

# First record of Merlin *Falco columbarius* from Tocantins and a review of previous Brazilian records

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**ABSTRACT:** We describe the first record of *Falco columbarius* from Tocantins, central Brazil, made in the contact zone between the Amazon and Cerrado biomes. A review of previous Brazilian records of this species is also presented, showing a previously unrecognized wintering area for this falcon in South America and that its status as a vagrant should be reconsidered. *Falco columbarius* seems a rare but regular winter visitor due to several records in Brazil over the last years.

**KEY WORDS:** Brazil, *Falco columbarius*, Neartic migrant, Tocantins, South America.

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The Merlin *Falco columbarius* is a small boreal migrant falcon with a pan-Holarctic breeding range. The species winters at both temperate and tropical latitudes reaching, in the Southern Hemisphere, only South America (White *et al.* 1994; Beaman & Madge 1998; Warkentin *et al.* 2005). Globally, there are nine subspecies, six breeding in Europe and Asia (*F. c. aesalon*, *F. c. subaeson*, *F. c. pallidus*, *F. c. insignis*, *F. c. lymani*, and *F. c. pacificus*) and wintering in North Africa and subtropical Asia (Beaman & Madge 1998) and southern China (White *et al.* 1994). Another three subspecies (sometimes considered a different species, American Merlin) breed in North America, *F. c. columbarius*, *F. c. richardsoni*, and *F. c. suckleyi*; only the nominate migrates to the tropics, reaching the Caribbean, Central America, and northern South America (Hilty & Brown 1986; White *et al.* 1994; Sick 1997; Warkentin *et al.* 2005; Braun *et al.* 2007).

In South America, there are relatively few records of Merlins from a broad area over Peru, Brazil, Ecuador, Colombia, Venezuela, Guyana, and Suriname (Hilty & Brown 1986; White *et al.* 1994; Sick 1997; Hilty 2003; Schulenberg *et al.* 2007). In Brazil *F. columbarius* is considered rare (Sick 1997; Sigrist 2006) with the first record of an individual captured on the Dutch vessel still at sea, in the Atlantic Ocean, near the coast of the state of Bahia (northeast of Brazil) in November 1963 (Sick 1997). This was assumed to belong to the European form (Sick 1997).

A further ten records of Merlins have been made in Brazil (Table 1), most between October and December. Here we present details of a new record of this species from central Brazil. On 13 May 2011 a female-plumaged *F. columbarius* was photographed in Wanderlândia municipality, northern Tocantins (06°44'S, 48°04'W) (Figure 1). Merlins are normally back on their breeding grounds by April-May, thus this individual may be a first-summer male that decided to over-summer on its wintering grounds or was returning north at an atypically late date. The bird was perched atop a dead palm tree (possibly a Macaúba *Acrocomia aculeata*) (Figure 1) and plucked a small passerine, probably a Thraupidae, it had captured.

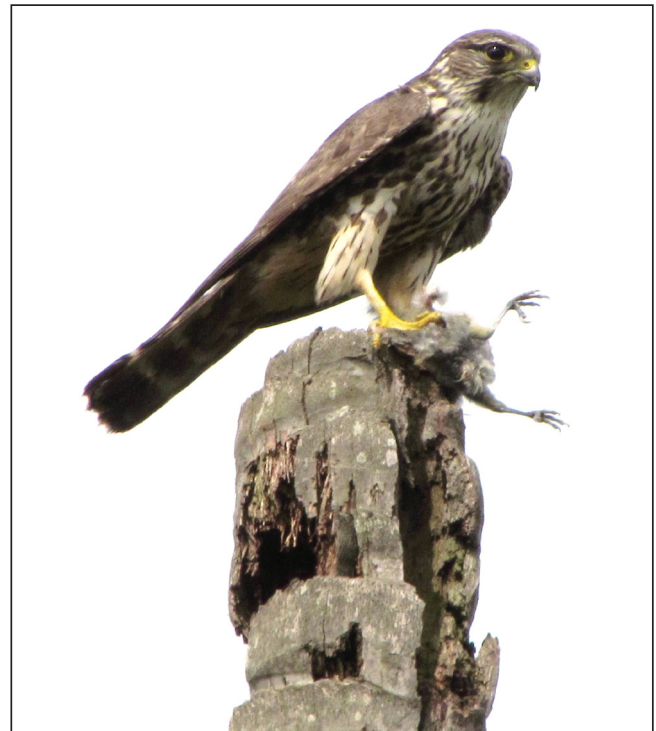
This region lies along the contact zone of the Amazon and Cerrado biomes in a very disturbed area, adjacent to a land-reform settlement and characterized by forest fragments between 10-100 ha (canopy heights 20-30 m) within a matrix of cattle pasture. Our record from Tocantins was made over 900 km southeast from the nearest previous record, from Santarém (Lees *et al.* 2013), and more than 2,500 km northeast from the record at Xapuri (Mendizabel 2012). The records from Tocantins and Xapuri represent the southernmost records of Merlins anywhere (Figure 2a; White *et al.* 1994; Beaman & Madge 1998).

Our record also reinforces the finding that Merlins routinely use human-modified landscapes (such as farmland) to forage both in the breeding and non-breeding

seasons (White *et al.* 1994). Canadian Merlins have been found to forage extensively around human settlements and prey disproportionately on House Sparrows *Passer domesticus* (Warkentin & Oliphant 1990), an introduced species also widely present in Brazil.

Given the likely low abundance of this species at the southern edge of its wintering range in South America, low observer density, and possibility of confusion with other species, *F. columbarius* is likely under-recorded in Brazil. We suggest that the species status as 'vagrant' in Brazil should be reconsidered as it may simply be a rare but regular winter visitor (Figure 2b).

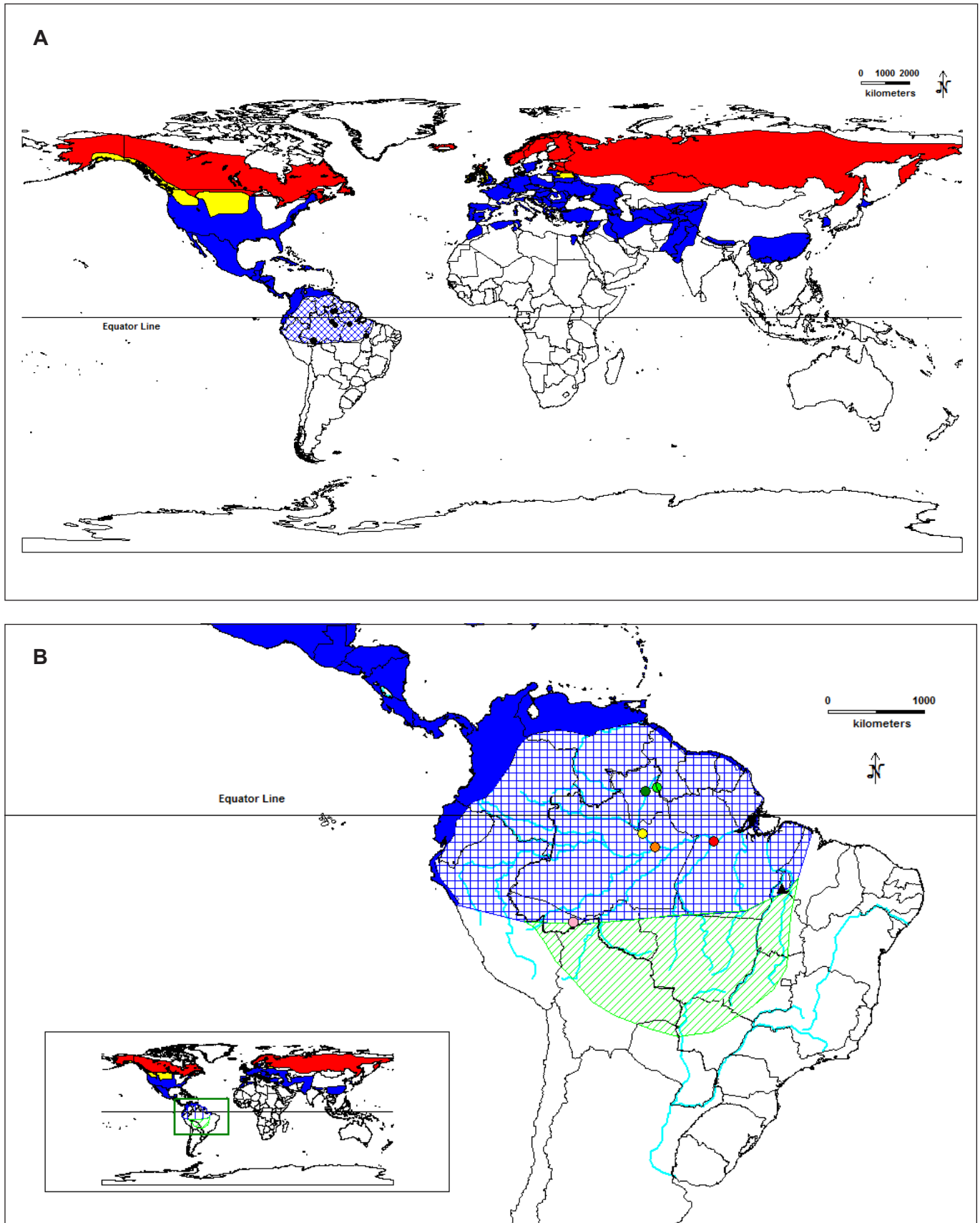
The Tocantins record, in the anthropogenically influenced contact zone between Amazon and Cerrado, indicates that the winter range of this Nearctic falcon is even more southerly in latitude than previously expected. The success of prey capture in this contact region between biomes indicates that the species may have the capacity to extend its wintering area beyond the limits of the Amazon. Thus, we suspect that central portions of South America, like the Brazilian Cerrado and Pantanal or even northern Paraguay and parts of Bolivia (Figure 2b)—regions supported by the Xapuri record, may also be within the wintering range of *F. columbarius*.



**FIGURE 1.** Female *F. columbarius* found in Wanderlandia, Tocantins, central Brazil. The beheaded prey seems to be a Thraupidae. Photo: Tulio Dornas.

**TABLE 1.** Review of *F. columbarius* records in Brazil. If number of individuals not mentioned, number was not reported in reference.

| REFERENCE   | LOCATION                                | DATE          | AGE/SEX         | COMMENTS   |
|---|---|---------------|-----------------|--|
| Sick (1997)   | At sea, Bahia coast                     | November 1963 | not reported    | One individual, European subspecies  |
| Stotz <i>et al.</i> (1992)                          | Manaus, Amazonas                        | October 1990  | Immature female | One individual, on the banks of the Negro River near Manaus  |
| Pacheco & Carvalhães (1994) <i>apud</i> Sick (1997) | Jaú River, Amazon                       | December 1993 | not reported    | Mouth the Jaú and Amazon Rivers  |
| Pacheco & Carvalhães (1994) <i>apud</i> Sick (1997) | Jaú River, Amazon                       | January 1994  | not reported    | Mouth the Jaú and Amazon Rivers  |
| Santos & Silva (2007)                               | Savannas between Rupununi and Roraima,  | March 2000    | not reported    | Two individuals, border of Brazil and Guyana (record by Robbins <i>et al.</i> 2004)                              |
| Santos & Silva (2007)                               | Savannas between Rupununi and Roraima,  | November 2000 | not reported    | One individual, border of Brazil and Guyana (record by Robbins <i>et al.</i> 2004)                               |
| Lees <i>et al.</i> (2013)                           | Santarém, Pará                          | November 2011 | not reported    | One individual, at the campus of the Federal University of Western Pará, mouth of the Tapajós with Amazon Rivers |
| Mendizabel (2012)                                   | Xapuri, Acre                            | January 2012  | Male            | One individual, near of border with Bolivia  |
| Luccia (2012)                                       | Boa Vista, Roraima                      | November 2012 | Female?         | One individual, Municipal Park Caçari  |
| This paper  | Municipality of Wanderlândia, Tocantins | May 2013      | Female?         | One individual, Contact zone Amazon/Cerrado biomes   |



**FIGURE 2.** A) Geographic distribution of *F. columbarius* (White *et al.* 1994). Black dots represent records of *F. columbarius* in Brazil. B) Details of *F. columbarius* records in Brazil: light green, Rupununi/Roraima savanna (Silva & Santos 2007); dark green, Boa Vista, Roraima (Luccia 2012); yellow, Jaú River (Pacheco & Carvalhaes 1994); orange, Manaus, Amazonas (Stotz *et al.* 1992); red, Santarém, Pará (Lees *et al.* 2013); and pink, Xapuri, Acre (Mendizabel 2012). The black triangle represents the record in Tocantins. The blue checkerboard pattern represents the extended wintering area based on our observation reported here. The green diagonal pattern indicates what we suspect to be the actual extension of the wintering grounds of this Neartic migrant.

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