EVIDENCE OF RED-BILLED TROPICBIRD *PHAETHON AETHEREUS* BREEDING IN THE GULF OF GUINEA

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ABSTRACT

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Red-billed Tropicbird *Phaethon aethereus* has been considered vagrant in the Gulf of Guinea, although with suggestions of sporadic breeding at Tinhosas Islets, south of Príncipe Island. Here, we report repeated visits of birds to potential nesting sites, aggressive territorial behavior, and pair interactions on the coastal cliffs in the southern portion of São Tomé Island and nearby islets of Rolas and Sete Pedras. These observations strongly suggest that the species breeds at these locations, which would expand the known breeding range in the eastern Atlantic. Future work is needed to clarify the status of the species in the region.

RESUMO (ABSTRACT IN PORTUGUESE)

O Rabijunco *Phaethon aethereus* tem sido considerado vagrante no Golfo da Guiné, embora já tenha sido sugerido que se pode reproduzir ocasionalmente nos ilhéus das Tinhosas, a sul da ilha do Príncipe. Aqui, reportamos visitas repetidas de aves a potenciais locais de nidificação, comportamento territorial agressivo e interações de casais nas arribas costeiras no sul da ilha de São Tomé e ilhéus adjacentes das Rolas e Sete Pedras. Estas observações sugerem fortemente que a espécie se reproduz nestes locais, o que expandiria a área conhecida de reprodução no Atlântico Oriental. Trabalhos futuros devem clarificar o estatuto da espécie na região.

Key words: distribution, expansion, eastern South Atlantic, São Tomé and Príncipe, seabird nesting

INTRODUCTION

The Red-billed Tropicbird *Phaethon aethereus* is a pelagic species distributed across tropical and subtropical waters. Usually, it is only found near land on the islands where it breeds. Three subspecies are currently recognized (Orta et al., 2020): *P. a. aethereus* breeds in tropical islands in the South Atlantic, namely on the Brazilian archipelagos of Fernando de Noronha and Abrolhos and on Ascension and St. Helena Islands in the British Overseas Territory of Saint Helena, Ascension and Tristan da Cunha (Beard et al., 2023; Mancini et al., 2016; Stonehouse, 1962); *P. a. mesonauta* breeds in the eastern Pacific (from Chile and the Galápagos Islands north to Mexico), Caribbean Sea, and eastern North Atlantic (Cape Verde, Canary Islands, and Madeleine Islands in Senegal: Diop et al., 2019; Santos et al., 2017); *P. a. indicus* is restricted to the northwestern Indian Ocean, around the Arabian Peninsula, and is sometimes treated as a separate species, Arabian Tropicbird *P. indicus* (Howell & Zufelt, 2019).

The species' breeding becomes more seasonal at higher latitudes, and breeding density is associated with oceanographic events linked to food availability (Beard et al., 2023). Breeding colonies of *P. a. mesonauta* in the Gulf of California concentrate reproductive efforts around winter upwelling events (Castillo-Guerrero et al., 2011). At lower latitudes, breeding tends to become protracted, as is the case for the nominal subspecies at St. Helena and Ascension Islands, where egg laying peaks around September (Beard et al., 2023; Stonehouse, 1962). Nevertheless, individual breeding phenology is also variable, for instance between years, and it can depend on factors such as time since the last breeding attempt (Beard et al., 2023).

Although the Red-billed Tropicbird has long been mapped as occurring in the Gulf of Guinea (Brown et al., 1982), the first specific report we could find for the region dates to an undocumented sighting in September 1987 in Kribi, Cameroon (Holyoak, 1987). Subsequent observations have been limited to the small island nation of São Tomé and Príncipe, where it was

first registered in March 1992 near Sete Pedras, a cluster of rocky islets *ca*. 5 km southeast of São Tomé Island (Jones & Tye, 2006). In July 1996, it was spotted near Tinhosa Pequena, one of three small, unvegetated islets that make up the Tinhosas, some 20 km south of Príncipe Island (Christy & Clarke, 1998; Roberson, 1996). The first physical evidence of its presence, however, dates only from January 2017, when two individuals were photographed near Tinhosinha, another one of the Tinhosas Islets (Bollen et al., 2018). In November 2019, one of two reported birds was photographed near Sete Pedras (Sineux, 2019; Sineux, 2022). Again on Tinhosinha, three adults were photographed flying together over the sea on 28 February 2020 (Paulo Catry, personal communication, May 26, 2025), and a single bird was seen entering a cavity on 10 February 2021 (Nina da Rocha, personal communication, February 23, 2021). On Tinhosa Pequena, there is also anecdotical evidence of nests in previous years (Nina da Rocha, personal communication, February 23, 2021), suggesting that the species might be breeding sporadically in the region (de Lima & Melo, 2021).

OBSERVATIONS

In February 2025, GM observed Red-billed Tropicbirds in waters south of São Tomé Island on multiple occasions (Table 1, Fig. 1). They were readily identified by the red bill, by the distinctive pattern of black feather markings (Fig. 2), and by being visibly larger than the locally abundant White-tailed Tropicbird *P. lepturus*. The first sighting took place on 05 February at Homem da Capa, a coastal cliff next to Porto Alegre, on the main island. Subsequent inquiries of people living in the vicinities confirmed that most were unfamiliar with the Red-billed Tropicbird, even though a few people reported regular sightings at specific coastal locations. Taking these accounts into consideration, areas with suitable tropicbird nesting habitat were targeted for further searches. On 07 February, an individual was observed at the same location as the previous sighting, interacting with White-tailed Tropicbirds and seemingly searching for a cavity on the rocky cliffs. On 10 February, a pair was seen entering a rocky cavity after a 10-min period of conjoint aerial display at Sete Pedras, where there are breeding populations of several other seabird species, including White-tailed Tropicbird (Jones & Tye, 2006; Monteiro et al., 1997). On 12 February, a single bird approached from the sea, vocalized, chased a few White-tailed Tropicbirds, and entered a cavity at Ilhéu das Rolas. At *ca*. 2 km^2, this is the largest islet next to São Tomé, *ca*. 2.5 km south of the main island. The islet has a prominent oceanic cliff on its southwestern face, known to support a nesting population of White-tailed Tropicbirds (Jones & Tye, 2006; Monteiro et al., 1997).

Our observations indicate that the birds occurring in the Gulf of Guinea do not belong to the Indian Ocean subspecies (Fig. 2), which would have a shorter eye mask, shorter tail streamers, stronger black upperwing markings, and black cutting edges to the bill (Howell & Zufelt, 2019). The distribution of the remaining subspecies might suggest that the Gulf of Guinea birds belong to the nominal subspecies, which breeds in the South Atlantic. However, *P. a. mesonauta* cannot be disregarded, given that it has expanded its distribution into the eastern and western North Atlantic over the past few decades (Furness & Monteiro, 1995; Gil-Velasco et al., 2022; Kennerley et al., 2025). Since most records of the species in São Tomé and Príncipe have been sporadic and the breeding seasonality of the species is flexible, there is not much we can infer about the seasonality or origin of these birds.

The repeated visits to potential nesting sites, the aggressive territorial behavior, and the pair interactions provide compelling evidence that the Red-billed Tropicbird is breeding in the oceanic islands of the Gulf of Guinea, even though our observations do not offer a definitive proof. It also remains unclear if these occurrences refer to sporadic breeding. An increased number of records might result from more people recording birds on the islands (de Lima & Melo, 2021), but the species might also have increased its presence in São Tomé and Príncipe to becoming a regular, even though scarce, breeding species.

TABLE 1
Observations of Red-billed Tropicbird *Phaethon aethereus* in São Tomé, São Tomé and Príncipe, made by Gustavo Marino in February 2025

Date, time	Location[a]	Observations
05, 14h00	Homem da Capa (A)	One briefly flying in the distance.
07, 12h10	Homem da Capa	One flying, vocalizing, and actively displacing a pair of White-tailed Tropicbirds *Phaethon lepturus* from a cavity.
07, 12h40	Homem da Capa	The same individual as above trying twice to land in that same cavity while it was still occupied by a White-tailed Tropicbird.
07, 13h00	Homem da Capa	The same individual trying to enter another cavity, less than 5 m away from the one occupied by the pair of White-tailed Tropicbird*s*.
10, 09h45	Sete Pedras (C)	Two individuals approaching from the sea, vocalizing in coordinated circular flight for a couple of minutes. After *ca*. 10 minutes of aerial display, both birds entered the same rocky cavity.
12, 06h34	Ilhéu das Rolas (B)	One individual approaching from the sea in circular flight whilst vocalizing. It chased several White-tailed Tropicbirds, but at one point, it also flew with a group of four White-tailed Tropicbirds, exhibiting no aggressive behaviour.
12, 06h56	Ilhéu das Rolas	One individual entering a cavity.

[a] Capital letters in brackets refer to the locations shown in Fig. 1.

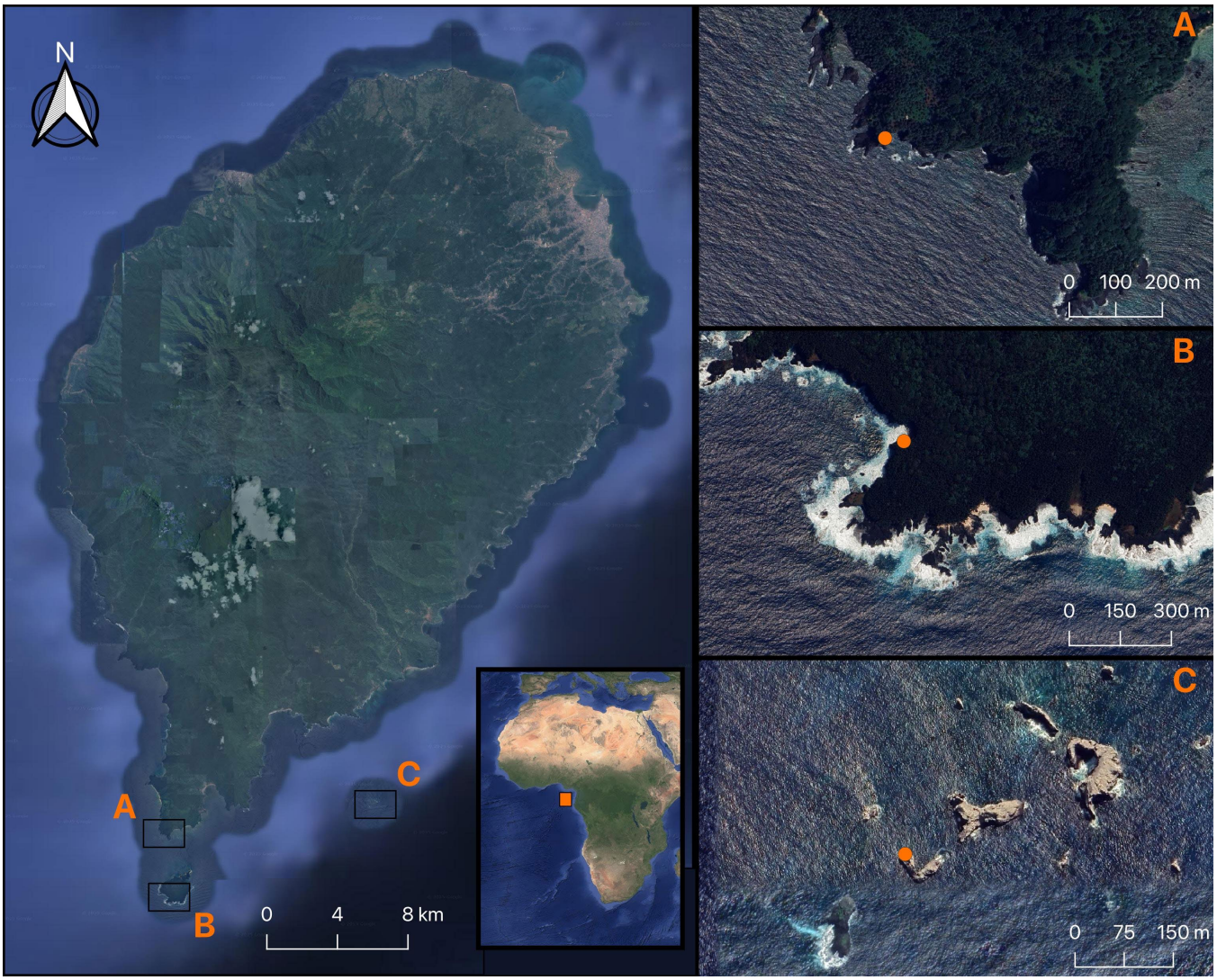

Fig. 1. Map of São Tomé Island, São Tomé and Príncipe, highlighting (A) Homem da Capa cliff, (B) Ilhéu das Rolas, and (C) Sete Pedras. The orange dots show the approximate locations where Red-billed Tropicbird *Phaethon aethereus* was spotted entering cavities during fieldwork in February 2025. (Background aerial photos from Google Maps: São Tomé Island—Google Maps, Map data ©2025, Map data ©2025; African continent—Google Maps, Imagery ©2025 NASA, Map data ©2025 Google; panels A, B, and C—Google Maps, Imagery ©2025 Airbus, CNES / Airbus, Maxar Technologies, Map data ©2025)

Future work should monitor the occurrence of the species in São Tomé and Príncipe to clarify its status in the region. These efforts should focus on the locations where the presence of the species has been confirmed, namely in the Tinhosas Islets and on the coastal cliffs and islets to the south of São Tomé Island. We appeal for care while identifying tropicbirds in the Gulf of Guinea, as it is likely that the species is underreported by confusion with the locally abundant White-tailed Tropicbird. It would also be important to monitor distribution by visiting other islets and coastal cliffs in the region and to record potential population changes and seasonality. There is some information on the distribution and population size of the White-tailed Tropicbird in the country (Monteiro et al., 1997; Rocha, 2022), and breeding is currently being studied in São Tomé (Marino, 2025). Since antagonistic interactions between the two species have been reported (Stonehouse, 1962), it would be relevant to monitor how the potential expansion of the Red-billed Tropicbird might affect the smaller species.

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Fig. 2. Red-billed Tropicbirds *Phaethon aethereus* at São Tomé Island, São Tomé and Príncipe, in February 2025: (A) Flying at Homem da Capa; (B) the same individual vocalizing while chasing a pair of White-tailed Tropicbirds *P. lepturus* that had occupied a nest cavity; (C) chasing multiple White-tailed Tropicbirds at Ilhéu das Rolas; (D) the same individual entering a nest cavity; (E) two individuals vocalizing while in coordinated circular flight over Sete Pedras; (F) the second of two individuals, also seen in photo (E), entering the same cavity. Photo credits: Gustavo Marino

AUTHOR CONTRIBUTIONS

Conceptualization: GM, RFL. Data curation: GM, RFL. Funding acquisition: JP, RFL. Investigation: GM, GO, ILH. Supervision: PP, RFL. Visualization: GM, RFL. Writing—original draft: GM, RFL. Writing—review & editing: GM, ILH, PP, JP, RFL.

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