Revista Brasileira de Ornitologia, 20(3), 188-198
Outubro de 2012 / October 2012

ARTIGO/ARTICLE

Bird richness in Serra das Confusões National Park, Brazil: how many species may be found in an undisturbed *caatinga*?

Luís Fábio Silveira[1,3] and Marcos Pérsio Dantas Santos[2]

[1] Seção de Aves, Museu de Zoologia da Universidade de São Paulo, Avenida Nazaré 481, Ipiranga, São Paulo, CEP 04263-000.
[2] Universidade Federal do Pará, Instituto de Ciências Biológicas, Laboratório de Ecologia e Zoologia de Vertebrados, Av. Augusto Correia, n 1, Guamá – Belém – PA CEP 66075-110.
[3] Corresponding author: lfsilvei@usp.br

Received on 9 March 2012. Accepted on 12 May 2012.

ABSTRACT: The *caatinga* is an endemic Brazilian Biome and few studies have been conducted in its undisturbed areas. Although the state of Piauí is mostly composed of *caatinga,* its avifauna is still largely unknown. Here we report the results of ornithological expeditions conducted in Serra das Confusões National Park, Piauí. During 35 days of fieldwork we recorded 225 species of birds. The Serra das Confusões National Park maintains the highest richness of bird species in the *caatinga,* and also holds 73% of the birds endemic to this biome, with four threatened species recorded.

KEY-WORDS: Bird inventories; *caatinga*; national parks; richness of bird species.

INTRODUCTION

Piauí is among the least known Brazilian states in relation to its avifauna. The first large ornithological exploration of the state took place as late as 1903 with the arrival of Otmar Reiser, a Bavarian ornithologist. Reiser was a component of an expedition organized by the Vienna Academy of Sciences, and led by the ichthyologist Franz Steindachner. The team covered various localities in northeastern Brazil, Parnaguá being the southernmost city reached in the state of Piauí. This pioneer collection consisted of 1,341 bird specimens (Pacheco *et al.*, 2000), of which 650 were collected in Piauí (Reiser, 1926; Hellmayr, 1929). Among the 212 days of the expedition, 45 (21%) of those days were spent exclusively in the *caatinga*, and 152 (71%) were spent in locations in which *cerrado* predominated or in areas of transition between *cerrado* and *caatinga* (Pacheco *et al.*, 2000). This expedition was fruitful in collecting for the first time the *caatinga* endemics *Megaxenops parnaguae* Reiser, 1905 and *Gyalophylax hellmayri* (Reiser, 1905).

In 1904 the Museu Paulista (today known as Museu de Zoologia da Universidade de São Paulo, MZUSP) acquired from the American entomologist Adolf Hempel a small lot of birds collected between January and August 1903 and coming from several localities in southern Piauí (Parnaguá, Santa Filomena and Rio Parnaíba). Representatives of *caatinga* in this series are *Compsothraupis loricata* and *Nothura boraquira* (Pinto 1938, 1944).

In July 1923, Heinrich E. Snethlage initiated in Maranhão state one of the most important ornithological expeditions accomplished in northeastern Brazil, collecting birds during two and a half years and extended into the interior of Maranhão, Piauí, Ceará, as well as the extreme north of what is presently Tocantins state (Hellmayr, 1929). Between December 1924 and April 1925 several quick excursions were conducted in the states of Piauí and Ceará, mainly in the region of Serra da Ibiapaba (Pacheco *et al.*, 2000). Endemic *caatinga* species were collected, such as *Anopetia gounellei, Gyalophylax hellmayri, Megaxenops parnaguae, Sakesphorus cristatus* and *Hylopezus ochroleucus.* Under the order of the ornithologist Elsie Naumburg, the German collector Emil Kaempfer, and his wife covered eleven Brazilian states and Paraguay between the years 1926 and 1931, as they collected approximately 10,000 specimens (Naumburg, 1939; Pacheco *et al.*, 2000). This collection was never fully studied and only one small portion was disclosed until the present (Naumburg, 1928, 1935, 1939). Between April 1926 and July 1927 the collectors tracked various localities in Piauí, gathering a collection of 1,101 skins, representing 243 species. In southern Piauí state, Kaempfer collected 104 species at Corrente,

getting important records such as *Penelope jacucaca, Alipiopsitta xanthops, Formicivora grisea* and *Xiphocolaptes falcirostris*. In Gilbués, 87 species were collected (*e. g. Anodorhynchus yacinthinus, Ara ararauna* and *Formicivora rufa*); 61 species in Parnaguá (*Megaxenops parnaguae, Compsothraupis loricata* and *Phyllomyias reiseri*); and 46 species in Uruçuí, including *Brachygalba lugubris, Celeus obrieni* and *Cyanocorax cristatellus*.

Hellmayr (1929) summarized all ornithological knowledge about the northeastern Brazil to that date. Nevertheless, since the collections of Kaempfer carried out in 1927, the southern region of Piauí state remained largely ignored by ornithologists. Recent contributions comes only from Novaes (1992), who reports on 81 species found during one short visit to the Uruçuí-Una Ecological Station in December 1980, and Olmos (1993), who published a list of birds observed at the Serra da Capivara National Park located in the municipality of São Raimundo Nonato. Still in the south of Piauí, although in an area of the *cerrado*, Santos (2001) inventoried the birds at Mangabeiras Plateau, currently situated in Nascentes do Rio Parnaíba National Park. Furthermore, Santos (2004) studied the avifauna at six localities of the *caatinga* in southern Piauí, recording various endemic species to the Biome such as *Aratinga cactorum, Anopetia gounellei, Gyalophylax hellmayri, Megaxenops parnaguae, Sakesphorus cristatus* and *Hylopezus ochroleucus.* More recently, Santos *et al*. (2012) studied the avifauna of the Serra Vermelha region, which is bordered to the south by the Serra das Confusões National Park. They recorded 179 bird species, of which 15 are endemic to the *caatinga*, such as *Penelope jacucaca, Aratinga cactorum, Hydropsalis hirundinacea, Anopetia gounellei, Picumnus pygmaeus, Hylopezus ochroleucus, Xiphocolaptes falcirostris, Gyalophylax hellmayri* and *Megaxenops parnaguae.*

Here we report on the species found at Serra das Confusões National Park, with its headquarters located in the municipality of Caracol, Piauí, during two expeditions carried out between September and October 2000 and in January 2002.

MATERIAL AND METHODS

Sampled areas

The first area sampled is situated in the region of Serra Grande at a locality known as Lagoa do Jacu (8^0 40' S / 43^0 29'W). At this locality a significant portion of semideciduous forest is found, inset well within a valley of the river. The canopy of this woodland stands about 20 meters high and the understory is quite sparse, with few shrubs. The width of this forest is rather variable, its largest stretch being around 25 meters. The vegetation surrounding this forest is a shrub *caatinga*, about 6 m high. Lagoa do Jacu is an undisturbed and well-protected area within the National Park and where large-sized mammals and game birds still occur in fairly large numbers. This area was studied during four days (26-30 September 2000).

Our second camp was based at Serra das Confusões (9^0 13'S / 43^0 29'W). This area is characterized by stretches of semideciduous forest nested at the bottoms of valleys of intermittent rivers, with the presence of diverse *caatinga* physiognomies at the top of the valleys. Due to the difficult access of the area, mist nets were not opened. Instead, only observations and collection by shotguns were carried out. Mist-nets were set during seven days (03-10 October 2000) in a 15 m high fragment of arboreal *caatinga*, surrounded by small rural properties. We also sampled an area near a locality known as Olho D'água da Santa (08^0 38'S / 42^0 42'W), close to the bed of an intermittent river. Surrounding the area is *caatinga* that suffered little modification. This locality was sampled during the period of 10-14 October 2000.

During the second expedition, conducted between 10-25 January 2002, the camp was set at park headquarters (09^0 13'S / 43^0 27'W) located near the border of the Serra das Confusões slope. This area may be characterized as having *caatinga stricto sensu*, with a canopy about 10 m high. The understory is little diversified with the presence of a few shrubs and bromeliads.

Other areas were also briefly sampled (less than 20 h each), such as the Andorinhas region (09^0 09'S / 43^0 33'W) and Grotão (09^0 13'S / 43^0 29'W) in Serra das Confusões, Baixão da Casa de Pau (08^0 47'S / 43^0 31'W), Serrinha (09^0 15'S / 43^0 19'W), and the region between Toca da Cabocla and Canto Verde (08^0 54'S / 43^0 27'W). These last three locations are in Serra Grande and were sampled during the second expedition (Fig. 1).

Sampling of avifauna

Diverse and complementary methods were used to improve sampling and generate high-quality, reliable data, *i. e.* specimens or species well-documented by means no other than a simply sight record (see an example of how this combination of methods was successfully used in Somenzari *et al.* 2011).

Species were visually identified with the aid of 10x40 and 8.5x45 binoculars and voices were tape-recorded on cassette (Sony TCM 5000 EV recorder and Sennheiser ME 66 microphone). Mist-nets and shotguns were utilized to collect voucher specimens. Collected birds were prepared as study skins and some specimens collected in duplicate were fixed whole in 4% formaldehyde. They were then preserved in 70% v/v ethanol, as were all carcasses of the birds. Biometric data (mass and total length) and

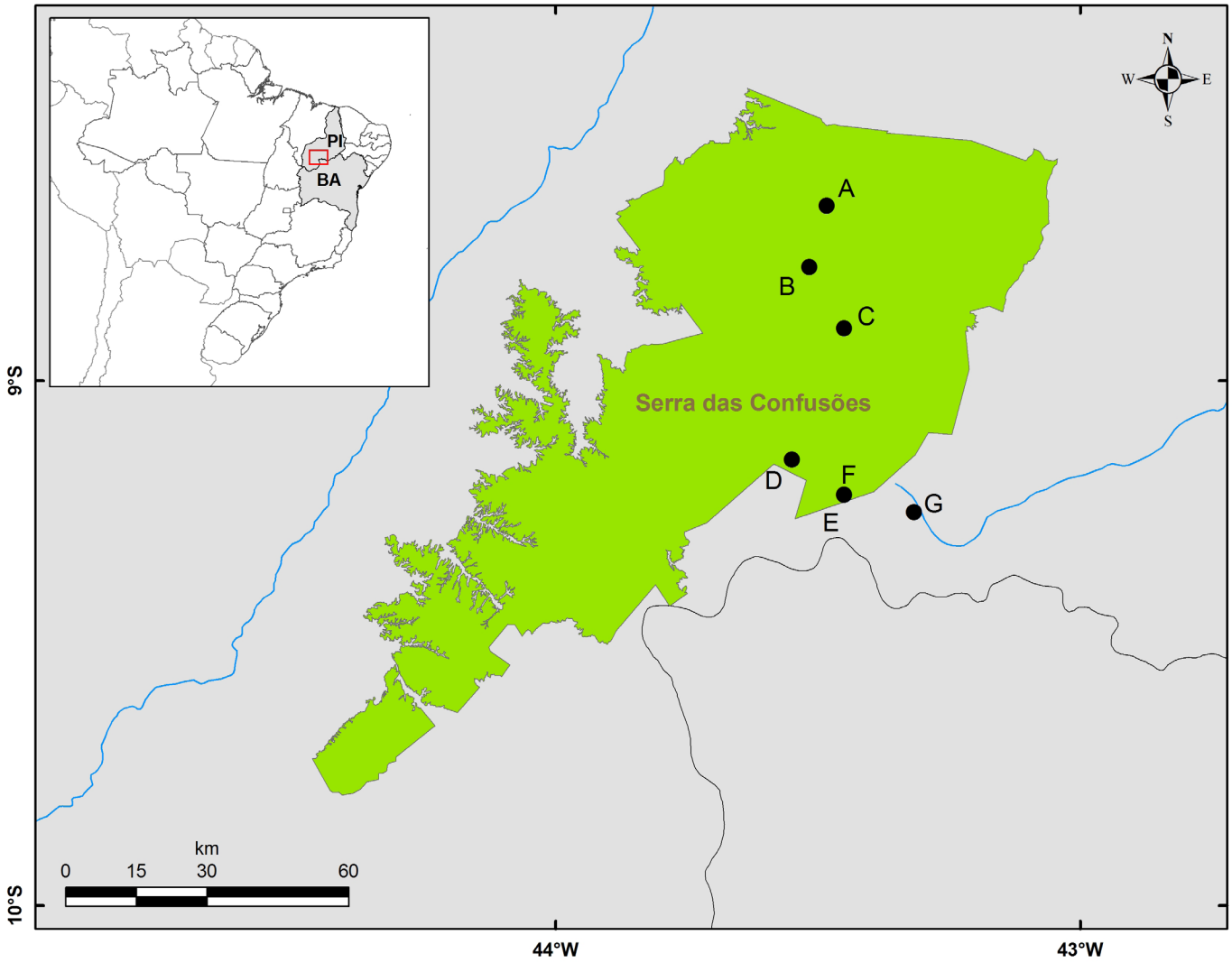

Figure 1 – Localities sampled at Serra das Confusões National Park, Piauí, Brazil. (A) Lagoa do Jacu, (B) Baixão da Casa de Pau, (C) Toca da Cabocla/ Canto verde, (D) Andorinhas, (E) Serra das Confusões, (F) Sede do Parque, and (G) Serrinha (outside of park limits).

coloration of bare parts were noted. Tissue samples were taken from all birds collected. All material was deposited at the Museu de Zoologia da Universidade de São Paulo (hereafter MZUSP). Copies of recordings were deposited at the Elias Coelho sound archive (ASEC, Universidade Federal do Rio de Janeiro, RJ).

Activities began at around 05:00 and lasted until approximately 20:00, totaling 450 hours of fieldwork. Mist nets were opened at 06:00 and closed at 18:00. In total, 10 mist nets were opened in line (12 meters in length and 2.40 meters in height, 36mm mesh), covering an area of 120 meters long in open transects at chosen localities for 30 days, totaling 3,600 net hours.

Common bird names were obtained through the local residents who knew the local fauna. Most of the names were obtained after showing collected specimens to avoid possible confusion in identification, which occurs when the informant is not able to properly see the specimen in the field.

RESULTS AND DISCUSSION

Throughout the 35 days of fieldwork, 225 species of birds were recorded (Appendix). Representatives of 129 species were collected, while another 96 species were documented by other means than a specimen (Appendix). Within the context of avifaunal studies in the *caatinga* (Pacheco *et al.*, 2000; Olmos & Albano, 2012), the results presented here may be considered as the most representative for this biome to date. This allows for a fuller understanding of the composition and conservation of avifauna at Serra das Confusões National Park, as well as a very accurate estimate of bird richness in a locality with little or no disturbance in this biome. Only eight species (*Phalacrocorax brasilianus, Bubulcus ibis, Dendrocygna viduata, Cairina moschata, Himantopus melanurus, Charadrius collaris, Calidris fuscicollis* and *Passer domesticus*) were exclusively recorded outside of the National Park. As such, the Serra das Confusões National

Park houses a minimum of 217 bird species, ranking this conservation unit as the richest in birds in the entire *caatinga* Biome.

Of the 18 species considered to be endemic to the *caatinga* (Pacheco *et al.,* 2000), nothing less than 14 species (73%) are present in the Serra das Confusões National Park (maybe more, see below). These are: *Penelope jacucaca, Aratinga cactorum, Anopetia gounellei, Hydropsalis hirundinacea, Picumnus pygmaeus, Sakesphorus cristatus, Thamnophilus capistratus, Herpsilochmus sellowi, Hylopezus ochroleucus, Gyalophylax hellmayri, Xiphocolaptes falcirostris, Compsothraupis loricata, Sporophila albogularis* and *Paroaria dominicana*. This high number of endemic species in the Serra das Confusões National Park makes it the most important conservation unity in the country as regards the protection of endemic avifauna of a biome.

Most of the species (117) were recorded more than six times during the period of study. Part of the species considered rare (75 species, recorded only one or two times during expeditions) corresponds to birds with low population densities (*e. g.* some hawks) detected with difficulty due to their habits and very specific habitats within the *caatinga* (*e. g. Gyalophylax hellmayri*), or because they are linked to rainfall patterns which permit the existence of temporary lagoons (all Scolopacidae, for example).

Four taxa considered as threatened (MMA 2003) were recorded in Serra das Confusões National Park. Three species (*Penelope jacucaca, Procnias averano* and *Xiphocolaptes falcirostris*) were rare in our study area: the first due to hunting, the second because it occurs seasonally and could be undersampled, and the third because tall forest is quite rare at this National Park. Furthermore, it is worth noting the presence of a population of *Sclerurus scansor cearensis,* rather rare and only recorded at Lagoa do Jacu. Other little known species in the biome that proved to be very common were *Crypturellus noctivagus zabele* (one male incubating six eggs in January 2002) and *Megaxenops parnaguae*, especially abundant in Serra Grande.

We must not fail to mention the very precise accounts of former hunters that correctly described one species of macaw whose characters converge toward Spix's Macaw (*Cyanopsitta spixii*). Details of plumage, coloration of bare parts, and behavior were compatible with the little that is known about this species (more details in Collar *et al.,* 1992). One of our field assistants, a former hunter, correctly chronicled the presence of couples and young birds, describing the latter with intriguing richness of detail, citing as well a distinct whitish coloration on the culmen, characteristic of the young of this species (*e. g.* MZUSP 43409). It is important to remember that a citation exists of and old record (1974) for Serra da Capivara National Park compiled by Olmos (1993), which increases the possibility of these accounts being truthful. They may also signal an eventual occurrence of this species inside the limits of Serra das Confusões National Park at some point. These same assistants also described the presence of a guan-like bird. It is locally known as "bagunceiro" (rowdy), living on the ground, snapping the bill, and frequently spotted along army ants. All details of behavior and plumage indicate a representative of the genus *Neomorphus* (see Roos *et al.* 2012), not recorded by us, as was the case with the Spix's Macaw.

Olmos (1993) preformed the most extensive study on the avifauna of one locality inside the *caatinga*. He conducted surveys in the region of Serra da Capivara National Park, near Serra das Confusões National Park. This author recorded 208 species between December 1986 and December 1987, and between March and July 1991, 179 of those species being inside the park limits. In an updated account of this study, Olmos & Albano (2012) reported 192 species for Serra da Capivara National Park.

One direct comparison can be made with this study, given the similarity and proximity between the areas. Most of the 217 species of birds recorded in the interior of Serra das Confusões National Park were also recorded in Serra da Capivara National Park, revealing the expected similarity between the two localities. Nevertheless, there are a few species recorded in Serra das Confusões National Park that have still not been noted in Serra da Capivara National Park, such as *Piranga flava* and *Schistoclamys ruficapillus*, birds typical of the *cerrado*. These records support a greater proximity with the *cerrados* of the Gurguéia River Valley region situated to the west of Serra das Confusões National Park. Other species not recorded during this study that were noted by Olmos & Albano (2012) correspond to birds that are in some way associated to bodies of water, such as some herons or species that feed on grasslands like some representatives of the family Emberizidae. The existence of more extensive bodies of water and grasslands are associated with the rainy season and the presence of areas modified by the actions of men, as is the case of grasslands. These are seasonal environments rarely encountered in Serra das Confusões National Park.

The realization of an expedition during the rainy season allowed us to observe the peak of fruiting trees in the *caatinga,* especially some locally known as "catuaba" (*Erythroxylum catuaba*, Erythroxylaceae) which attracts diverse bird species such as parrots, guans, cuckoos and cotingas such as *Procnias averano*. It was possible to observe various young parrot chicks and guans feeding on these fruits, further increasing the importance of preserving this resource especially for the rich-fauna at Lagoa do Jacu region. This is one of the most significant areas for the fauna in this National Park and is also home to a significant portion of the diversity of medium to large-sized mammals recorded by us, such as jaguars, peccaries, anteaters, agoutis, armadillos and deer.

ACKNOWLEDGEMENTS

The authors thank Hussam Zaher, Miguel Trefaut Rodrigues, José Wilmington Paes Landim Ribeiro, André Pessoa, Adãozinho, Felipe Curcio, Paulo Balduíno and Renato Lima for assisting in our fieldwork. The Post Graduate Program in Zoology of the Instituto de Biociências at the University of São Paulo and Fundação O Boticario for financial aid, to IBAMA and to ICMBio for issuing our collecting permits. Bruno Ehlers and UPS Brazil provided field and laboratory equipment. LFS received a productivity fellowship from CNPq. The continuity of the SCNP ornithological studies being conducted by MPDS with financial support from CNPq (552011/2011-8).

REFERENCES

CBRO [Comitê Brasileiro de Registros Ornitológicos]. 2011. *Listas das aves do Brasil, 10a. Edição*. Version of 25/1/2011. Available at: http://www.cbro.org.br Access: 01 Dez 2011.

Collar, N. J.; L. P.Gonzaga, N.; Krabbe, A.; Madroño Nieto, L. G.; Naranjo, T. A.; Parker III & D. C. Wege 1992. *Threatened Birds of the Americas*. Cambridge, U.K.: International Council for Bird Preservation.

Hellmayr, C. E. 1929. A contribution to the ornithology of Northeastern Brazil. *Field Mus. Nat. Hist. Zool. Ser*., 12: 235-500 [Publ. 255].

MMA [Ministério do Meio Ambiente]. 2003. Lista da fauna brasileira ameaçada de extinção. Instrução Normativa do Ministério do Meio Ambiente n. 03/2003, de 27 de maio de 2003. *Diário Oficial da União 101*, Seção 1: 8897.

Naumburg, E. M. B. 1928. Remarks on Kaempfer's collections in eastern Brazil. *Auk,* 45: 60-65.

Naumburg, E. M. B. 1935. Gazeteer and maps showing stations visited by Emil Kaempfer in eastern Brazil and Paraguay. *Bull. Amer. Mus. Nat. Hist*., 68: 449-469, pl. VI-XXVII, 2 mapas.

Naumburg, E. M. B. 1937. Studies of birds from eastern Brazil and Paraguay, based on a collection made by Emil Kaempfer. *Bull. Amer. Mus. Nat. Hist*., 74: 139-205.

Naumburg, E. M. B. 1939. Studies of birds from eastern Brazil and Paraguay, based on a collection made by Emil Kaempfer. *Bull. Amer. Mus. Nat. Hist*., 76: 231-276.

Novaes, F. C. 1992. Bird observations in the state of Piauí, Brazil. *Goeldiana Zoologia,* 17: 1-5.

Olmos, F. 1993. Birds of Serra da Capivara National Park, in the "caatinga" of nort-eastern Brazil. *Bird Cons. Intern*., 3: 21-36.

Olmos, F. & Albano, C. G. 2012. As aves da região do Parque Nacional Serra da Capivara (Piauí, Brazil). *Revista Brasileira de Ornitologia,* 20: 173-187.

Pacheco, J. F.; Bauer, C. & Silveira, L. F. 2000. *As aves da Caatinga – apreciação histórica do processo de conhecimento*. Disponível em: http://www.conservation.org.br/caatinga.

Pinto, O. M. O. 1938. Catalogo das aves do Brasil e lista dos exemplares que as representam no Museu Paulista. 1.ª parte. Aves não Passeriformes e Passeriformes não Oscines excluída a Fam. Tyrannidae e seguintes. *Rev. Mus. Paulista,* 22: 1-566.

Pinto, O. M. O. 1944. *Catálogo das aves do Brasil e lista dos exemplares existentes na coleção do Departamento de Zoologia. 2.ª parte. Ordem Passeriformes (continuação) Superfamília Tyrannoidea e Subordem Passeres*. São Paulo: Departamento de Zoologia, Secretaria da Agricultura, Indústria e Comércio.

Reiser, O. 1905. Über die ornithologische Ausbeute während der von der kaiserlichen Akademie der Wissenschaften im Jahre 1903 nach Brasilien entsenderen Expedition. *Anz. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl.,* 42: 320-324.

Reiser, O. 1926. Vögel. Pp. 107-252. In: *Ergebnisse der Zoolog. Expedition der Akad. der Wissenschaften nach Nordostbrasilien im Jahre 1903.* Wien: Kaiserlichen Akademie der Wissenschaften [Denkschr. *Akad. Wiss., Wien. Math.-Naturwiss. Kl*. (1924) 76.

Roos, A. L.; Souza, E. A.; Campos, C. B.; Paula, R. C. & Morato, R. G. 2012. Primeiro registro documentado do jacu-estalo *Neomorphus geoffroyi* Temminck, 1820 para o bioma Caatinga. *Revista Brasileira de Ornitologia,* 20: 81-85.

Santos M. P. D. 2001. Composição da avifauna nas Áreas de Proteção Ambiental Serra da Tabatinga e Chapada das Mangabeiras, Brasil. *Boletim do Museu Paraense Emílio Goeldi, Série Zoologia*. 17: 43-67.

Santos M. P. D. 2004. As comunidades de aves em duas fisionomias da vegetação de Caatinga no estado do Piauí, Brasil. *Revista Brasileira de Ornitologia,* 12:113-123.

Santos M. P. D.; Santana, A.; Soares, L. M. S. & Sousa, S. A. 2012. Avifauna of Serra Vermelha, South of Piauí, Brazil. *Revista Brasileira de Ornitologia,* 20: 199-214.

Somenzari, M.; Silveira, L. F.; Piacentini, V. Q.; Rego, M. A.; Schunck, F. & Cavarzere, V. 2011. Birds of an Amazonia-Cerrado ecotone in Southern Pará, Brazil, and the efficiency of associating multiple methods in avifaunal inventories. *Revista Brasileira de Ornitologia,* 19:260-275.

Editor Associado: Fábio Olmos.

APPENDIX:

Birds recorded in Serra das Confusões National Park. Systematic order follows CBRO (2011), and only the local names for species recognized by our field assistants are indicated. Species marked with a # are considered threatened by MMA (2003) and those with an [EN] are considered as endemic to the *caatinga* (Pacheco *et al.*, 2000).

Frequency: Common (C): recorded more than 6 times (117 species); Uncommon (I): recorded between 3 and 6 times (33 species); Rare (R): recorded one or two times (75 species).

Evidence: Collected (C): 129 species; Sight records (V): 91 species; Sound Recorded (G): 29 species; Heard-only (O): 7 species.

Taxa	Local name	Frequency	Evidence
Tinamiformes			
Tinamidae (4)			
Crypturellus noctivagus zabele [EN]	zabelê	C	C, G
Crypturellus parvirostris	nambu-pé-vermelho	C	C
Crypturellus tataupa	nambu-pé-roxo	C	C
Nothura boraquira	codorniz	I	V, O
Anseriformes			
Anatidae (3)			
Dendrocygna viduata		R	V
Amazonetta brasiliensis		R	V
Cairina moschata		R	V
Galliformes			
Cracidae (2)			
Penelope superciliaris	jacupemba	C	C, G
Penelope jacucaca [EN]	jacu-verdadeiro	R	V
Suliformes			
Phalacrocoracidae (1)			
Phalacrocorax brasilianus		R	V
Pelecaniformes			
Ardeidae (5)			
Ardea cocoi		R	V
Ardea alba		R	V
Egretta thula		R	V
Bubulcus ibis		R	V
Butorides striata		R	V
Cathartiformes			
Cathartidae (4)			
Sarcoramphus papa	urubu-reis	C	V
Coragyps atratus	urubu	C	V
Cathartes aura	urubu	C	C
Cathartes burrovianus	urubu	C	C
Accipitriformes			
Accipitridae (10)			
Gampsonyx swainsonii	gaviãozinho	R	C
Accipiter bicolor	gavião-pescador	I	C, G
Geranoaetus melanoleucus		R	V
Geranoaetus albicaudatus	gavião-fumaça	C	V
Buteo albonotatus	gavião-preto	I	C
Buteo brachyurus		R	V
Buteo nitidus		I	V

Taxa	Local name	Frequency	Evidence
Rupornis magnirostris		C	C
Heterospizias meridionalis		C	V
Geranospiza caerulescens	pernilongo	I	V
Falconiformes			
Falconidae (7)			
Herpetotheres cachinnans	cauã	C	C, G
Micrastur semitorquatus		C	C, G
Micrastur ruficollis		C	C, G
Milvago chimachima		C	V
Caracara plancus	carcará	C	V
Falco femoralis		I	V
Falco sparverius		C	C
Gruiformes			
Rallidae (3)			
Aramides cajanea		R	V
Gallinula galeata	galinha-d'água	R	V
Porphyrio martinica		R	V
Cariamiformes			
Cariamidae (1)			
Cariama cristata	seriema	I	C
Charadriiformes			
Charadriidae (3)			
Vanellus chilensis	téu-téu	C	V
Vanellus cayanus		R	C
Charadrius collaris		R	C
Recurvirostridae (1)			
Himantopus melanurus	garça-do-peito-branco	R	C
Scolopacidae (3)			
Tringa solitaria		R	V
Actitis macularius		R	V
Calidris fuscicollis		R	V
Jacanidae (1)			
Jacana jacana		R	V
Columbiformes			
Columbidae (9)			
Patagioenas picazuro	asa-branca	I	V
Zenaida auriculata	avoante	I	V
Columbina passerina		C	V
Columbina minuta		C	V
Columbina talpacoti	rolinha	C	V
Columbina picui		C	V
Columbina squammata	fogo-pagou	C	C
Claravis pretiosa	rola-azul	I	C, G
Leptotila verreauxi	juriti	C	C
Psittaciformes			
Psittacidae (7)			
Ara chloropterus	arara	R	V
Primolius maracana		R	V
Aratinga cactorum [EN]	guinguirra	C	C, G
Aratinga jandaya		R	V
Forpus xanthopterygius	quilim	C	V
Amazona aestiva	papagaio-verdadeiro	C	C, G
Amazona amazonica	curica	C	C, G

Taxa	Local name	Frequency	Evidence
Cuculiformes			
Cuculidae (7)			
Coccyzus melacoryphus	papa-lagarta	R	C
Coccyzus euleri	papa-lagarta	R	C
Piaya cayana	alma-de-gato	C	C
Crotophaga ani	anum-preto	C	C
Guira guira	anum-branco	C	V
Tapera naevia	peitica	C	O
Dromococcyx phasianellus	peitica	R	C
Strigiformes			
Tytonidae (1)			
Tyto alba	coruja	R	V
Strigidae (5)			
Megascops choliba	corujinha	C	C
Pulsatrix perspicillata	coruja	R	G
Bubo virginianus	coruja	R	O
Glaucidium brasilianum	caburé	C	C
Athene cunicularia	coruja	C	V
Caprimulgiformes			
Nyctibiidae (1)			
Nyctibius griseus	vó-da-lua	C	C
Caprimulgidae (6)			
Chordeiles pusillus	coruja	C	C
Chordeiles acutipennis	coruja	I	V
Hydropsalis albicollis	coruja	C	C
Antrostomus rufus	coruja	C	C
Hydropsalis hirundinacea [EN]	coruja	R	G
Hydropsalis torquata		C	C
Apodiformes			
Apodidae (3)			
Streptoprocne biscutata	andorinha	C	C
Chaetura meridionalis	andorinha	C	V
Tachornis squamata	andorinha	C	V
Trochilidae (8)			
Anopetia gounellei [EN]		I	C
Phaethornis pretrei	pinica-flor	I	C
Eupetomena macroura	pinica-flor	I	C
Anthracothorax nigricollis	pinica-flor	R	C
Chrysolampis mosquitus	pinica-flor	C	C
Chlorostilbon lucidus	pinica-flor	C	C
Amazilia versicolor	pinica-flor	R	V
Amazilia fimbriata	pinica-flor	C	C
Trogoniformes			
Trogonidae (1)			
Trogon curucui	maria-mole	C	C, G
Coraciiformes			
Alcedinidae (1)			
Chloroceryle amazona		R	V
Galbuliformes			
Galbulidae (1)			
Galbula ruficauda	pinica-flor	C	C
Bucconidae (1)			
Nystalus maculatus	fura-barreira	C	C

Taxa	Local name	Frequency	Evidence
Piciformes			
Picidae (8)			
Picumnus pygmaeus EN	pinica-pauzinho	I	C
Colaptes campestris	pinica-pau	C	V
Colaptes melanochloros	pinica-pau	I	V
Piculus chrysochloros	pinica-pau	C	C
Celeus flavescens	pinica-pau	C	C, G
Dryocopus lineatus	pinica-pau	I	V
Veniliornis passerinus	pinica-pau	C	C
Campephilus melanoleucos	pinica-pau	R	V
Passeriformes			
Thamnophilidae (9)			
Taraba major	corró	C	C
Sakesphorus cristatus EN	corrozinho	C	C, G
Thamnophilus capistratus	corró	C	C, G
Thamnophilus pelzelni	corró	C	C, G
Thamnophilus torquatus	corró	R	O
Myrmorchilus strigilatus	farinheiro	C	C, G
Herpsilochmus atricapillus	açuceninha	C	C, G
Herpsilochmus sellowi EN	açuceninha	C	C, G
Formicivora melanogaster	rasteiro	C	C
Conopophagidae (1)			
Conopophaga roberti		C	C, G
Grallariidae (1)			
Hylopezus ochroleucus EN		C	C, G
Scleruridae (1)			
Sclerurus scansor cearensis EN #		C	C, G
Dendrocolaptidae (5)			
Sittasomus griseicapillus	subideira	C	C, G
Xiphocolaptes falcirostris # EN	subideira	I	C
Dendrocolaptes platyrostris	subideira	C	C, G
Lepidocolaptes angustirostris	subideira	C	C
Campylorhamphus trochilirostris	subideira	C	C
Furnariidae (9)			
Furnarius leucopus	joão-de-barro	I	V
Furnarius figulus	joão-de-barro	R	V
Synallaxis frontalis	rasteirinho	C	C
Synallaxis albescens	rasteirinho	C	C
Synallaxis scutata	rasteirinho	C	C, G
Gyalophylax hellmayri EN	justinha	R	C
Certhiaxis cinnamomeus		R	V
Pseudoseisura cristata	casaca	C	V, G
Megaxenops parnaguae EN	maria-joaquina	C	C, G
Pipridae (1)			
Neopelma pallescens		I	C
Tityridae (2)			
Pachyramphus viridis		R	C
Pachyramphus polychopterus		C	V, O
Cotingidae (1)			
Procnias averano #	ferreiro	R	C
Rhynchocyclidae (5)			
Leptopogon amaurocephalus		I	C

Taxa	Local name	Frequency	Evidence
Hemitriccus margaritaceiventer	sebite	C	C
Todirostrum cinereum	sebite	C	V, O
Tolmomyias sulphurescens	justinha-de-riacho	R	C
Tolmomyias flaviventris	justinha	C	C
Tyrannidae (33)			
Stigmatura napensis		R	V
Phyllomyias fasciatus	justinha	R	V, O
Camptostoma obsoletum	justinha	I	C
Phaeomyias murina	justinha	C	C
Sublegatus modestus	justinha	R	V
Myiopagis viridicata	justinha	C	C
Myiopagis caniceps		R	V
Elaenia flavogaster	justinha	I	C
Elaenia cristata	justinha	R	C
Elaenia aff. mesoleuca		R	V
Euscarthmus meloryphus	açucena	C	C, G
Platyrinchus mystaceus		R	C
Myiobius barbatus		I	C
Myiophobus fasciatus	justinha	R	V
Lathrotriccus euleri	justinha	R	V
Cnemotriccus fuscatus	justinha	C	C
Xolmis irupero		R	C
Fluvicola pica	lavadeira	I	V
Fluvicola nengeta	lavadeira	I	V
Arundinicola leucocephala		R	V
Hirundinea ferruginea	justinha-da-serra	C	C
Machetornis rixosa		R	V
Casiornis fusca		C	C
Myiarchus tyrannulus		C	C
Myiarchus swainsoni		I	C
Pitangus sulphuratus	bem-te-vi	C	V
Megarhynchus pitangua	bem-te-vi	C	C
Myiozetetes similis	bem-te-vi	R	V
Myiodynastes maculatus	rajadão	C	C
Legatus leucophaius		I	C
Empidonomus varius	rajado	C	C
Tyrannus savana	tesoura	R	V
Tyrannus melancholicus	justa	C	C
Vireonidae (3)			
Cyclarhis gujanensis		C	C
Vireo olivaceus		C	C
Hylophilus amaurocephalus		C	C
Corvidae (1)			
Cyanocorax cyanopogon	cãn-cãn	C	C
Hirundinidae (5)			
Tachycineta leucorrhoa	andorinha	R	V
Progne tapera	andorinha	R	V
Progne chalybea	andorinha	R	V
Pygochelidon cyanoleuca	andorinha	R	V
Stelgidopteryx ruficollis	andorinha	R	V
Troglodytidae (2)			
Canthorchilus longirostris		C	C
Troglodytes musculus		C	C

Taxa	Local name	Frequency	Evidence
Donacobiidae (1)			
Donacobius atricapillus		R	V
Polioptilidae (1)			
Polioptila plumbea	sebitinha	C	C
Turdidae (3)			
Turdus rufiventris	sabiá	I	V
Turdus leucomelas	sabiá	C	C
Turdus amaurochalinus	sabiá	I	C
Mimidae (1)			
Mimus saturninus		C	V
Coerebidae (1)			
Coereba flaveola	sebite	C	V
Thraupidae (12)			
Schistochlamys ruficapillus		R	C
Compsothraupis loricata [EN]		C	C
Thlypopsis sórdida		R	V
Hemithraupis guira		C	C
Nemosia pileata	cabeça-preta	C	C
Lanio pileatus	galo-de-campina	C	C
Tangara sayaca	azulão	C	C
Tangara palmarum	sanhaço	C	C
Tangara cayana		R	C
Dacnis cayana		I	V
Conirostrum speciosum		R	C
Paroaria dominicana [EN]	cardeal	C	C
Emberizidae (6)			
Zonotrichia capensis		R	V
Ammodramus humeralis		C	V
Volatinia jacarina		C	V
Sporophila lineola	coleirinho	R	C
Sporophila nigricollis	coleiro	C	C
Sporophila albogularis [EN]		R	V
Cardinalidae (2)			
Piranga flava	justa-de-peito-amarelo	C	C
Cyanoloxia brissonii	azulão	C	C
Parulidae (3)			
Parula pitiayumi		R	V
Geothlypis aequinoctialis		R	V
Basileuterus flaveolus	amarelinho	C	C
Icteridae (7)			
Icterus cayanensis	pêga	C	C
Icterus jamacaii	corrupião	C	C
Chrysomus ruficapillus	casaca-de-arroz	I	C
Sturnella militaris		I	V
Gnorimopsar chopi	pássaro-preto	C	C
Agelaioides badius		R	V
Molothrus bonariensis	casaca	R	C
Fringillidae (1)			
Euphonia chlorotica	vim-vim	C	C
Passeridae (1)			
Passer domesticus	pardal	C	C