	IN	X				X	X		X		X	X	
DENDROCOLAPTIDAE																
Sittasomus griseicapillus	arapaçu-verde	3	M	IN		X	X	X	X		X		X		X	
Campylorhamphus trochilirostris	arapaçu-beija-flor	3	H	IN					X			X				

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Lepidocolaptes angustirostris	arapaçu-de-cerrado	1	L	IN	X	X	X	X	X	X	X	X	X	X	X	
Xiphocolaptes falcirostris	arapaçu-do-nordeste	3	M	IN				X		X	X			X	X	
FURNARIIDAE																
Furnarius figulus	casaca-de-couro-da-lama	1	L	IN	X	X	X		X	X	X	X	X	X	X	
Furnarius leucopus	casaca-de-couro-amarelo	2	L	IN			X	X	X		X	X	X		X	
Megaxenops parnaguae	bico-virado-da-caatinga	3	H	IN	X											
Pseudoseisura cristata	casaca-de-couro	2	M	IN	X	X	X	X	X	X	X	X	X	X	X	
Phacellodomus rufifrons	joão-de-pau	2	M	IN	X	X	X		X	X			X		X	
Certhiaxis cinnamomeus	curutié	1	M	IN								X		X	X	
Synallaxis hellmayri *	joão-chique-chique	1	M	IN	X	X	X	X	X	X	X	X	X		X	
Synallaxis frontalis	petrim	3	L	IN	X		X		X		X		X	X	X	
Synallaxis albescens	uí-pi	1	M	IN								X			X	
Synallaxis scutata	estrelinha-preta	2	M	IN			X									
Cranioleuca semicinerea	joão-de-cabeça-cinza	2	M	IN												X
TITYRIDAE																
Pachyramphus viridis	caneleiro-verde	2	M	IN	X						X					
Pachyramphus polychopterus	caneleiro-preto	2	L	IN	X	X	X		X	X	X		X	X	X	
Pachyramphus validus	caneleiro-de-chapéu-preto	3	M	IN			X		X				X	X	X	
Xenopsaris albinucha	tijerila	1	M	IN	X		X		X				X		X	
RHYNCHOCYCLIDAE																
Tolmomyias flaviventris	bico-chato-amarelo	3	L	IN	X	X	X	X	X	X	X	X	X	X	X	
Todirostrum cinereum	ferreirinho-relógio	2	L	IN	X	X	X	X	X	X		X	X	X	X	
Hemitriccus margaritaceiventer	sebinho-de-olho-de-ouro	2	M	IN	X	X	X	X	X	X	X	X	X	X	X	
TYRANNIDAE																
Hirundinea ferruginea	gibão-de-couro	2	L	IN							X		X			
Stigmatura napensis	papa-moscas-do-sertão	1	M	IN	X	X	X				X	X		X		

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Stigmatura budytoides	alegrinho-balança-rabo	1	M	IN	X	X	X		X	X		X	X			
Euscarthmus meloryphus	barulhento	2	L	IN		X	X	X	X		X	X	X	X	X	
Camptostoma obsoletum	risadinha	1	L	IN	X	X	X	X	X	X	X	X	X	X	X	
Elaenia spectabilis	guaracava-grande	3	L	IN			X		X					X	X	
Elaenia chilensis	guaracava-de-crista-branca	1	L	IN	X		X		X		X		X		X	
Elaenia cristata	guaracava-de-topete-uniforme	1	M	IN				X								
Elaenia chiriquensis	chibum	1	L	IN	X											
Suiriri suiriri	suiriri-cinzento	1	M	IN	X	X	X	X	X		X		X			
Myiopagis viridicata	guaracava-de-crista-alaranjada	3	M	IN	X		X	X	X		X	X	X	X	X	
Capsiempis flaveola	marianinha-amarela	3	L	IN								X				
Phaeomyias murina	bagageiro	1	L	IN	X	X	X		X	X	X	X	X		X	
Phyllomyias fasciatus	piolhinho	3	L	IN	X		X							X		
Serpophaga subcristata	alegrinho	2	L	IN		X	X					X	X	X	X	
Legatus leucophaius	bem-te-vi-pirata	2	L	ON	X		X		X		X		X		X	
Myiarchus swainsoni	irré	1	L	IN	X			X	X	X	X	X		X	X	
Myiarchus ferox	maria-cavaleira	2	L	IN		X	X		X	X	X					
Myiarchus tyrannulus	maria-cavaleira-de-rabo-Enferrujado	2	L	IN	X	X	X	X	X	X	X	X	X	X	X	
Casiornis fuscus	caneleiro-enxofre	3	M	IN	X		X		X	X	X		X		X	
Pitangus sulphuratus	bem-te-vi	1	L	ON	X	X	X		X	X	X	X	X	X	X	
Machetornis rixosa	suiriri-cavaleiro	1	L	IN							X	X				
Myiodynastes maculatus	bem-te-vi-rajado	3	L	ON	X		X		X		X		X	X	X	
Megarynchus pitangua	neinei	2	L	ON	X	X	X		X	X			X	X	X	
Myiozetetes similis	bentevizinho-de-penacho-vermelho	2	L	IN	X	X		X	X		X	X		X	X	
Tyrannus melancholicus	suiriri	1	L	ON	X		X	X	X	X	X	X	X	X	X	

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Empidonomus varius	peitica	2	L	ON	X		X		X		X		X	X	X	
Myiophobus fasciatus	filipe	2	L	IN					X						X	
Sublegatus modestus	guaracava-modesta	2	L	ON	X	X	X	X	X	X	X	X	X	X		
Fluvicola albiventer	lavadeira-de-cara-branca	1	L	IN							X		X		X	
Fluvicola nengeta	lavadeira-mascarada	1	L	IN	X	X	X					X		X	X	
Arundinicola leucocephala	freirinha	1	M	IN							X				X	
Cnemotriccus fuscatus	guaracavuçu	3	L	IN		X	X		X	X	X		X			
Lathrotriccus euleri	enferrujado	3	M	IN	X				X					X		
Xolmis irupero	noivinha	1	L	IN			X	X		X			X			
VIREONIDAE																
Cyclarhis gujanensis	pitiguari	2	L	ON	X	X	X	X	X	X	X	X	X	X	X	
Vireo chivi	juruviara	3	L	ON		X					X			X		
Hylophilus amaurocephalus	vite-vite-de-olho-cinza	3	M	IN				X		X	X			X		
CORVIDAE																
Cyanocorax cyanopogon	gralha-cancã	2	M	ON	X	X	X	X	X	X	X	X	X	X	X	
HIRUNDINIDAE																
Stelgidopteryx ruficollis	andorinha-serradora	1	L	IN	X				X							
Progne tapera	andorinha-do-campo	1	L	IN									X			
Progne chalybea	andorinha-doméstica-grande	1	L	IN						X		X	X	X		
Tachycineta albiventer	andorinha-do-rio	1	L	IN	X					X		X	X		X	
Hirundo rustica	andorinha-de-bando	1	L	IN											X	
TROGLODYTIDAE																
Troglodytes musculus	corruíra	1	L	IN	X	X	X	X	X	X	X	X	X	X	X	
Cantorchilus longirostris	garrinchão-de-bico-grande	3	L	IN	X	X	X	X	X	X	X	X	X	X	X	
POLIOPTILIDAE																
Polioptila plumbea	balança-rabo-de-chapéu-preto	2	M	IN	X	X	X	X	X	X	X	X	X	X	X	

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TURDIDAE																
Turdus rufiventris	sabiá-laranjeira	1	L	ON	X	X	X			X	X	X	X	X	X	
Turdus amaurochalinus	sabiá-poca	2	L	ON	X		X				X	X	X	X	X	
MIMIDAE																
Mimus saturninus	sabiá-do-campo	1	L	ON	X	X	X	X	X	X	X	X	X	X	X	
MOTACILLIDAE																
Anthus lutescens	caminheiro-zumbidor	1	L	IN										X	X	
PASSERELLIDAE																
Zonotrichia capensis	tico-tico	1	L	GR	X	X	X		X	X	X	X	X	X	X	
Ammodramus humeralis	tico-tico-do-campo	1	L	GR	X		X		X	X	X	X	X	X	X	
ICTERIDAE																
Icterus pyrrhopterus	encontro	2	M	ON	X	X	X		X			X	X		X	
Icterus jamacaii	corrupião	2	L	ON	X	X	X	X	X	X		X	X		X	
Gnorimopsar chopi	graúna	1	L	GR			X							X		
Chrysomus ruficapillus	garibaldi	1	L	IN												X
Agelaioides fringillarius	asa-de-telha-pálido	1	L	ON	X	X	X			X				X	X	
Molothrus bonariensis	vira-bosta	1	L	ON	X		X		X			X		X		
Sturnella superciliaris	polícia-inglesa-do-sul	1	L	IN	X									X		
THRAUPIDAE																
Coereba flaveola	cambacica	2	L	ON	X	X	X	X		X		X	X		X	
Compsothraupis loricata	tiê-caburé	2	H	ON		X	X		X	X	X	X	X	X	X	
Nemosia pileata	saíra-de-chapéu-preto	3	L	ON	X		X		X		X		X	X	X	
Thlypopsis sordida	saí-canário	2	L	IN					X							
Tachyphonus rufus	pipira-preta	3	L	ON		X		X				X				
Lanio pileatus	tico-tico-rei-cinza	2	L	GR	X	X	X	X	X	X	X	X	X	X	X	
Tangara sayaca	sanhaçu-cinzento	2	L	ON	X	X	X		X	X	X	X	X	X	X	

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Paroaria dominicana *	cardeal-do-nordeste	1	L	ON	X	X	X		X	X	X	X	X	X	X	
Conirostrum speciosum	figuinha-de-rabo-castanho	3	L	ON	X		X	X	X	X	X		X	X	X	
Sicalis luteola	tipio	1	L	GR	X	X		X	X	X		X			X	
Volatinia jacarina	tiziu	1	L	GR	X		X	X	X			X			X	
Sporophila nigricollis	baiano	1	L	GR							X				X	
Sporophila albogularis *	golinho	1	M	GR	X		X	X			X			X	X	
Sporophila bouvreuil	caboclinho	1	M	GR											X	
CARDINALIDAE																
Piranga flava	sanhaçu-de-fogo	1	L	ON	X											
Cyanoloxia brissonii	azulão	3	M	GR		X	X	X	X			X	X	X	X	
FRINGILLIDAE																
Sporagra yarrellii	pintassilgo-do-nordeste	3	H	GR											X	
Euphonia chlorotica	fim-fim	2	L	ON	X	X	X	X	X	X		X	X	X	X	
PASSERIDAE																
Passer domesticus	pardal	1	L	ON												X