Revista Brasileira de Ornitologia, 24(2), 168-184
June 2016

ARTICLE

A collection of birds from Presidente Kennedy and adjacent areas, Tocantins: a further contribution to knowledge of Amazonian avifauna between the Araguaia and Tocantins Rivers

Guilherme R. R. Brito[1,2], Guy M. Kirwan[1,3], Claydson P. Assis[1,4], Daniel H. Firme[1,4], Daniel M. Figueira[1], Nelson Buainain[1] and Marcos A. Raposo[1]

[1] Setor de Ornitologia, Museu Nacional / UFRJ, Departamento de Vertebrados, Horto Botânico, Quinta da Boa Vista s/n, São Cristóvão, CEP 20940-040, Rio de Janeiro, RJ, Brazil.
[2] Departamento de Zoologia, Instituto de Biologia / UFRJ, Av. Carlos Chagas Filho, 373, Ilha do Fundão, Cidade Universitária, CEP 21941-941, Rio de Janeiro, RJ, Brazil.
[3] Field Museum of Natural History, 1400 South Lakeshore Drive, Chicago, IL 60605, USA.
[4] Instituto de Biociências da Universidade de São Paulo, Rua do Matão, travessa 14, nº 321, Cidade Universitária, CEP 05508-090, São Paulo, SP, Brazil.
[5] Corresponding author: grenzobrito@gmail.com

Received on 25 August 2015. Accepted on 13 June 2016.

ABSTRACT: We report on a collection of birds made at a study site in Presidente Kennedy, midway between the Araguaia and Tocantins Rivers, in north-central Tocantins state, Brazil. Interesting records are presented for 22 species, most of them principally Amazonian taxa with comparatively few previous records for the state of Tocantins, and generally amplifying their local ranges either further south, from the north of the state, or further east, from the banks of the Araguaia River. Among them, we report the first specimen records for Tocantins of hybrids/intermediaries *Pyrrhura* parakeets of the "*P. perlata-coerulescens*" complex (which was common at our study site), Pearly-breasted Cuckoo *Coccyzus euleri*, Yellow-billed Cuckoo *C. americanus*, Rufous-tailed Flatbill *Ramphotrigon ruficauda* and Sooty Grassquit *Tiaris fuliginosus*. Our surveys emphasize once more the unusually high component of Amazonian species within the scattered taller forests of this region of predominantly Cerrado physiognomies.

KEY-WORDS: Amazonia, Brazil, new records, ornithology, *Pyrrhura perlata-coerulescens* complex.

INTRODUCTION

Brazil's newest state, Tocantins, was created in 1988, encompassing what had formerly been the northern part of the state of Goiás. Construction of its capital, Palmas, commenced in 1989; most other cities in the state date back to the Portuguese colonial period. Most of Tocantins (except the extreme western and northern parts) is situated within the Cerrado biome. The western boundary of the state is formed by the floodplain of the Araguaia River, which includes extensive wetlands and Amazonian forest. The Ilha do Bananal, formed by two branches of the Araguaia, is generally stated to be the largest river island in the world, and consists of marshlands and seasonally flooded savannas with gallery forest; where the two branches meet, they form the Cantão inland delta, now protected as part of a state park, with typical Amazonian *igapó* flooded forest.

Among the most important historical data on the ornithology of Tocantins were the 20th century surveys by Emilie and Heinrich E. Snethlage, and later on by José Hidasi . Emilie Snethlage, famous for her prodigious collections and publications on Brazilian birds, visited what is now Tocantins in 1927 (at the time part of Goiás state), more specifically the Ilha do Bananal, and the locality of Furo de Pedra (*c.* 10°28'S; 50°23'W) on the banks of the Araguaia River, where she collected the type series of Bananal Antbird *Cercomacra ferdinandi* and *Serpophaga araguayae* – the latter, shown to be a misidentification of male Grey Elaenia *Myiopagis caniceps* (Silva 1990, Teixeira 1990, Sick 1997). Although Snethlage published little concerning her findings in Tocantins (Silva 1989), several of the noteworthy records reported in the present work are the first for the state since then.

Thereafter, Dr. Emil Heinrich Snethlage, Emilie Snethlage's nephew spent approximately four months in this general region, between November 1925 and February 1926, at the localities of Carolina, in Maranhão

state, and Philadelphia, Santo Antonio and Boa Vista, in present-day Tocantins. However, due to a rebellion and his own poor health, very little collecting was possible (Hellmayr 1929).

José Hidasi, the most prolific bird collector in Tocantins state, started his work in the 1960s, and founded the "Museu Ornitológico de Goiânia" in 1968, where the majority of bird skins collected by him in the state are housed (although many others are now in other institutions elsewhere in Brazil, and still more have been sold to collections as far afield as North America and Europe), including several from the central portion of the state and directly related to the present work (Perotti 2005).

More recently, De Luca *et al*. (2009) delineated four Important Bird Areas (IBAs) in the Araguaia–Tocantins interfluvium. The most important (geographically) in relation to the present study being TO04 and TO05. Cantão State Park (TO04) is situated north of Bananal Island on the floodplains between the Coco, Araguaia and Javaés Rivers, with *c.* 90,000 ha of fully protected areas with Cerrado and dense ombrophylous Amazonian forests in the municipality of Pium. For detailed avifaunal information, see Buzzetti (2004), Pacheco & Olmos (2006), Pinheiro & Dornas (2009) and Dornas & Pinheiro (2011).

The gallery forests of the Coco River and tributaries (TO05), and the adjacent areas of Caseara, Marianópolis do Tocantins, Divinópolis do Tocantins, Pium, Chapada de Areia and Monte Santo do Tocantins municipalities comprise *c.* 138,000 ha covering the same biomes as the previous IBA, but comparatively little of the area is protected, despite the presence of several globally threatened species (De Luca *et al*. 2009). Our purpose here is report on a survey of birds made at a locality in north-central Tocantins, in particular record the Amazonian component of its avifauna.

METHODS

Ornithological survey

The inventory was undertaken via three surveys performing a total of 19 days each (the first one on 6–13 August 2010, the second on 18–22 November 2010 and the last on 18–23 August 2011), with the main objective to carry out a comprehensive analysis of the relationship between birds and power-transmission lines in Brazil, with Presidente Kennedy being one of the focus areas (Raposo *et al*. 2013). Systematic sampling of the avifauna consisted of three different methods: mist-net captures, point counts and opportunistic observations (the latter with help of shotguns).

Point counts were performed following the methodology of Blondel *et al*. (1970) wherein all contacts (auditory and visual) were registered within a 50 m radius at each point, separated from one another by 250 m. The starting point was randomly selected to determine the order of sampling, and a total of 60 point counts per survey were sampled.

A line of 35 mist-nets (each 12 m in length and 2.5 m high) was erected parallel to the powerline, extending through the forest interior for *c.* 420 m, and was opened for a minimum period of 8 h, with a total sampling effort of 2100 net-hours. Opportunistic observations were made while transiting between the core sample areas, and by stopping in suitable areas where birds congregate (ponds, lakes, swamps). Important specimens were also shot throughout the survey period.

All collected specimens are housed at the Museu Nacional/UFRJ ornithological collection (MN). Other acronyms used in the present study were: MZUSP (Museu de Zoologia da USP, São Paulo, SP); MPEG (Museu Paraense Emilio Goeldi, Belém, PA); MOG (Museu Ornitológico de Goiânia, Goiânia, GO); COMB (Coleção Ornitológica Marcelo Bagno da UnB, Brasília, DF); COCEULP/ULBRA (Coleção Ornitológica do Centro Universitário Luterano de Palmas/Universidade Luterana do Brasil, Palmas, TO); MZJH (Museu de Zoologia José Hidasi da UNITINS, Palmas, TO); FMNH (Field Museum of Natural History, Chicago, IL, USA) and WA (Wikiaves, www.wikiaves.com.br). The software QUANTUM GIS 2.6.1-Brighton Application was used to generate the map showing the study site and adjacent locations. Spatial data were obtained at http://www.diva-gis.org.

Because the objective of the present study is report the most interesting findings, particularly the records of uncommon species and new records that increase our knowledge on the distribution and composition of Amazonian avifaunal elements within the state of Tocantins, no quantitative data are presented, but these are available in Raposo *et al*. (2013). The species list present on Table 1 was the outline for the elected species accounts, with type of record (heard only, visual, sound-recorded or specimen with ascension numbers).

Study site

The study site was located at 08°31'34.69"S; 48°28'10.64"W (250 m a.s.l.), at the northwestern tip of a forest fragment of *c.* 53,508 ha, *c.* 4 km east of Presidente Kennedy. It is predominantly characterized by Cerrado vegetation, albeit with a strong Amazonian influence, and a canopy height varying between *c.* 10 m and 16 m (Figures 1 and 2). Lying in the northern half of Tocantins state, within the Araguaia–Tocantins interfluvium, main waterbodies in the site are the Feio, Água Fria and São

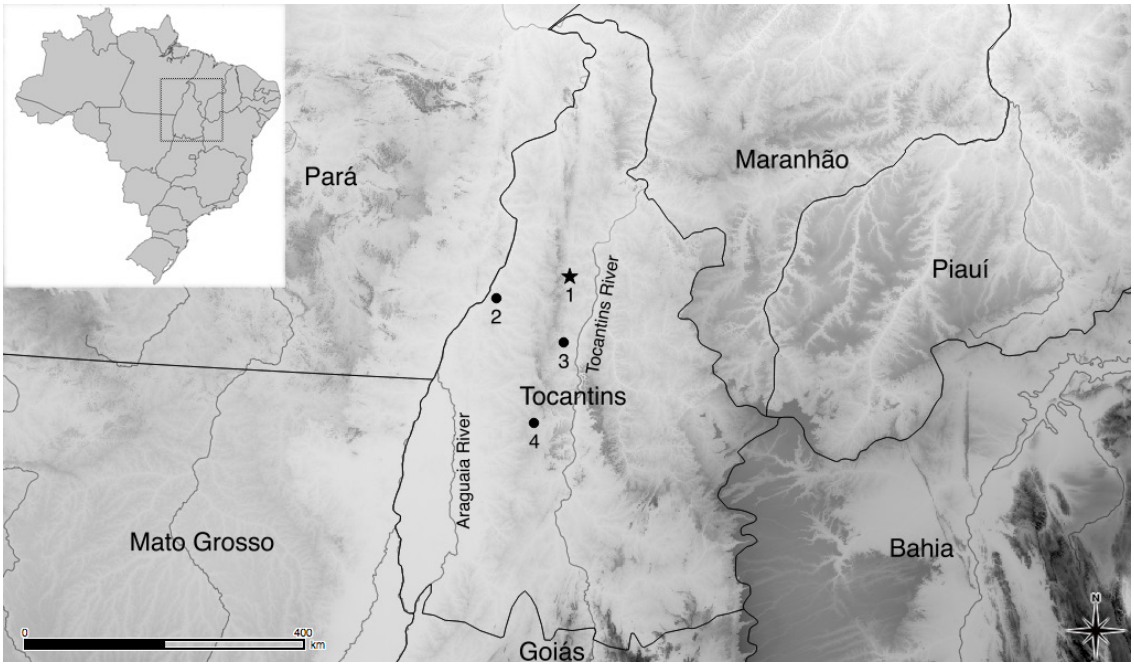

FIGURE 1. Map depicting the main localities surveyed in Tocantins state, Brazil. 1 - Presidente Kennedy; 2 - Guaraí-Araguacema Road; 3 - Rio dos Bois; 4 - Pium.

João Rivers, all of which are left-bank tributaries of the Tocantins River. The study site lies near the centre of the municipality of Presidente Kennedy, beside the main BR-153 road, and comprises a fragment of native vegetation at Fazenda Água Fria, on the left bank of the river of the same name, on undulating terrain with dystrophic red-yellow latosols. The LT 500 kV Imperatriz–Samambaia powerline at its westernmost border, which has isolated several small, narrow strips of vegetation, intersects the forest fragment. Evidence of burning is present in both portions of the forest fragment either side of the powerline.

Overall, the region lies within the transition zone between the Cerrado and Amazonian forest biomes. According to the map of Project RadamBrasil (1981), there is a matrix of habitats, but the predominant vegetation is typical of the central Brazilian savannas (Cerrado *sensu lato*), with wooded savannas covering the interfluvium. *Várzea* borders the rivers, *i.e.* gallery forests with floristic elements associated with the phytogeographic system of open ombrophylous forests, whose composition resembles those of lowland Amazonia.

Due these characteristics, Project RadamBrasil (1981) characterized forest patches of the region as a kind of floristic contact or ecological tension zone between the savannas and open ombrophylous forests. According to Veloso *et al.* (1991), areas of contact can exist between two or more phytoecological regions. Contact zones can take the form of enclaves, as well ecotones, where species of savanna and open ombrophylous forest occur together. Haidar *et al.* (2013) attests that these ecotonal forest patches in Tocantins are similar to those found in northern Mato Grosso state, reinforcing its transitional nature and the need for an efficient nomenclature for these forest types in relation to the regular deciduous and semi-deciduous forests present in the state. One of the main characteristics of the vegetation at the study site is that the majority of the forest area is deciduous, with small patches of evergreen forest on soils with a higher water table; this forest mosaic is better perceived in the dry season.

FIGURE 2. Overall appearance of the main study site in Tocantins state, Brazil.

TABLE 1. Species of birds recorded at our Presidente Kennedy, TO, study site and adjacent localities. Status (*sensu* Piacentini *et al.* 2015): R – resident, VN – seasonal visitor (northern hemisphere), E – Brazilian endemic; Record type: Ho – heard only; V – visual; C – collected. * - specimen found run over on highway. In accordance with the recommendations in Lees *et al.* (2014) we include registration numbers for the specimens collected (MN – skin / MNA – anatomical / TERNA – field number [specimen still in processing for taxidermy or skeleton preparation]).

Taxon	English Name	Status in Brazil	Presidente Kennedy	Adjacent Localities	Register type	Ascension numbers
Rheidae						
Rhea americana (Linnaeus, 1758)	Greater Rhea	R	X		V	
Tinamidae						
Crypturellus strigulosus (Temminck, 1815)	Brazilian Tinamou	R	X		C, Ho	MN 50101
Crypturellus parvirostris (Wagler, 1827)	Small-billed Tinamou	R	X		C, Ho	MN 49834
Rhynchotus rufescens (Temminck, 1815)	Red-winged Tinamou	R	X		Ho	
Cracidae						
Penelope superciliaris Temminck, 1815	Rusty-margined Guan	R	X		C	MN 47660
Cathartidae						
Cathartes aura (Linnaeus, 1758)	Turkey Vulture	R	X		C, V	TERNA 1363
Coragyps atratus (Bechstein, 1793)	Black Vulture	R	X		V	
Sarcoramphus papa (Linnaeus, 1758)	King Vulture	R	X		V	
Accipitridae						
Elanus leucurus (Vieillot, 1818)	White-tailed Kite	R	X		V	
Ictinia plumbea (Gmelin, 1788)	Plumbeous Kite	R	X		C, V	MN 48849
Rupornis magnirostris (Gmelin, 1788)	Roadside Hawk	R	X		V, Ho	
Geranoetus albicaudatus (Vieillot, 1816)	White-tailed Hawk	R	X		V	
Buteo nitidus (Latham, 1790)	Gray-lined Hawk	R	X		C	MN 47650
Spizaetus tyrannus (Wied, 1820)	Black Hawk-Eagle	R	X		V, Ho	
Falconidae						
Caracara plancus (Miller, 1777)	Southern Caracara	R	X		V	
Milvago chimachima (Vieillot, 1816)	Yellow-headed Caracara	R	X		V, Ho	
Falco femoralis Temminck, 1822	Aplomado Falcon	R	X		V	
Falco peregrinus Tunstall, 1771	Peregrine Falcon	VN	X		V	
Cariamidae						
Cariama cristata (Linnaeus, 1766)	Red-legged Seriema	R	X		V, Ho	
Jacanidae						
Jacana jacana (Linnaeus, 1766)	Wattled Jacana	R	X		V	
Columbidae						
Columbina minuta (Linnaeus, 1766)	Plain-breasted Ground Dove	R	X		C, V	TERNA 507
Columbina talpacoti (Temminck, 1811)	Ruddy Ground Dove	R	X		C, V	TERNA 1386

Taxon	English Name	Status in Brazil	Presidente Kennedy	Adjacent Localities	Register type	Ascension numbers
Claravis pretiosa (Ferrari-Perez, 1886)	Blue Ground Dove	R	X		C, V, Ho	MN 49593
Patagioenas speciosa (Gmelin, 1789)	Scaled Pigeon	R	X		C, V, Ho	MN 49838
Psittacidae						
Ara ararauna (Linnaeus, 1758)	Blue-and-yellow Macaw	R	X		V	
Orthopsittaca manilata (Boddaert, 1783)	Red-bellied Macaw	R	X		V	
Primolius auricollis (Cassin, 1853)	Yellow-collared Macaw	R	X		V	
Psittacara leucophthalmus (Statius Muller, 1776)	White-eyed Parakeet	R	X		V, Ho	
Eupsittula aurea (Gmelin, 1788)	Peach-fronted Parakeet	R	X		V	
Pyrrhura lepida (Wagler, 1832)	Pearly Parakeet	R, E	X		C, V	MN 47649; MN 49580; MN 49581
Cuculidae						
Piaya cayana (Linnaeus, 1766)	Squirrel Cuckoo	R	X		C, V, Ho	MNA 6549
Coccyzus americanus (Linnaeus, 1758)	Yellow-billed Cuckoo	VN	X		C, V	MN A6567
Coccyzus euleri Cabanis, 1873	Pearly-breasted Cuckoo	R	X		C, V	MN 48847
Crotophaga ani Linnaeus, 1758	Smooth-billed Ani	R	X		V	
Tapera naevia (Linnaeus, 1766)	Striped Cuckoo	R	X		Ho	
Dromococcyx pavoninus Pelzeln, 1870	Pavonine Cuckoo	R	X		C, Ho	MN 47661
Strigidae						
Glaucidium brasilianum (Gmelin, 1788)	Ferruginous Pygmy-Owl	R	X		C, Ho	MN 49827
Caprimulgidae						
Caprimulgus parvulus Gould, 1837	Little Nightjar	R	X		C	TERNA 497
Apodidae						
Tachornis squamata (Cassin, 1853)	Fork-tailed Palm-Swift	R	X		V	
Trochilidae						
Phaethornis ruber (Linnaeus, 1758)	Reddish Hermit	R	X		V	
Phaethornis pretrei (Lesson & Delattre, 1839)	Planalto Hermit	R	X		V	
Anthracothorax nigricollis (Vieillot, 1817)	Black-throated Mango	R	X		C, V	TERNA 380
Thalurania furcata (Gmelin, 1788)	Fork-tailed Woodnymph	R	X		C, V	MN 49841; MN 49901
Trogonidae						
Trogon viridis Linnaeus, 1766	Green-backed Trogon	R	X		C, V, Ho	TERNA 488; TERNA 489
Trogon curucui Linnaeus, 1766	Blue-crowned Trogon	R	X		V, Ho	
Momotidae						
Momotus momota (Linnaeus, 1766)	Amazonian Motmot	R	X	Guaraí-Araguacema Road	C, Ho	MN 48839
Alcedinidae						
Chloroceryle inda (Linnaeus, 1766)	Green-and-rufous Kingfisher	R		Guaraí-Araguacema Road	C, V	MN 50609

Taxon	English Name	Status in Brazil	Presidente Kennedy	Adjacent Localities	Register type	Ascension numbers
Galbulidae						
Brachygalba lugubris (Swainson, 1838)	Brown Jacamar	R	X		C, V	MN 49585; MN 49586
Galbula ruficauda Cuvier, 1816	Rufous-tailed Jacamar	R	X		C, V, Ho	MN 47644; MN 50246; MN 48826; MN 49598
Bucconidae						
Notharchus tectus (Boddaert, 1783)	Pied Puffbird	R	X		C, V	MN 49579
Bucco tamatia Gmelin, 1788	Spotted Puffbird	R	X		C	TERNA 903
Nystalus maculatus (Gmelin, 1788)	Spot-backed Puffbird	R	X		C, V	MN 49905
Monasa nigrifrons (Spix, 1824)	Black-fronted Nunbird	R	X		C, V, Ho	TERNA 391; TERNA 437
Chelidoptera tenebrosa (Pallas, 1782)	Swallow-winged Puffbird	R	X		C, V	MN 49594
Ramphastidae						
Ramphastos toco Statius Muller, 1776	Toco Toucan	R	X		V	
Ramphastos tucanus Linnaeus, 1758	White-throated Toucan	R	X		V, Ho	
Ramphastos vitellinus Lichtenstein, 1823	Channel-billed Toucan	R	X		C, V, Ho	MNA 8144
Selenidera gouldii (Natterer, 1837)	Gould's Toucanet	R	X		C, Ho	MNA 8218
Picidae						
Melanerpes cruentatus (Boddaert, 1783)	Yellow-tufted Woodpecker	R	X		C, V	MN 49161; MN 49163
Veniliornis affinis (Swainson, 1821)	Red-stained Woodpecker	R	X		C, V, Ho	MN 49909
Piculus flavigula (Boddaert, 1783)	Yellow-throated Woodpecker	R	X		V	
Celeus ochraceus (Spix, 1824)	Blond-crested Woodpecker	R	X		C, V, Ho	MN 47658; MN 47659; MN 47669; MN 49064
Celeus flavus (Statius Muller, 1776)	Cream-colored Woodpecker	R	X		C, V, Ho	MN 47667; MN 47668
Celeus obrieni Short, 1973	Kaempfer's Woodpecker	R, E	X	Pium and Rio dos Bois - TO	C, V, Ho	MN 49065; MN 48828; MN 48362; MN 49286
Thamnophilidae						
Taraba major (Vieillot, 1816)	Great Antshrike	R	X		C, V	MN4 9903
Thamnophilus pelzelni Hellmayr, 1924	Planalto Slaty-Antshrike	R, E	X		C, V, Ho	MNA 6562; MN A6550; MNA 6561
Thamnophilus amazonicus Sclater, 1858	Amazonian Antshrike	R	X		C, V	MN 50161
Dysithamnus mentalis (Temminck, 1823)	Plain Antvireo	R	X		C, V, Ho	MN 47606; MN 47607; MN 47632; MN 47666
Myrmotherula axillaris (Vieillot, 1817)	White-flanked Antwren	R	X		C, Ho	MN 50310
Herpsilochmus atricapillus Pelzeln, 1868	Black-capped Antwren	R	X		C, V, Ho	MN 48840; MN 48842; MN 49592
Formicivora grisea (Boddaert, 1783)	White-fringed Antwren	R	X		C, V, Ho	MN 47610; MN 47614; MN 50215; MN 47615
Cercomacra ferdinandi Snethlage, 1928	Bananal Antbird	R, E	X		V, Ho	
Willisornis vidua (Cabanis, 1847)	Scale-backed Antbird	R	X		C, V	MN 47608; MN 47611; MN 47612; MN 47641
Formicariidae						
Formicarius colma Boddaert, 1783	Rufous-capped Antthrush	R	X		C, Ho	MN 50167; MN 50223; MN 47637

Taxon	English Name	Status in Brazil	Presidente Kennedy	Adjacent Localities	Register type	Ascension numbers
Dendrocolaptidae						
Dendrocincla fuliginosa (Vieillot, 1818)	Plain-brown Woodcreeper	R	X		C	MN 47639; MN 50210; MN 50209; MN 49587
Sittasomus griseicapillus (Vieillot, 1818)	Olivaceous Woodcreeper	R	X		C, V, Ho	MN 50272
Dendroplex picus (Gmelin, 1788)	Straight-billed Woodcreeper	R	X		C, V	TERNA 511; TERNA 416
Xiphorhynchus spixii (Lesson, 1830)	Spix's Woodcreeper	R, E	X		C, V	MN 47664
Furnariidae						
Synallaxis scutata Sclater, 1859	Ochre-cheeked Spinetail	R	X		C, Ho	MN 47651; MN 48846; MN 49906
Certhiaxis cinnamomeus (Gmelin, 1788)	Yellow-chinned Spinetail	R		Guaraí-Araguacema Road	C, V	MN 49597
Xenops minutus (Sparrman, 1788)	Plain Xenops	R	X		C, V, Ho	MN 8200
Tyrannidae						
Corythopis torquatus (Tschudi, 1844)	Ringed Antpipit	R	X		V, Ho	
Hemitriccus striaticollis (Lafresnaye, 1853)	Stripe-necked Tody-Tyrant	R	X		C, Ho	MN 48841
Hemitriccus margaritaceiventer (d'Orbigny & Lafresnaye, 1837)	Pearly-vented Tody-Tyrant	R	X		C, Ho	MN 50610
Myiornis ecaudatus (d'Orbigny & Lafresnaye, 1837)	Short-tailed Pygmy-Tyrant	R	X		C, V	MN 49840
Poecilotriccus fumifrons (Hartlaub, 1853)	Smoky-fronted Tody-Flycatcher	R	X	Pium - TO	C, Ho	MN A8527
Myiopagis gaimardii (d'Orbigny, 1839)	Forest Elaenia	R	X		Ho	
Myiopagis viridicata (Vieillot, 1817)	Greenish Elaenia	R	X		C, Ho	MN 50252
Camptostoma obsoletum (Temminck, 1824)	Southern Beardless-Tyrannulet	R	X		C, V, Ho	MN 47630; MN 47629
Capsiempis flaveola (Lichtenstein, 1823)	Yellow Tyrannulet	R	X		C, V, Ho	TERNA 1448
Tolmomyias sulphurescens (Spix, 1825)	Yellow-olive Flycatcher	R	X		C, V, Ho	MNA 6566
Tolmomyias flaviventris (Wied, 1831)	Yellow-breasted Flycatcher	R	X		C, V, Ho	MN 50233
Platyrinchus mystaceus Vieillot, 1818	White-throated Spadebill	R	X		C, V, Ho	MN 50232; MN 50312; MN 50297; MN 50248
Cnemotriccus fuscatus (Wied, 1831)	Fuscous Flycatcher	R	X		C, V, Ho	MN 49902
Fluvicola albiventer (Spix, 1825)	Black-backed Water-Tyrant	R	X		C	TERNA 1428
Colonia colonus (Vieillot, 1818)	Long-tailed Tyrant	R	X		V	
Machetornis rixosa (Vieillot, 1819)	Cattle Tyrant	R	X		V	
Legatus leucophaius (Vieillot, 1818)	Piratic Flycatcher	R	X		V, Ho	
Myiozetetes cayanensis (Linnaeus, 1766)	Rusty-margined Flycatcher	R	X		V, Ho	
Pitangus sulphuratus (Linnaeus, 1766)	Great Kiskadee	R	X		C, V, Ho	TERNA 519
Philohydor lictor (Lichtenstein, 1823)	Lesser Kiskadee	R		Guaraí-Araguacema Road	C	MN 49823
Myiodynastes maculatus (Statius Muller, 1776)	Streaked Flycatcher	R	X		C, V	MN 48852
Megarynchus pitangua (Linnaeus, 1766)	Boat-billed Flycatcher	R	X		C, V, Ho	TERNA 383

Taxon	English Name	Status in Brazil	Presidente Kennedy	Adjacent Localities	Register type	Ascension numbers
Griseotyrannus aurantioatrocristatus (d'Orbigny & Lafresnaye, 1837)	Crowned Slaty Flycatcher	R	X		C, V	MN 47628
Tyrannus savana Vieillot, 1808	Fork-tailed Flycatcher	R	X		V	
Rhytipterna simplex (Lichtenstein, 1823)	Grayish Mourner	R	X		C, V, Ho	MN 47643; MNA 6548; MNA 6552
Sirystes sibilator (Vieillot, 1818)	Sibilant Sirystes	R	X		C, Ho	MN 49159
Casiornis fuscus Sclater & Salvin, 1873	Ash-throated Casiornis	R, E	X		C, V	MN 50611
Myiarchus tuberculifer (d'Orbigny & Lafresnaye, 1837)	Dusky-capped Flycatcher	R	X		C	TERNA 1379
Myiarchus swainsoni Cabanis & Heine, 1859	Swainson's Flycatcher	R	X		C, V, Ho	TERNA 512; TERNA 368
Myiarchus ferox (Gmelin, 1789)	Short-crested Flycatcher	R	X		C, V, Ho	MN 49601; MN 49602; MN 47648; MN 47670
Ramphotrigon ruficauda (Spix, 1825)	Rufous-tailed Flatbill	R	X		C	MN 47663
Attila spadiceus (Gmelin, 1789)	Bright-rumped Attila	R	X		V, Ho	
Cotingidae						
Lipaugus vociferans (Wied, 1820)	Screaming Piha	R	X		C, V, Ho	MN 49828
Pipridae						
Neopelma pallescens (Lafresnaye, 1853)	Pale-bellied Tyrant-Manakin	R	X		C, V, Ho	MN 47633; MN 47634; MNA 6560; MN 50263
Manacus manacus (Linnaeus, 1766)	White-bearded Manakin	R	X		C, V, Ho	MNA 6554; MN 6563; MNA 7440
Chiroxiphia pareola (Linnaeus, 1766)	Blue-backed Manakin	R	X		C, V, Ho	MN 47638; MN 47640; MN 50225
Tityridae						
Schiffornis turdina (Wied, 1831)	Greenish Schiffornis	R, E	X		C, V, Ho	MN 49900
Iodopleura isabellae Parzudaki, 1847	White-browed Purpletuft	R	X		C, V	MN 47636; MN 49584
Pachyramphus polychopterus (Vieillot, 1818)	White-winged Becard	R	X		V	
Xenopsaris albinucha (Burmeister, 1869)	White-naped Xenopsaris	R	X		C, V	MN 47616
Vireonidae						
Cyclarhis gujanensis (Gmelin, 1789)	Rufous-browed Peppershrike	R	X		C, V, Ho	TERNA 534
Corvidae						
Cyanocorax cyanopogon (Wied, 1821)	White-naped Jay	R, E	X		C, V, Ho	TERNA 1437; TERNA 1438
Hirundinidae						
Pygochelidon cyanoleuca (Vieillot, 1817)	Blue-and-white Swallow	R	X		V	
Stelgidopteryx ruficollis (Vieillot, 1817)	Southern Rough-winged Swallow	R	X		V	
Progne tapera (Vieillot, 1817)	Brown-chested Martin	R	X		V	
Troglodytidae						
Pheugopedius genibarbis (Swainson, 1838)	Moustached Wren	R	X		C, V, Ho	MN 50305; MN 50258
Turdidae						
Catharus fuscescens (Stephens, 1817)	Veery	VN	X		C, V	MN 501072; MN 48850

Taxon	English Name	Status in Brazil	Presidente Kennedy	Adjacent Localities	Register type	Ascension numbers
Mimidae						
Mimus saturninus (Lichtenstein, 1823)	Chalk-browed Mockingbird	R	X		C, V	TERNA 482
Thraupidae						
Schistochlamys ruficapillus (Vieillot, 1817)	Cinnamon Tanager	R, E	X		C	TERNA 379
Nemosia pileata (Boddaert, 1783)	Hooded Tanager	R	X	Pium - TO	C	MN 50247
Thlypopsis sordida (d'Orbigny & Lafresnaye, 1837)	Orange-headed Tanager	R	X		V	
Tachyphonus cristatus (Linnaeus, 1766)	Flame-crested Tanager	R	X		C, V	MN 47671
Tachyphonus rufus (Boddaert, 1783)	White-lined Tanager	R	X		C, V	MN 49907
Ramphocelus carbo (Pallas, 1764)	Silver-beaked Tanager	R	X	Pium - TO	V	MN 50277; MN 49596
Tangara palmarum (Wied, 1823)	Palm Tanager	R	X		V, Ho	
Tangara cayana (Linnaeus, 1766)	Burnished-buff Tanager	R	X		C, V	MN 47631
Dacnis cayana (Linnaeus, 1766)	Blue Dacnis	R	X		V	
Conirostrum speciosum (Temminck, 1824)	Chestnut-vented Conebill	R	X		V	
Emberizidae						
Volatinia jacarina (Linnaeus, 1766)	Blue-black Grassquit	R	X		C, V, Ho	TERNA 1433
Tiaris fuliginosus (Wied, 1830)	Sooty Grassquit	R	X		C, V	MN 47662
Arremon taciturnus (Hermann, 1783)	Pectoral Sparrow	R	X		C, Ho	MN 47609; MN 47613; MN 50283; MN 50459
Charitospiza eucosma Oberholser, 1905	Coal-crested Finch	R	X		C, V	TERNA 517
Coryphospingus pileatus (Wied, 1821)	Pileated Finch	R	X		C, V	TERNA 371; TERNA 372
Cardinalidae						
Saltator maximus (Statius Muller, 1776)	Buff-throated Saltator	R	X		C, V, Ho	MN 49164
Parulidae						
Geothlypis aequinoctialis (Gmelin, 1789)	Masked Yellowthroat	R	X		V, Ho	
Basileuterus culicivorus (Deppe, 1830)	Golden-crowned Warbler	R	X		C	TERNA 1332
Basileuterus flaveolus (Baird, 1865)	Flavescent Warbler	R	X		C, V, Ho	MN 47642; MN 50026; MN 50275
Granatellus pelzelni Sclater, 1865	Rose-breasted Chat	R	X		C, V	TERNA 1357
Fringillidae						
Euphonia chlorotica (Linnaeus, 1766)	Purple-throated Euphonia	R	X		C, V, Ho	MN 49839
Euphonia violacea (Linnaeus, 1758)	Thick-billed Euphonia	R	X		C	MN 49821

In our study region, it is noteworthy that we found very few fragments of representative natural vegetation of the above-mentioned formations. Throughout the process of human settlement of Tocantins, the regional natural vegetation has been impacted variously, by the unbridled exploitation of forest resources, including direct deforestation (mainly using fire), or via the extensive introduction of cattle on well-managed pastures.

Also noteworthy is that the study site lacks more detailed surveys of its natural resources, beyond that made by Project RadamBrasil (1981), thus surveys of species richness and the occurrence of endemic taxa are not available.

As mentioned, wooded savanna, or typical Cerrado, represents the dominant physiognomy of the study site. The terrain is generally flat to slightly undulating, while quartzite sands with patches of latosols form the substrate. The predominantly sandy soils, associated with factors such as acidity, hydric supplement and fertility, act markedly on the vertical structure and spatial distribution of the arboreal community of the typical local Cerrado, characterized by larger species, with total height varying between 4 and 8 m. Such trees have generally level canopies, are poorly branched and present arboreal coverage of 20–30%. The distribution of arboreal species within the fragment is random, with obvious concentrations of individuals at specific points.

The fragment is representative of the contact between savanna and open ombrophylous forest, but is secondary, not primary forest, due to the process of selective commercial wood extraction. This fact is evidenced by the large number of artificial clearings, the presence of many vines and lianas, tracks for timber removal, and the overall low diversity and dominance of a very small number of species, *e.g. Callistene major* (Vochysiaceae).

Figure 2 illustrates the forest fragment. The vegetation presents well-defined strata. The herbaceous layer is very open, with low species diversity and *Olyria laxiflora* (Poaceae) is predominant. The sub-canopy is more closed, varies between 0.8 m and 1.8 m in height, and presents low species diversity, with representatives of Rubiaceae including species of the genus *Psychotria* and young *Astrocaryum aculeatum* and *Strychnus pseudoquina*, besides many individuals and species of lianas, *e.g. Doliocarpus* sp., *Tretacera* aff. *vollubilis*, *Serjania* sp., *Byrsonima* sp., *Abuta* sp. and *Pleonotoma jasminifolia*. The canopy layer is highly discontinuous, varying between 6 and 12 m in height, with the presence of some emergents of up to 16 m, and is again characterized by relatively low diversity with *Callistene major* the single most numerous species, besides *Martiodendrum mediterraneum* (Ceasalpinioideae) and others.

Adjacent localities

Three adjacent localities had punctual collections and are described and part listed here (Figure 1):

Rio dos Bois – TO (09°22'50.9"S; 48°33'48.8"W): this municipality lies 60 km south of the main study site, and comprises several forest fragments with very similar vegetation characteristics, albeit a greater number of bamboo thickets where one individual of Kaempfer's Woodpecker (*Celeus obrieni*) was seen and collected.

Pium – TO (10°24'10.3"S; 48°56'53.9"W): located 215 km south of the main fragment studied, this site consists of Cerrado *sensu strictu* with bamboo thickets where Kaempfer's Woodpeckers were also seen and collected.

Guaraí – Araguacema road – TO (08°48'35.77"S; 49°25'24.13"W): this is a road on the left bank of the Araguaia River. The surveyed locality was a very large marsh 15 km from the river itself. Several species associated with water were observed and collected (Table 1).

RESULTS AND DISCUSSION

We report the presence of 151 species at the study locality of Presidente Kennedy, Tocantins, and adjacent areas (Table 1). The avifaunal community of the site is characteristic of the open Cerrado grasslands, albeit with several important Amazonian elements, of which the most noteworthy records are detailed in the "Species accounts" that follow.

The study site is apparently the largest forest fragment of its type in central Tocantins and merits further investigation into its avifaunal community, given the potential for further discoveries including yet more new records for the state, and thus a better understanding of the avifaunal dynamics of this still poorly explored region. All specimen data in the following accounts are transcribed from the original field labels, while all measurements were taken by GMK. These were taken according to standard protocols using dial callipers and a wing-rule with a perpendicular stop at zero: wing length (from carpal joint to tip applying gentle pressure to the primary-coverts), tail length (from the distal end of the pygostyle to the tip), tail graduation (from tip of longest to tip of shortest rectrix), tarsus length (from the back of the intertarsal joint to the last complete scute before the toes diverge), and bill length (from the tip of the maxilla to skull).

Species accounts

Brazilian Tinamou *Crypturellus strigulosus* (Temminck, 1815): Not collected. Heard on 20 November 2010.

Pinto (1937) mentioned its occurrence as far east as Pará and south to northern Mato Grosso states, *e.g.* at the Guaporé River (11°54'S; 65°01''W). However, until recently, *C. strigulosus* does not appear to have been mentioned in the literature from Tocantins (see *e.g.*, Hidasi 1983, 1998, 2007, Sick 1997, Pinheiro & Dornas 2009), despite the map in Davies (2002). Nonetheless, E. Snethlage collected a female at Furo das Pedras (*c.* 10°28'S; 50°23'W), in the Ilha do Bananal, on 15 September 1927 (MN 4486), and there is also a female specimen from Barra do Garças (15°53'S; 52°15'W), Mato Grosso, at the border with Goiás, taken on 25 June 1973 (MN 33231) by O. Junqueira, while the species was also recorded in northern Tocantins by Olmos *et al.* (2004) and heard in tall forest south of Senhor do Bonfim in January 2009 (Kirwan *et al*. 2015). Dornas (2009) incorrectly listed the specimen as "MN 1876", but this is the same as MN 4486; 1876 is s the field collector's number.

Yellow-collared Macaw *Primolius auricollis* (Cassin, 1853): Not collected. Two individuals were observed by CPA, MAR and DHF at a *vereda* together with Blue-and-yellow Macaws, *Ara ararauna*. In Tocantins the species range is apparently confined to the Vale do Araguaia (Gwynne *et al.* 2010, Kirwan *et al.* 2015) and the present record therefore plausibly might pertain to escapees.

Pearly Parakeet "*Pyrrhura perlata-coerulescens*" complex and **Crimson-bellied Parakeet** *P. perlata* (Spix, 1824): MN 47649: male (gonads 7 × 3 mm), Presidente Kennedy, 11 August 2010; iris dark brown with white peri-ocular ring, bill and tarsus black; in moult (mantle feathers, while rectrices very worn); mass 66 g, wing 135 mm, tail 104 mm, bill 20 mm; MN 49580: one (sex unknown), Presidente Kennedy, 23 August 2011; iris chestnut-brown, with white peri-ocular ring, bill greyish brown, and tarsus dark grey; no moult; mass 80 g, wingspan 367 mm, total length 251 mm, wing 131 mm, tail 114 mm, bill 21.3 mm; MN 49581: one (sex unknown), Presidente Kennedy, 23 August 2011; iris chestnut-brown, with white peri-ocular ring, bill greyish brown, and tarsus dark grey; mass 75 g, wingspan 368 mm, total length 238 mm, wing 127 mm, tail 111 mm, bill 20.4 mm.

We ascribe our specimens to none of the geographically expected *Pyrrhura* species of the "*P. perlata-coerulescens*" complex. Following the recent study by Somenzari & Silveira (2015), our study site lies very close to the boundary between the ranges of two species within it, namely *anerythra* west of the Tocantins River and *coerulescens* east of the same river. The most diagnostic characters of *P. anerythra* are the presence of red on the belly and pure green and cobalt-blue underwing-coverts, whereas *P. coerulescens* has a green belly and characteristic red underwing-coverts. Our specimens appear to represent intermediates or hybrids between these two species, showing mixed characters, *i.e.* the characteristic dark red belly (with the extent of red varying individually) of *anerythra*, together with the red underwing-coverts (very pronounced on MN 47649, 49580, but much less obvious on MN 49581) associated with *coerulescens* (Figures 3 and 4). The species was common at our study site, and further work is required on this issue, because the supposedly hybrid zone described by Somenzari & Silveira (2015) is situated much farther north than our study site (750 km at the mouth of the Tocantins River), indicating that intermediate individuals can be expected throughout the potential contact zone. It also demonstrates that the unusual pattern of contact and mixing between two taxa in the lowest reaches of a major Amazonian river, reported by Somenzari & Silveira (2015), can clearly be expected to occur closer to the same river's headwaters. Barton & Hewitt (1985) attest that the size of a hybrid zone depends on the gene fitness and dispersal capabilities of the hybrids, but when both parameters are high the hybrid zone can consequently occupy many kilometres. Nevertheless, more data, including genetic, are clearly required to more fully understand the distributions and relationships of these forest-dwelling parakeets.

FIGURE 3. Collected specimens of hybrids or intermediates of the "*Pyrrhura lepida-coerulescens*" complex. (**A**) dorsal view; (**B**) ventral view; (**C**) right lateral view. In order MN 49581, MN 47649 and MN 49580.

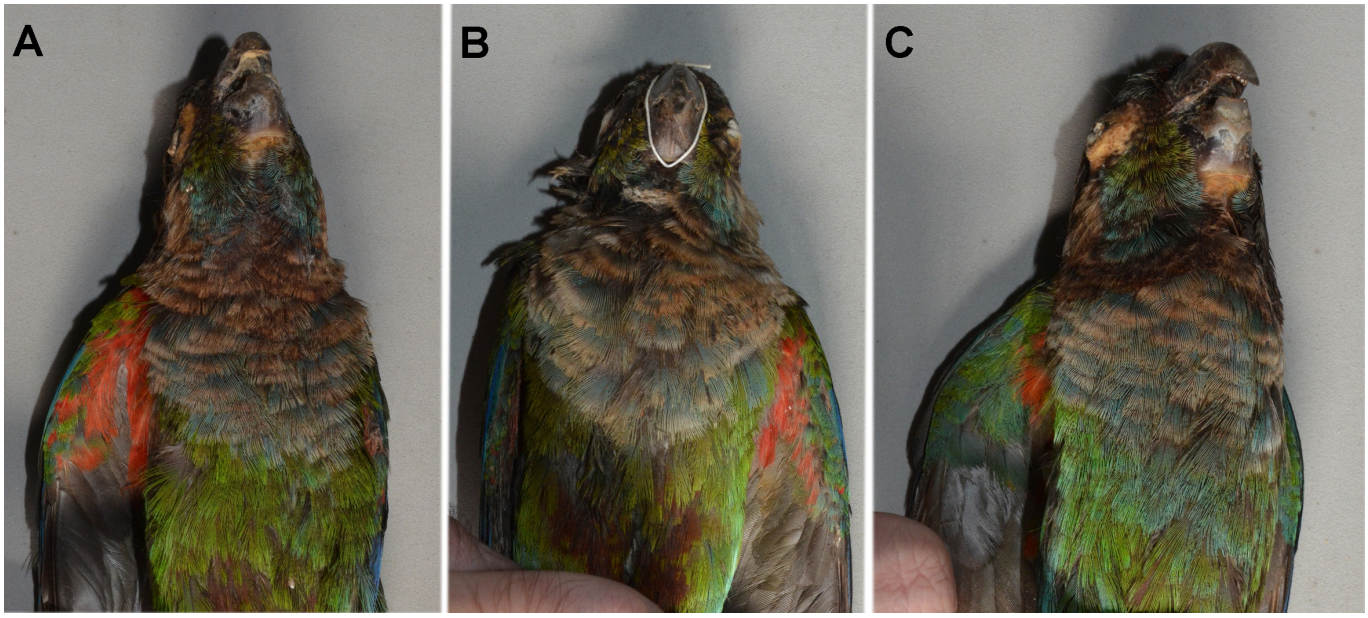

FIGURE 4. Details of the variation on the amount of red on underwing coverts of the collected specimens of the "*Pyrrhura lepida-coerulescens*" complex. (**A**) MN 49580; (**B**) MN47649; (**C**) MN49581.

Dornas (2009) mentioned sight records of this group of species from Tocantins, published by Olmos *et al.* (2005) and Oikos (2002), but the only previous specimen record that he knew of, MN 3632, collected by R. Pfrimer at the lower Palma River, south-east Tocantins (12°33'S; 47°52'W), sometime prior to 1919 (Paynter & Traylor 1991), is in fact a young Crimson-bellied Parakeet *P. perlata*. Pfrimer also collected an adult *perlata* at the same locality (MN 3633), also without details (Figure 5). Our three specimens pertaining to the *P. perlata-coerulescens* complex represent the first published documentation of this group of species for the same state. The two specimens of *P. perlata* represent the only evidence for this "vulnerable" species (at least formerly) in Tocantins. However, as already noted by Silva (1989), Sick (1997) and Pacheco (2004), there is no other evidence for the occurrence of this rare parrot outside the Madeira–Xingu interfluvium, neither historical nor recent, and the possibility exists that these specimens instead came from Rondônia state and were incorrectly curated by Dr. Alípio Miranda Ribeiro. Furthermore, other Pfrimer specimens present problematic localities, *e.g.* two specimens of Orange-cheeked Parrot *Pyrilia barrabandi* (Kuhl, 1820) said to be from Palma, Goiás (MN 3979, 3980), although the species is otherwise largely confined to western Amazonia, or are problematic because of the lack of locality information associated with them, or are labelled very inexactly, and generally lack even basic information like sex. For now, and without strong additional evidence, these specimens of *P. perlata* cannot be definitively evinced as being taken in Tocantins, especially from such an unlikely locality as the extreme southeast of the state, *i.e.* comparatively far from the region of Amazonian influence. Nevertheless, additional research into Pfrimer's specimens is still required.

FIGURE 5. Pfrimer's specimens of *Pyrrhura rhodogaster* putatively collected in Tocantins. Left adult MN3633; right juvenile MN 3632.

Pearly-breasted Cuckoo *Coccyzus euleri* Cabanis, 1873: MN 48847: female, Presidente Kennedy, 20 November 2010; iris brown, maxilla black with yellow base, mandible yellow, and tarsus lead grey; no moult; mass 47.5 g, wingspan 380 mm, total length 285 mm, wing 142.5 mm, tail 130 mm, bill 28.5 mm. The first specimen record for Tocantins (Dornas 2009); the species is not mentioned by Hidasi (1998), and no records are indicated on Wikiaves. Nevertheless, sight records were

mentioned by Olmos *et al*. (2005) and Oikos (2002), as well as by Pinheiro *et al*. (2008) from the urban area of Palmas, the state's capital.

Yellow-billed Cuckoo *Coccyzus americanus* (Linnaeus, 1758): MN 49610: male, captured in a mist-net, Presidente Kennedy, 18 November 2010; iris brown, tarsus grey; in general moult; 55 g, wing 150.5 mm, tail 136 mm, bill 30.06 mm. Not previously listed for the state of Tocantins (Hidasi 1998, Dornas 2009), although a photographic record was recently published from December 2010 (D. Rodello; WA 255397) and one was seen just north of Couto de Magalhães, in November 2011 (Kirwan *et al*. 2015). Ours becomes the first record from Tocantins, pre-dating both others available to date.

Pavonine Cuckoo *Dromococcyx pavoninus* Pelzeln, 1870: MN 47661: male (gonads 3 × 2 mm) captured in a mist-net, Presidente Kennedy, 13 August 2010; iris amber, with cream-coloured peri-ocular ring, maxilla sepia, mandible pale grey, and tarsus reddish grey; no moult; mass 39 g, wingspan 375 mm, total length 294 mm, wing 127 mm, tail 151 mm, bill 25.5 mm. In Tocantins, it is known from a single specimen record, MN 4097, a female collected by E. Snethlage at Furo de Pedra (= Furo das Pedras, *c.* 10°28'S; 50°23'W), Ilha do Bananal, 22 September 1927, as well as records by Pacheco & Olmos (2006) in the Palmeiras Valley, in the southeast of the state, and T. Dornas (sound-recording) at an unstated locality (Dornas 2009), while photo-documented records are available on Wikiaves from Araguatins, Caseara, Palmas, Pium and Porto Nacional. Our new specimen record, only the second for Tocantins, augments the suspicion that the species is resident in suitable habitat throughout the Araguaia–Tocantins interfluvium (Kirwan *et al*. 2015).

Kaempfer's Woodpecker *Celeus obrieni* Short, 1973: MN 48828: male, Pium, 22 November 2010; iris grey, bill pearl-grey with paler grey base to mandible, and tarsus yellow; moulting wing- and tail-feathers; mass 105 g, wingspan 460 mm, wing 134 mm, tail 95 mm, bill removed; MN 48362: male, Pium, 16 November 2010; iris grey, bill pearl-grey with greenish-grey base to mandible, and tarsus yellowish green; moulting inner wing-coverts and some upperparts feathers; mass 94 g, wingspan 346 mm, total length 380 mm, wing 143 mm, tail 93 mm, bill 27.48 mm; MN 49065: male, Rio do Bois, 16 November 2010; iris grey, bill pearl-grey with greenish-grey base, and tarsus yellowish green; in general moult; mass 100 g, wingspan 275 mm, wing 148 mm, tail 90 mm, bill removed; MN 49286: female, Presidente Kennedy, 19 August 2011; iris chestnut-brown, bill horn-coloured, and tarsus greyish brown; mass 85 g, total length 270 mm, wing 142 mm, tail 101 mm, bill 25.13 mm. Rare in collections throughout the world, our specimens were preserved as two normal study skins and two "schmoo" type skins, with the aim of preserving complete skeletons.

Plain-brown Woodcreeper *Dendrocincla fuliginosa* (Vieillot, 1818): MN 49587: one (sex unknown), Presidente Kennedy, 23 August 2011; iris chestnut-brown, bill dark brown, and tarsus greyish brown; moulting the ventral feathers; mass 47 g, total length 250 mm, wing 114 mm, tail 94.5 mm, bill 34.5 mm. In Tocantins, known from the following specimens: COMB 1634, MN 13649–50, 13652 and 13659 (all collected by E. Snethlage at Furo das Pedras, Ilha do Bananal), and MZUSP 78737, while there are photo-documented records from Palmeirante, 13 January 2013 (W. Pascoal; WA 854431, WA 854623) and Tupirama, 15 September 2011 (T. Dornas; WA 1040124).

Spix's Woodcreeper *Xiphorhynchus spixii* (Lesson, 1830): MN 47664: one (sex unknown), Presidente Kennedy, 13 August 2010; mist-netted; iris dark brown, maxilla dark grey and mandible pale grey, tarsus greenish grey; no moult; mass 27.5 g; wingspan 305 mm; wing 84 mm; tail 87 mm; bill 29 mm. In Tocantins, the only previous specimens available are from Couto de Magalhães (MPEG 34749, 34762: Dornas 2009). Our specimen is the south-westernmost record of the species in the Brazilian territory to date and the first in the state away from the banks of the Araguaia.

Amazonian Antshrike *Thamnophilus amazonicus* Sclater, 1858: MN 48843: male, Presidente Kennedy, 20 November 2010; iris brown, bill black, and tarsus grey; in moult; mass 19.5 g, wingspan 210 mm; wing 69 mm, tail 58 mm, bill 19.96 mm; MN 49607: female, Presidente Kennedy, 19 November 2010; iris reddish brown, and tarsus grey; no moult; mass 20 g, wingspan 221 mm, total length 166 mm, wing 66 mm, tail 54 mm, bill 21.2 mm. In Tocantins, specimens are available from Araguatins (MZUSP 52686), Couto de Magalhães (MPEG 34750) and Santo Antonio (FMNH 63429–430), with photo- or sound-documented records from the following additional localities available on Wikiaves: Ananás (WA 587580: T. Dornas), Caseara (WA 1081425, WA 1081426 and WA 1764420: M. Barbosa, M. Martins), Miracema do Tocantins (WA 1757325, WA 1757326: C. Cruvinel), Palmeirante (WA 725048: W. Pascoal), Pau d'Arco (WA 729124: M. Paula) and Pium (WA 9641: G. Leite, plus others). Our specimens can be referred to the subspecies *T. a. obscurus* based on the very dark underparts of the male, and the greyish ventral underparts, lack of reddish tones in the uppertail and absence of white spots on tips of central rectrices of the female (compared to long series of *T. a. paraensis* in MN). Zimmer & Isler (2003) considered that the range of *obscurus* occupies forests between the Tapajós and Araguaia Rivers, in southern Pará, whereas *paraensis* occurs east of the Tocantins River in eastern Pará, western Maranhão and northern

Tocantins. Our specimens and the many photographs on Wikiaves indicate that *obscurus* also occurs in Tocantins (*e.g.* WA 1520682, WA 1081425).

White-flanked Antwren *Myrmotherula axillaris* (Vieillot, 1817): MN 49608: male, Presidente Kennedy, 19 November 2010; iris brown, bill black and tarsus grey; in moult; mass 8.5 g, wingspan 165 mm, total length 111 mm, wing 47 mm, tail 35.5 mm, bill 15.05 mm. In Tocantins, previous specimen records are from Araguatins (MPEG 21982, MZUSP 52688), Tocantinópolis (MOG 7976) and Xamboiá (MPEG 34756) (Dornas & Pinheiro 2011), while photo- or sound-documented records, archived on Wikiaves, are from Ananás (WA 69634: G. Leite), Caseara (WA 409220, WA 409221: C. Martins, plus others), Palmeirante (WA 725049: W. Pascoal) and Pium (WA 6693, WA 657030: G. Leite, W. Pascoal), with an unpublished sight record from Senhor do Bonfim, in January 2009 (GMK, pers. obs.).

Bananal Antbird *Cercomacra ferdinandi* Snethlage, 1928: Not collected, but seen and heard on 21 August of 2011 in a narrow gallery forest at the northwest corner of the main forest fragment, when at least two pairs responded to playback of Manu Antbird *C. manu,* with the identification being confirmed as the present species based on the males overall darker and females bein gray above rather than brown, as well as the voice, which was clearly that of *C. ferdinandi*. Species largely restricted to the Ilha do Bananal and adjacent downstream sections of the Araguaia River, as well as the Tocantins River in both Tocantins and adjacent Maranhão (Zimmer & Isler 2003, Olmos *et al*. 2005, Vasconcelos & Souza-Werneck 2008, BirdLife International 2014, WA 1282167, WA 581658 and WA 587556), although there are a few records from further upstream, in adjacent northeastern Mato Grosso and north-western Goiás (see Wikiaves). There are comparatively few records away from larger rivers with seasonally flooded forests.

Xingu Scale-backed Antbird *Willisornis vidua* (Cabanis, 1847): MN 47608: female captured in a mist-net, Presidente Kennedy, 9 August 2010; iris brown, bill black and tarsus lead grey; no moult; mass 17.5 g, wing 74.5 mm, tail 55 mm, bill 17.2 mm; MN 47611: male captured in a mist-net, Presidente Kennedy, 9 August 2010; iris brown, bill black and tarsus grey; no moult; mass 17.5 g, wingspan 220 mm, total length 140 mm, wing 70 mm, tail 42 mm, bill 18.32 mm; MN 47612: male captured in a mist-net, Presidente Kennedy, 9 August 2010; iris brown, bill black and tarsus grey; no moult; mass 16 g, wingspan 215 mm, total length 130 mm, wing 67.5 mm, tail 40.5 mm, bill 18.32 mm; MN 47641 captured in a mist-net, Presidente Kennedy, 10 August 2010; iris brown, bill black and tarsus grey; no moult; mass 17 g, wingspan 208 mm, total length 133 mm, wing 70 mm, tail 41 mm, bill 18.36 mm. In Tocantins, Dornas & Pinheiro (2011) listed single specimens from three localities: Ananás (MPEG 34741), Xamboiá (MPEG 34754) and Couto de Magalhães (MPEG 34752), all of them along the right bank of the Araguaia, while there is a sound-recording from Babaçulândia, in the far north of the state, at the border with Maranhão (J. F. Pacheco; WA 1249671). Our specimens represent the southernmost locality in Tocantins for this recently recognized species, and is apparently only the second in the state away from the banks of the Araguaia.

Rufous-capped Antthrush *Formicarius colma* Boddaert, 1783: MN 47637: one (sex unknown), captured in a mist-net, Presidente Kennedy, 10 August 2010; iris brown, bill black, and tarsus greyish purple; moulting thigh-feathers; mass 42 g, wingspan 265 mm, total length 168 mm, wing 55.5 mm, tail 48 mm, bill 20.75 mm. In Tocantins, previously available specimens all emanated from two localities, Araguatins (n = 12) and Fazenda Farol dos Trópicos, Couto de Magalhães (n = 1), both on the right bank of the Araguaia River (Dornas & Pinheiro 2011), with photo-documented records also from the first-named locality (C. Silva; WA 281267, WA 281806), a sound-recording from Ananás (G. Leite; WA 69617) and sight records from the extreme north of the state (Olmos *et al*. 2004) and from Senhor do Bonfim (Kirwan *et al*. 2015). Ours is apparently the first record from the interior of the state, albeit still within the zone of Amazonian influence (Dornas & Pinheiro 2011), and represents only the third specimen locality.

Greyish Mourner *Rhytipterna simplex* (Lichtenstein, 1823): MN 47643: male captured in a mist-net, Presidente Kennedy, 10 August 2010; iris pale brown, bill black with reddish base to mandible, and tarsus grey; no moult; mass 28 g, total length 205 mm, wing 91 mm, tail 90 mm, bill 22.2 mm. In Tocantins, previously known from three specimen records (Dornas 2009), including MN 6060 (not 6061 as stated in Dornas 2009), collected at Furo de Pedra (= Furo das Pedras, *c.* 10°28'S; 50°23'W), Ilha do Bananal, 26 September 1927, while the species is also known from two photo-documented records, both from Pium, 7 July 2010 (M. Barbosa; WA 191815) and 15 March 2012 (A. Corrêa; WA 678443), as well as sight records from Cantão State Park, where the species is common (Pinheiro & Dornas 2009) and the far north of the state (Olmos *et al*. 2004). Our record represents the easternmost to date for the state of Tocantins.

Rufous-tailed Flatbill *Ramphotrigon ruficauda* (Spix, 1825): MN 47663: male (gonads 2 × 1 mm) captured in a mist-net, Presidente Kennedy, 13 August 2010; iris brown, bill black and tarsus black; no moult; mass 14 g, wingspan 242 mm, total length 170 mm, wing 74.5 mm, tail 55 mm, bill 17.2 mm. In Tocantins, previously known from two photo-documented records: Pium, 23 February 2009 (M. Crozariol; WA 9715) and

Lagoa da Confusão, 12 October 2011 (WA 480844), with several sight records from Cantão State Park (Buzzetti 2004, Dornas 2009). Presidente Kennedy would appear to represent the easternmost locality for the species in Tocantins. Ours is the first specimen record for the state.

White-naped Xenopsaris *Xenopsaris albinucha* (Burmeister, 1869): MN 47616: one (not sexed during taxidermy, but some brownish elements in crown suggest a female), Presidente Kennedy, 9 August 2013, from among a mixed-species flock; iris black, maxilla black, mandible pearl grey, and tarsus very dark grey; no moult; mass 9 g, wingspan 203 mm, total length 140 mm, wing 66 mm, tail 51 mm, bill 12.52 mm. In Tocantins, two previous specimen records, MOG 7273 and MZJH 1295 (Dornas 2009), two photo-documented records, from Palmas, 13 July 2014 (M. Barbosa; WA 1384653–654) and Palmeirante, 29 July 2009 (W. Pascoal; WA 79557, WA 80861 and WA 82872), while Kirwan *et al*. (2015) listed a series of sight records in the state, both from wooded Cerrados and river islands in the Araguaia.

White-bearded Manakin *Manacus manacus* (Linnaeus, 1766): MN 49609: male, Presidente Kennedy, 19 November 2010; iris brown, maxilla dark grey, mandible lead-coloured, and tarsus orange; no moult; mass 16 g, wingspan 190 mm, total length 115 mm, wing 56 mm, tail 25 mm, bill 11.33 mm. Kirwan & Green (2011) noted the difficulties in defining the eastern and western limits, respectively, of *M. m. longibarbatus* and *M. m. purissimus*, and speculated that the former might well prove synonymous with the latter. We compared our specimen with other relevant material at MN and consider that Zimmer's (1936) delimitation of *longibarbatus* cannot be upheld, given much overlap and variation, even in birds from the same locality in the amount of white feathering on the upper mantle and neck, the breadth of the grey rump patch and amount of grey on thighs and belly. In addition, the long throat-feathering in MN 49609 contrasts with the shorter feathering in MN 11060, a male from Furo das Pedras, Ilha do Bananal, and is only marginally shorter than that of MN 11059, a male from Cametá, Tocantins River, despite that the first two are both from the range of *longibarbatus* as delimited by Zimmer, and the last from that of *purissimus*, while MN 49609 has the width of the outermost primary distinctly broader (2.48 mm) than that of MN 11059 (1.32 mm), but similar to that of MN 11060 (2.52 mm), whereas according to Zimmer (1936), it should be *purissimus* that has the broadest outermost primary. All three have the wing length (55–56 mm) very similar. Our data do not support *longibarbatus* although it is clear that a serious range-wide revision of the species is needed, to determine the number of taxa that might comfortably be maintained.

White-browed Purpletuft *Iodopleura isabellae* Parzudaki, 1847: MN 47636: male, Presidente Kennedy, August 2010; wing 75 mm, tail 27 mm, bill 9.35 mm; MN 49584: female, Presidente Kennedy, August 2010; iris dark chestnut, maxilla dark brown, mandible grey, and tarsus dark grey; in moult (contour feathers); mass 18.5 g, wingspan 240 mm, total length 127 mm, wing 76 mm, tail 34 mm, bill 10.02 mm. In Tocantins, Dornas (2009) and Dornas & Pinheiro (2011) listed a total of seven specimens, all of them from Araguatins in the extreme north of the state, while there are photo- and/or sound-documented records from Ananás, 18 April 2009 (M. Crozariol; WA 115960, G. Leite; WA 69608), also in the far north of Tocantins, and Fortaleza do Tabocão, 19 March 2014 (T. A. Bichinski; WA 1379917) and Dois Irmãos do Tocantins, 2 and 4 October 2014 (A. Correa; WA 1524063, WA 1524064), which extend the species range further south in the Araguaia–Tocantins interfluvium. Our material apparently represents the second specimen-documented locality for the state and the fourth overall.

Veery *Catharus fuscescens* (Stephens, 1817): MN 48850: female, Presidente Kennedy, 21 November 2010; iris brown, maxilla blackish brown, mandible mainly yellowish with darker tip, and tarsus pearl grey; no moult; mass 32.5 g, wingspan 310 mm, total length 195 mm, wing 103 mm, tail 76 mm, bill 17.54 mm; MN 49595: male, Presidente Kennedy, 18 November 2010; iris brown, maxilla blackish brown, mandible mainly yellowish with blackish-brown tip, and tarsus pale pink; moulting tail-feathers; mass 31.5 g, wingspan 310 mm, wing 105 mm, tail 72 mm, bill 18.32 mm. In Tocantins, two previous specimen records: MOG 604 was collected at Araguatins in November 1968 (Dornas & Pinheiro 2011) and COCEULP/ULBRA 124 (Dornas 2009), while the species was also recorded during Oikos (2006) surveys, by Dornas & Crozariol (2012) at the Estação Ecológica Serra Geral do Tocantins, in Jalapão, in mid-November 2010, and there is a photo-documented record from Palmas, on 22 April 2013 (F. Af; WA 943762–763). Our records could reflect migration rather than overwintering (*sensu* Remsen 2001). The species is probably overlooked in Tocantins due to the lack of surveys using mist-nets.

Sooty Grassquit *Tiaris fuliginosus* (Wied, 1830) MN 47662: male, captured in a mist-net, Presidente Kennedy, 13 August 2010; iris dark brown, bill brown with beige tip to mandible, and tarsus purple; no moult; mass 9 g, wingspan 185 mm, total length 125 mm, wing 57 mm, tail 31 mm, bill 12.5 mm. In Tocantins, recorded during various environmental surveys (Oikos 2002, Direção 2006), with a single photo-documented record from the extreme north of the state, at Sítio Novo do Tocantins, 15 March 2012 (C. Silva; WA 597351). Ours is the first specimen and first documented record for the state (pre-dating the photo mentioned above).

ACKNOWLEDGEMENTS

We are grateful to the *Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro* (FAPERJ) for grant support to M. A. Raposo (Proc. No. E-26/101.489/2010) and to G. R. R. Brito (Proc. No. E-26/102.506/2010); *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) for grant support to M. A. Raposo (Procs No. 479049/2006-8, 476861/2009-8 and 301350/2008-6); *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP) for grant support to Claydson Assis (Proc. No. 2014/10914-2) and Proc. No. 2012/00614-6 for doctoral fellowship to D. H. Firme; *Coordenação de Aperfeiçoamento de Pessoal de Nivel Superior* (CAPES) for felowships to G. R. R. Brito and N. Buainain Neto; and F. R. Amaral for information concerning hybrid zones. TAESA, P&D Aneel, ETAU Transmissão and Ecology Brasil provided logistics and field support. We are extremely grateful to an anonymous referee for invaluable comments and corrections to the submitted manuscript.

REFERENCES

Barton, N. H. & Hewitt, G. M. 1985. Analysis of hybrid zones. *Annual Review of Ecology and Systematics*, 16: 113–148.

BirdLife International. 2014. Species factsheet: *Cercomacra ferdinandi*. http://www.birdlife.org/datazone/species/factsheet/22701677 (accessed October 2014).

Blondel, J.; Ferry, C. & Frochot, B. 1970. La méthode des indices ponctuels d'abondance (I.P.A.) ou des relevés d'avifaune par "stations d'écoute". *Alauda*, 38: 55–71.

Buzzetti, D. 2004. Avifauna do Parque Estadual do Cantão, p. 74–102. *In*: *Avaliação Ecológica Rápida do Parque Estadual do Cantão*. Palmas: Secretaria do Planejamento e Meio Ambiente do Estado do Tocantins, SEPLAN.

Davies, S. J. J. F. 2002. *Ratites and tinamous*. New York: Oxford University Press.

De Luca, A. C.; Develey, P. F.; Bencke, G. A. & Goerck, J. M. 2009. *Áreas importantes para a conservação das aves no Brasil. Part II – Amazônia, Cerrado e Pantanal*. São Paulo: SAVE Brasil.

Direção. 2006. *Pesquisa de fauna e flora e elaboração dos estudos das alterações da cobertura vegetal e da ocupação antrópica Regiões Central e Leste do Estado do Tocantins.* Belo Horizonte: Direção Consultoria e Engenharia Ltda., v. 1 & 2.

Dornas, T. 2009. *Compilação dos registros de quelônios, crocodilianos e aves do Estado do Tocantins: biodiversidade e lacunas de conhecimento*. M.Sc. Dissertation. Palmas: Universidade Federal do Tocantins.

Dornas, T. & Crozariol, M. A. 2012. Aves associadas a ambiente de veredas na Estação Ecológica Serra Geral do Tocantins com novos registros para a região e nota sobre população local de *Culicivora caudacuta*. *Atualidades Ornitológicas*, 169: 54–65.

Dornas, T. & Pinheiro, R. T. 2011. Aves coligidas por José Hidasi e Manoel Santa-Brigida na Amazônia Tocantinense: implicações para a distribuição geográfica das aves amazônicas brasileiras. *Revista Brasileira de Ornitologia*, 19: 276–301.

Gwynne, J. E.; Ridgely, R. S.; Tudor, G. & Argel, M. 2010. *Aves do Brasil, v. 1, Pantanal & Cerrado*. São Paulo: Editora Horizonte.

Haidar, R. F.; Fagg, J. M. F.; Pinto, J. R. R.; Dias, R. R.; Damasco, G.; Silva, L. C. R. & Fagg, C. W. 2013. Florestas estacionais e áreas de ecótono no estado do Tocantins, Brasil: parâmetros estruturais, classificação das fitofisionomias florestais e subsídios para conservação**.** *Acta Amazonica*, 43: 261–290.

Hellmayr, C. E. 1929. A contribution to the ornithology of northeastern Brazil. *Field Museum of Natural History (Zoological Series)*, 12: 235–501.

Hidasi, J. 1983. *Lista preliminar das aves do Estado de Goiás*. Goiânia: Gráfica Palmares.

Hidasi, J. 1998. *Lista preliminar das aves do Tocantins*. Palmas: Editora UNITINS.

Hidasi, J. 2007. *Aves de Goiás*. Goiânia: Editora UCG & Editora Kelps.

Kirwan, G. M. & Green, G. 2011. *Cotingas and manakins*. London: Christopher Helm.

Kirwan, G. M.; Whittaker, A. & Zimmer, K. J. 2015. Interesting bird records from the Araguaia River Valley, central Brazil, with comments on conservation, distribution and taxonomy. *Bulletin of the British Ornithologists' Club*, 135: 21–60.

Lees, A. C.; Naka, L. N.; Aleixo, A.; Cohn-Haft, M.; Piacentini, V. Q.; Santos, M. P. D. & Silveira, L. F. 2014. Conducting rigorous avian inventories: Amazonian case studies and a roadmap for improvement. *Revista Brasileira de Ornitologia*, 22: 107–120.

Oikos. 2002. *Estudos ambientais complementares ao EIA/RIMA da Ferrovia Norte-sul nos Estados de Tocantins e Goiás*. Rio de Janeiro: Oikos Pesquisa Aplicada.

Oikos. 2006. *Estudos para a seleção das áreas de maior potencial para a conversão em unidades de conservação na região centro-oeste do Tocantins.* Palmas: Oikos. Pesquisa Aplicada Ltda., Unpub. Report.

Olmos, F.; Arbocz, G.; Pacheco, J. F. & Dias, R. 2004. Estudo de flora e fauna do norte do estado do Tocantins, p. 1–154. *In*: Dias, R. (org.). *Projeto de gestão ambiental integrada Bico do Papagaio, zoneamento ecológico-econômico*. Palmas: Secretaria do Planejamento e Meio Ambiente (Seplan) e Diretoria de Zoneamento Ecológico-Econômico (DZE).

Olmos, F.; Silva e Silva, R. & Pacheco, J. F. 2005. The range of the Bananal Antbird *Cercomacra ferdinandi*. *Cotinga*, 25: 21–23.

Pacheco, J. F. 2004. As aves da Caatinga: uma análise histórica do conhecimento. *In*: Silva, J. M. C.; Tabarelli, M.; Fonseca, M. T. & Lins, L. V. (eds.). *Biodiversidade da caatinga: áreas e ações prioritárias para conservação*. Brasília: Ministério do Meio Ambiente.

Pacheco, J. F. & Olmos, F. 2006. As aves do Tocantins 1: região sudeste. *Revista Brasileira de Ornitologia*, 14: 55–71.

Paynter, R. A. & Traylor, M. A. 1991. *Ornithological gazetteer of Brazil*. Cambridge: Museum of Comparative Zoology, Harvard University.

Perotti, R. T. 2005. *José Hidasi e os naturalistas no "coração bárbaro" do Brasil.* M.Sc. Dissertation. Goiânia: Gestão do Patrimônio Cultural, Área de Concentração Antropologia, Universidade Católica de Goiás.

Piacentini, V. Q.; Aleixo, A.; Agne, C. E.; Mauricio, G. N.; Pacheco, J. F.; Bravo, G. A.; Brito, G. R. R.; Naka, L. N.; Olmos, F.; Posso, S.; Silveira, L. F.; Betini, G. N.; Carrano, E.; Franz, I.; Lees, A. C.; Lima, L. M.; Pioli, D.; Schunck, F.; Amaral, F. R.; Bencke, G. A.; Cohn-Haft, M.; Figueiredo, L. F. A.; Straube, F. C. & Cesari, E. 2015. Annotated checklist of the birds of Brazil by the Brazilian Ornithological Records Committe. *Revista Brasileira de Ornitologia*, 23: 91–298.

Pinheiro, R. T. & Dornas, T. 2009. Distribuição e conservação das aves na região do Cantão, Tocantins: ecótono Amazônia/Cerrado. *Biota Neotropica*, 9: 187–205.

Pinheiro, R. T.; Dornas, T.; Reis, E. S; Barbosa, M. O. & Rodello, D. 2008. Birds of the urban area of Palmas-TO: composition and conservation. *Revista Brasileira de Ornitologia*, 16: 339–347.

Pinto, O. M. O. 1937. Catálogo das aves do Brazil. 1ª parte. *Revista Museu Paulista*, 22: 1–566.

Radambrasil. 1981. *SD.22 Goiás: geologia, geomorfologia, pedologia, vegetação e uso potencial da terra.* Rio de Janeiro: Ministério das Minas e Energia. Levantamento de Recursos Naturais.

Raposo, M. A.; Assis, C. P.; Figueira, D.; Demari, E.; Frickes, G. R.; Araújo, G.; Firme, D. H.; Neto, N. B.; Straker, L. C.; Russo, R. M.; Cid, F. C.; Lima, G.; Brito, G. R. R.; Alves, L. P. & Formozo, P. 2013. *Aves e linhas de transmissão: um estudo de caso*. São Paulo: Editora Arte Ensaio.

Remsen, J. V. 2001. True winter range of the Veery (*Catharus fuscescens*): lessons for determining winter ranges of species that winter in the tropics. *Auk*, 118: 838–848.

Sick, H. 1997. *Ornitologia brasileira*. Rio de Janeiro: Editora Nova Fronteira.

Silva, J. M. C. 1989. *Análise biogeográfica da avifauna de florestas do interflúvio Araguaia–São Francisco*. M.Sc. Dissertation. Brasília: Universidade de Brasília.

Silva, J. M. C. 1990. A reavaluation [*sic*] of *Serpophaga araguayae* Snethlage 1928 (Aves: Tyrannidae). *Goeldiana, Zoologia*, 1: 1–6.

Somenzari, M. & Silveira, L. F. 2015. Taxonomy of the *Pyrrhura perlata-coerulescens* complex (Psittaciformes: Psittacidae) with description of a hybrid zone. *Journal of Ornithology*, 156: 1049–1060.

Teixeira, D. M. 1990. Notas sobre algumas aves descritas por Emilie Snethlage. *Boletim do Museu Nacional*, 337: 1–6.

Vasconcelos, M. F. & Souza-Werneck, M. 2008. Northern record for Bananal Antbird *Cercomacra ferdinandi*. *Cotinga*, 29: 177–178.

Veloso, R. B.; Rangel-Filho, A. L. R. & Lima, J. C. A. 1991. *Classificação da vegetação brasileira, adaptada a um sistema universal*. Rio de Janeiro: IBGE.

Zimmer, J. T. 1936. Studies of Peruvian birds, No. XXII. Notes on the Pipridae. *American Museum Novitates*, 889: 1–29.

Zimmer, K. J. & Isler, M. L. 2003. Family Thamnophilidae (typical antbirds), p. 448–681. *In*: del Hoyo, J.; Elliott, A. & Christie, D. A. (eds.). *Handbook of the birds of the world*, v. 8. Barcelona: Lynx Edicions.

Associate Editor: Alexandre Aleixo.