

Olive-sided Flycatcher, *Contopus cooperi*, in the Cerrado biome, and a review of records in Brazil

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ABSTRACT: The Olive-sided Flycatcher, *Contopus cooperi* (Nuttall, 1831), is a long distance migrant bird from North America. This Tyrannidae bird has wintering areas in Central and South America, and such as other long distance migrants, has decreased their populations, probably due to the use of pesticides, which in turn decrease the abundance of aerial insects, their main food supply. Little is known about the wintering distribution range of the species, mainly in South America. In Brazil its known distribution includes 11 states and 36 municipalities at the Amazon and Atlantic Forest, occurring between October and April. This study reviews the distribution area of this species in Brazil, reporting for the first time, its occurrence in the Goiás state and the Cerrado biome.

KEY-WORDS: geographical distribution, migratory bird, North American migrant, occurrence.

The Olive-sided Flycatcher, *Contopus cooperi* (Nuttall, 1831), is a passerine bird, seasonal visitor originated from the northern hemisphere (Pacentini *et al.* 2015). It is known for long migration and wide distribution, with breeding grounds located in the boreal forests of Canada and Alaska mountains, moving southward to Central America and Mexico toward South America (Kotliar 2007). During the boreal winter this species holds its wintering territories in Central and South America (NatureServe 2015).

In Brazil the best-known seasonal occurrence is during the austral summer, between October and March (Sick 1997). Recent records report their presence after the austral summer, during April, in the states of Rio de Janeiro, São Paulo and Pará (Antunes & Pereira 2014, Coquetti 2014, Joel & Girotto 2014, Junqueira 2016). Among Brazilian records, one was on transitional environments between Amazon and Cerrado (Santos 2012). Table 1 summarizes all records found during the review and Figure 1 shows their respective locations.

The oldest record of *C. cooperi* in Brazil was provided by Pinto (1944) in the summer of 1937 at Amazon. The Amazon region contains the highest number of records of this species in the country, reported in 22 cities and 6 states. Otherwise, in the Atlantic Forest the oldest record of this species was in São Paulo state in 1983

(Willis *et al.* 1993). In this biome its occurrence covers 14 municipalities and 5 states.

During the present study, on 12 March 2012, at 7:44 h, a *C. cooperi* specimen was observed in rural areas in the municipality of Barro Alto, on the border with the municipality of Santa Rita do Novo Destino, Goiás state ($15^{\circ}3'54.94''S$; $49^{\circ}0'47.63''O$; 1,141 m.a.s.l., Figure 1). The specimen was alone, roosted on an exposed branch in the forest canopy edge in vegetation mosaic composed of gallery forest with large waterfall and slope areas of hills, *cerradão* and grasslands. The identification of the specimen in the field was based especially in contrasting white plumage on the flanks, less evident in other congeneric species, and the solitary habit of landing upright on branches exposed on top of tall trees, edge of forests and half open fields, in order to facilitate their foraging strategy of preying insects in flight (COSEWIC 2007, Gwynne *et al.* 2010, Robertson 2012, Sigrist 2013). The photographic records performed *in situ* were listed in the Image Bank Acquis FaunaCO program in the Laboratory of Biogeography, Universidade Federal de Goiás, UFG-GO (Figure 2). Based on published studies, no previous record had been documented for the Goiás state. Thus, this is probably the first record of *C. cooperi* for the Goiás state and the Cerrado biome.

TABLE 1. Records of occurrence of *Contopus cooperi* in Brazil.

Brazilian Biomes	State	City	Place of occurrence	Date	Reference
Amazon	Roraima	Mucajáí Pacaraima	Colonia Apiau uninformed	30 Sep to 10 Oct 1987 18 Nov 2012	Stotz <i>et al.</i> 1992 Laranjeiras <i>et al.</i> 2012
Amazon	Amapá	Oiapoque	Cabo Orange National Park	between Dec 1995 and Sep 2006	Souza <i>et al.</i> 2008
Amazon	Amazonas	Itacoatiara Presidente Figueiredo	uninformed Balbina Dam	31 Mar 1937 26 Oct to 19 Mar, between 1979 and 1991	Pinto 1944 Stotz <i>et al.</i> 1992
			Biological Dynamics of Forest Fragments Project (BDFFP), INPA, 41 Km.	25 Jan 2011	Leite 2011
		Rio Preto da Eva	uninformed	21 Jan 1993	Pacheco 1993
		Autazes	uninformed	24 Oct 2013	Malacco 2013
		Manaus	Fazendas Dimona, Porto Alegre, and Esteio. Biological Dynamics of Forest Fragments Project (BDFFP) of INPA.	between 1979 and 1994	Cohn-Haft <i>et al.</i> 1997
			uninformed	10 Jan and 12 Dec 2010	Daffonseca 2010
			Tropical Silviculture Experimental Station of INPA, ZF-2, 45 km, BR-174	12 Jan 2011	Deconto 2011
			uninformed	27 Dec 2013	Cohn-Haft 2013
			uninformed	18 Jan 2014	Daffonseca & Pinheiro 2014
			uninformed	20 Nov 2014	Trondle 2014
			uninformed	10 Oct 2015	Czabán & Souza 2015
			uninformed	26 Dec 2015	Cordasso & Czabán 2015
Amazon	Acre	Rio Branco	Reserva Extrativista Chico Mendes	between 2005 and 2008	Mestre <i>et al.</i> 2010
		Mâncio Lima	uninformed	6 Dec 2012	Guilherme 2012
Amazon	Pará	Parauapebas	uninformed	between 1991 and 2006	Pacheco <i>et al.</i> 2007
			uninformed	9 Dec 2008	Malacco & Alteff 2008

Brazilian Biomes	State	City	Place of occurrence	Date	Reference
			uninformed	10 Nov 2010	Endrigo 2010
			uninformed	10 Dec 2012	Aguiar 2012
			uninformed	10 Apr 2014	Joel & Girotto 2014
			uninformed	3 Nov 2014	Filho 2014
			uninformed	10 Oct 2015	Fonseca 2015
			uninformed	16 Nov 2008	Davis 2008
			uninformed	20 Nov 2013	Moura 2013
			uninformed	4 Feb 2015	Junqueira & Lara 2015
			uninformed	10 Apr 2016	Junqueira 2016
			uninformed	5 Mar 2016	Castilho 2016
Amazon and Cerrado	Amazon	Mato Grosso	Alta Floresta	uninformed	Willis <i>et al.</i> 1993
			Cristalino Jungle Lodge	30 Oct 1989	
			Cristalino Jungle Lodge	2 and 3 Nov 2015	Coelho <i>et al.</i> 2015
			uninformed	21 Nov 2015	Figueiredo & Borges 2015
			uninformed	28 and 29 Jan 2012	Rennó 2012
			uninformed	12 Feb 2012	Santos 2012
		Marcelândia	uninformed	08 Nov 2012	Hobus 2012
		Apiacás	Fazenda Boca da Onça	17 Nov 2013	Ferreira & Guglielmino 2013
			Fazenda Boca da Onça	20 Nov 2013	Martins <i>et al.</i> 2013
		Paranaíta	uninformed	2 Feb 2013	Oliveira 2013
			uninformed	4 Feb 2013	Fernandes 2013
			uninformed	21 Mar 2014	Castro 2014
		Aripuaná	uninformed	2 Feb 2016	Cristina 2016
			uninformed	27 Dec 2015	Veronese & Cena 2015

Brazilian Biomes	State	City	Place of occurrence	Date	Reference
Atlantic Forest	São Paulo	Salesópolis	Boracria Biological Station, Serra do Mar State Park	27 Nov 1983	Willis <i>et al.</i> 1993
	Guapiara		Intervales State Park, Serra do Paranapiacaba	14 Feb; 3 and 4 Mar 1987	Willis <i>et al.</i> 1993
	Ubatuba		Agricultural Experiment Station and Fazenda Capricomio	16 and 18 Mar 1990	Willis <i>et al.</i> 1993
	São Sebastião		Alcatrazes Archipelago	1 Nov 1992	Muscat <i>et al.</i> 2014
	Tapiraí		Serra do Paranapiacaba	8 and 9 Dec 2014	Fernandes & Bucci 2014
	Pindamonhangaba		uninformed	6 Apr 2014	Coquetti 2014
			uninformed	17 Jan 2015	Bucci <i>et al.</i> 2015
			uninformed	25 Jan 2015	Oberhuber <i>et al.</i> 2015
			uninformed	1 Feb 2015	Silveira 2015
Atlantic Forest	Rio de Janeiro	Itatiaia	Itatiaia National Park, Serra da Mantiqueira	30 Nov; 2 Dec 1986	Parker-III & Goerk 1997
		Sapucaia	uninformed	20 Mar 1988	Pacheco <i>et al.</i> 1996
		Paraty	uninformed	10 Nov 1990; 10 Mar 1994; 3 Feb 2001	Pacheco <i>et al.</i> 1997; Browne 2005
		Angra dos Reis	uninformed	27 Dec 2011	Camacho & Serpa 2011
		Nova Friburgo	uninformed	19 and 20 Apr 2014	Antunes & Pereira 2014
Atlantic Forest	Bahia	Camaçan	uninformed	7 Dec 2012	Albano 2012
Atlantic Forest	Espírito Santo	Vargem Alta	uninformed	15 Jan 2016	Magnago 2016
Atlantic Forest	Paraná	Fernandes Pinheiro	uninformed	23 Nov 2014	Klosowski 2014

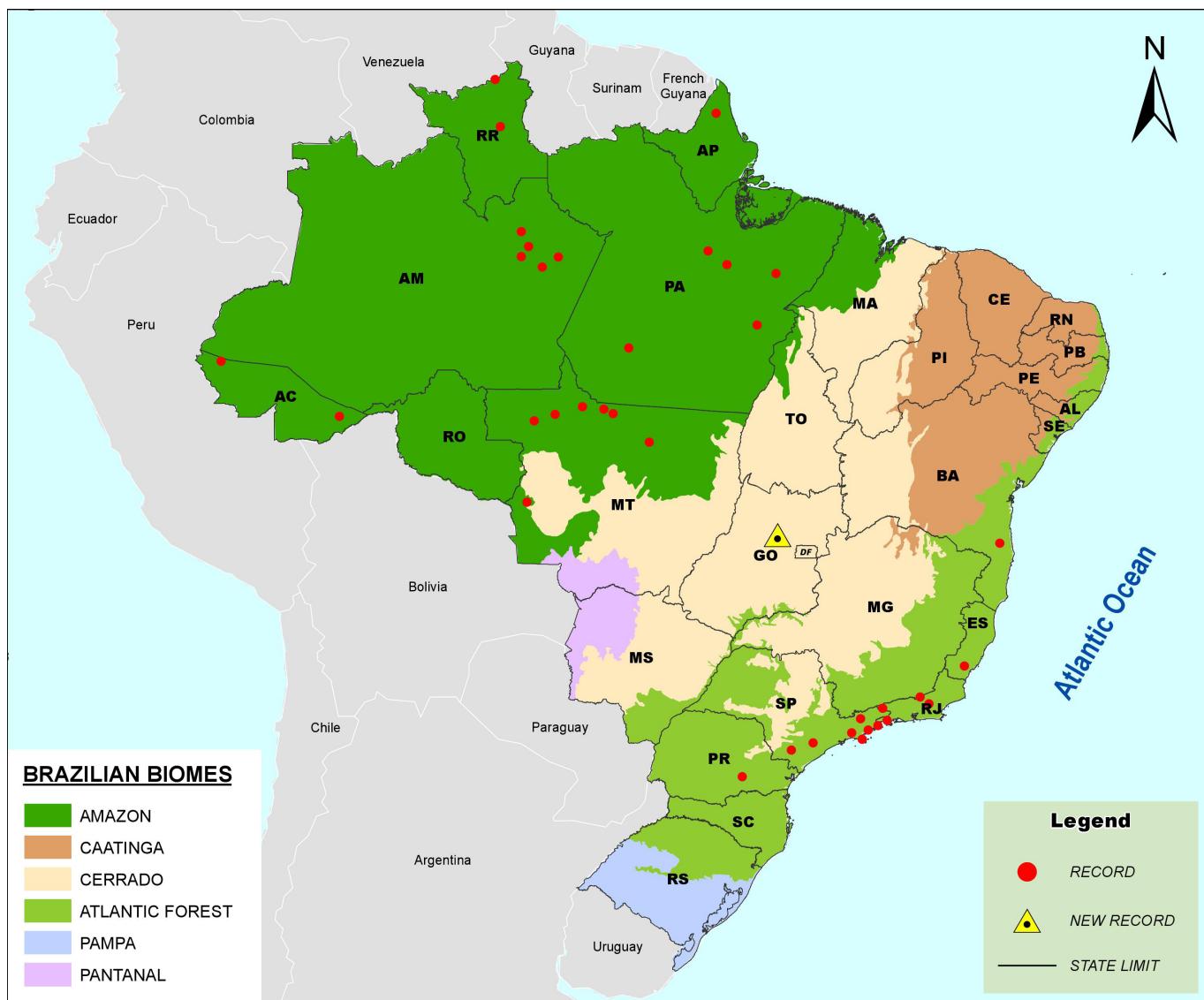


FIGURE 1. Localities of occurrence of *Contopus cooperi* in Brazil. Red circles: localities of occurrence reviewed for the present study (Table 1). Yellow triangle: new record obtained during the study.



FIGURE 2. (A) *Contopus cooperi* photographed at a distance on 12 March 2012, between the cities of Santa Rita do Novo Destino and Barro Alto, Goiás state, Brazil; (B) alert behavior due to approaching of the observer; (C) close up photo of the individual, after approaching. Photos: Karla Pereira.

This is a species of concern and international interest for conservation, currently classified as “near threatened” by extinction (Altman & Sallabanks 2012, IUCN 2015). Its population decline may be associated with loss or degradation of its wintering habitats. However, the causes of these declines have not been clearly established, as the species has been recorded in disturbed habitats (Altman & Sallabanks 2012). Another possible cause of the decline may be food dependency of this species on flying insects. North American aerial insectivorous birds and long distance migrants are showing declining populations, probably associated with pesticide use (Nebel *et al.* 2010, Altman & Sallabanks 2012, NatureServe 2015). In particular, organochlorine pesticides are still widely used in Central and South America (Nebel *et al.* 2010). This may have a direct effect on mortality of this specific group of birds, as the pesticides directly affect their food supply (Nebel *et al.* 2010, Altman & Sallabanks 2012).

The current record in Central Brazil could be due to the expansion of wintering areas of *C. cooperi* in Brazil, or a resting place during migration to the northern hemisphere. In this sense, the record of this individual in the Goiás state contributes to increase knowledge about the migration of this species in Brazil. With this new record, the distribution area of *C. cooperi* in Brazil now includes 12 states and 37 municipalities in the Amazon biome, the Cerrado and Atlantic Forest.

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