

First documented record of Cerulean Warbler *Setophaga cerulea* (Parulidae) in Brazil

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Received on 14 August 2018. Accepted on 04 July 2019.

ABSTRACT: Cerulean Warbler (*Setophaga cerulea*; Parulidae) is a “Vulnerable” species which breeds in North America and migrates to winter in South America. Here we present the first documented record of the species in Brazil. One male was photographed foraging in the canopy of secondary forest on Santa Catarina island, south Brazil, on 07 April 2018. At the time of the record the species was expected to be on migration north to North America. Since the individual was heading south it is assumed that it was lost. This record can then be potentially explained by the vagrancy theory of reverse migrants.

KEY-WORDS: Atlantic Forest, mariquita-azul, migration, Santa Catarina, vagrancy.

The Cerulean Warbler (*Setophaga cerulea*) is a migratory passerine of the Parulidae family and is listed as “Vulnerable” by the IUCN Red List of Threatened Species (Birdlife International 2016). The species breeds in eastern U.S.A. and Canada during the northern hemisphere spring and summer. After that it migrates south to winter on the eastern slopes of the Andes, from southern Colombia and Venezuela to Ecuador, southeastern Peru and northern Bolivia (Skolnik *et al.* 2012). On its way to South America it is a passage migrant through the Atlantic coast of Central America. In its wintering area individuals have most often been observed within a narrow elevation range of 500–2000 m (Robbins *et al.* 1992).

To date, Cerulean Warbler was included on the secondary list of Brazilian birds based on two visual records, which were without supporting physical evidence (Piacentini *et al.* 2015). These two previous undocumented records were on October 1980, in Serra do Tinguá, Rio de Janeiro state, southeastern Brazil, at 330 m a.s.l. (Scott & Brooke 1985); and during fieldwork in Monte Belo, Minas Gerais state, southeastern Brazil, with no precise date, but between 1981 and 1986 (Pacheco *et al.* 2014).

Here we present the first documented record of Cerulean Warbler for Brazil (Fig. 1). One adult male was seen actively foraging between the leaves of an *Inga* tree (*Inga* sp.) on 07 April 2018 in a forest patch at the Parque Natural Municipal do Maciço da Costeira, Florianópolis, Santa Catarina (27°38'45.61"S; 48°29'29.75"W; Fig. 2). The individual was observed foraging between 9:40

and 10:00 h. The foraging mode observed was foliage gleaning, which is regularly observed for the species in North America (Jones *et al.* 2000). Repeated visits to the same location for several days following the first record failed to relocate the species.

The forest fragment where the species was recorded is a patch of secondary forest located behind a quarry in the south of Santa Catarina island. The individual was emitting some calls spontaneously but did not react to playback of the species. The lack of vocal response is an indicative that the individual was not defending a territory (Catchpole & Slater 2003), which was expected since this is a non-breeding area for the species and also out of the reproductive season.

Our record represents not only the first documented record in Brazil, but the most austral one. The recorded individual can be considered as a vagrant as it was outside its regular migratory route (Veit 2000). This is similar for other records of North American warblers found in Brazil (Deconto & Vallejos 2017, Somenzari *et al.* 2018). At the time of record the individual was expected to be returning to North America, but it is postulated it was heading in the opposite direction. This is the second case of a North American warbler recorded in Santa Catarina at a time when they are found in North America (Garcia 2016). Considering these aspects, our conclusion is that these records can be explained by the vagrancy theory of reverse migrants (Gilroy & Lees 2003), in which birds deviate by around 180 degrees of their route, thus going in the opposite direction than expected (Alerstam 1990).



Figure 1. Adult male Cerulean Warbler (*Setophaga cerulea*) perched on a branch of an Inga tree, photographed on 07 April 2018 in Florianópolis, Santa Catarina, Brazil. Photo author: Fernando B. de Farias.



Figure 2. Winter distribution of the Cerulean Warbler (*Setophaga cerulea*; green area) with the two undocumented records in southeastern Brazil (blue dots) and the new record in Santa Catarina, southern Brazil (red star). Adapted from Birdlife International.

Also, our finding reinforces the importance of maintaining monitoring efforts even in urban forest fragments and especially in poorly-sampled areas. Records such as the one reported here are useful to adding information to our understanding of vagrancy theories (Gilroy & Lees 2003) and identifying the paths and deviations of bird migration.

ACKNOWLEDGEMENTS

Fernando Pacheco kindly provided some of the literature

used in this article. We are also grateful to Guilherme Willrich, Vitor Q. Piacentini and Thomas Worthington who reviewed the manuscript, and Guilherme Willrich who helped with the map.

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Associate Editor: Leandro Bugoni.