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A Great Frigatebird *Fregata minor* at Fernando de Noronha archipelago, equatorial Atlantic Ocean

by Robson Silva e Silva & Caio J. Carlos

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SUMMARY.—We report a documented record of a Great Frigatebird *Fregata minor* at Fernando de Noronha, 360 km off the coast of northeast Brazil in the equatorial Atlantic. We presume that the bird at Fernando de Noronha originated from Trindade Island, c.1,800 km to the south, since it is the species' nearest breeding site, and we hypothesise that it moved with the south-east trade winds towards the north-east Brazilian coast.

Four frigatebird species nest on Atlantic Ocean islands: Ascension Frigatebird *Fregata aquila*, Magnificent Frigatebird *F. magnificens*, Great Frigatebird *F. minor* and Lesser Frigatebird *F. ariel*. Whereas Magnificent Frigatebird has a broad breeding distribution, in the Atlantic each of the other species nests on a single island / archipelago (Orta *et al.* 2019a,b,c). The Atlantic populations of Great and Lesser Frigatebirds, respectively referred to as *F. m. nicolli* and *F. a. trinitatis*, are currently restricted to Trindade (Carlos 2009, Mancini *et al.* 2016, Olson 2017), an island of volcanic origin 1,140 km off south-east Brazil (Alves

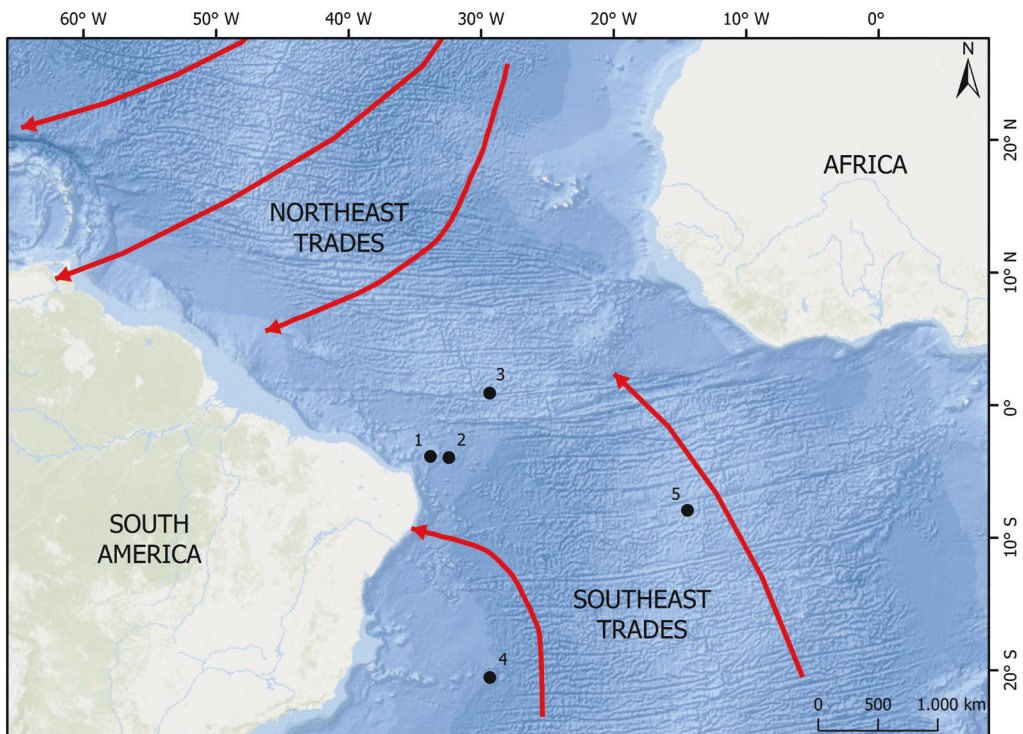


Figure 1. Tropical oceanic islands in the South Atlantic: (1) Rocas Atoll, (2) Fernando de Noronha archipelago, (3) São Pedro e São Paulo archipelago, (4) Trindade and Martim Vaz archipelago, and (5) Ascension Island.

1998; Fig. 1). However, fossil remains attributed to both taxa have been found on St Helena (Olson 1975, 2017), 1,580 km east of Trindade. Elsewhere, Great and Lesser Frigatebirds breed on tropical and subtropical islands in the Indian and Pacific Oceans (Orta *et al.* 2019b,c).

The at-sea ranges of frigatebirds breeding on Trindade are poorly understood. Available observations are from around Trindade itself and nearby Martim Vaz archipelago (e.g. Murphy 1915, Olson 1981, Antas 1991, Fonseca-Neto 2004, Mancini *et al.* 2016, Port *et al.* 2016). There is a possible sighting of an adult female Great Frigatebird from Mar del Plata, Argentina, in January 2007 (López-Lanús & López-Lanús 2011), c.3,300 km southwest of Trindade, perhaps indicating that the species may wander far from its only Atlantic breeding site.

Juvenile and immature Great Frigatebirds exhibit a series of plumages with rusty and white on head and breast, and white underparts, decreasing progressively before they achieve adult coloration. Adult males are mostly brownish black, whereas females have some white below (Harrison 1983, Valle *et al.* 2006, Orta *et al.* 2019c).

Here, we present a documented record of a Great Frigatebird at Fernando de Noronha, a volcanic archipelago 360 km off north-east Brazil in the equatorial Atlantic (Fig. 1). The archipelago consists of a main island, and 20 islands and islets (Silva e Silva 2008).

Between 1999 and 2008, RSS visited Fernando de Noronha almost annually to study its birds. Visits lasted 10–23 days and smaller islands were accessed by motorboat (Silva e Silva 2008). On 7 March 2008, RSS & P. T. Felipe, an inspector with the Brazilian federal protected areas agency (ICMBio), disembarked at 'Pontal da Macaxeira' (03°48'30"S, 32°22'49"W), on Ilha da Rata to ring the seabirds nesting there: Magnificent Frigatebird, Masked Booby *Sula dactylatra* and Red-footed Booby *S. sula* (Silva e Silva 2008). The next day, near a colony of Magnificent Frigatebirds on the island's east side, a juvenile, rusty-headed frigatebird was observed being chased and grasped by other frigatebirds (Fig. 2).

The frigatebird in question had a pale blue bill with yellowish tip, white head and neck with tawny-washed throat, cheeks, forehead and nape, blackish-brown upperparts with pale-barred wing-coverts, a complete, blackish-brown breast-band, a white, egg-shaped belly patch with its narrow end turned rearwards, and blackish underwings (Fig. 2). This plumage is like that described for first-year Great Frigatebird (Harrison 1983, Walbridge *et al.* 2003, James 2004).

The most useful characters for distinguishing frigatebird species are the presence of any tawny or rufous on head and neck and the extent and shape of white markings below (Harrison 1983, James 2004). Juvenile Greater and Lesser Frigatebirds have a rusty or cinnamon head that fades to whitish with age, whereas juvenile Ascension and Magnificent Frigatebirds both possess an all-white head (Harrison 1983, Walbridge *et al.* 2003, James 2004). The white belly patch of juvenile Great Frigatebird is rounded anteriorly, so that the posterior margin of the dark breast-band is concave. In juvenile Lesser Frigatebird, the white belly patch is triangular with a rounded, narrow tip pointing towards the tail and straight base bordering the dark breast-band. Furthermore, juvenile Lesser Frigatebird always has axillary spurs, which are long, narrow, and originate from the anterior corners of the triangular belly patch. Great Frigatebird occasionally has small axillary spurs, but these distinctly originate behind the anterior margin of the belly patch and breast-band (James 2004).

In contrast to the limited published information on the at-sea distribution of Atlantic Great Frigatebirds, their counterparts in the Indian Ocean are better studied. For example, satellite-tracked Great Frigatebirds from Europa Island in the Mozambique Channel make



Figure 2. First-year juvenile Great Frigatebird *Fregata minor*, Fernando de Noronha archipelago, Brazil, 7 March 2008, below being chased by a juvenile Magnificent Frigatebird *F. magnificens*; note the tawny wash to the head and neck, complete dark breast-band, and the egg-shaped white belly patch (Robson Silva e Silva)

long-distance, clockwise loops around the Indian Ocean, taking advantage of the trade winds (Weimerskirch *et al.* 2016).

In the Atlantic, the north-east trade winds blow from subtropical latitudes ($c.30^{\circ}\text{N}$) towards the north-east coast of South America and the Caribbean. South-east trade winds blow from $c.30^{\circ}\text{S}$, along the coast of Africa, then across the Atlantic to the equatorial South American coast (Longhurst & Pauly 1987; Fig. 1). We presume that the juvenile Great Frigatebird at Fernando de Noronha originated from Trindade, $c.1,800$ km to the south, as it is the nearest breeding site. Then, we hypothesise that it moved downwind in the south-east trades to the north-east Brazilian coast. Recently, a satellite-tracked juvenile Ascension Frigatebird from Boatswainbird islet, moved north-west to Brazilian waters within less than 100 nautical miles (190 km) of Fernando de Noronha and the São Pedro e São Paulo archipelago (Williams *et al.* 2017). Ascension lies at $c.8^{\circ}\text{S}$, in the path of the south-east trade winds; therefore, we interpret the record reported by Williams *et al.* (2017) as indirect evidence for our hypothesis.

The Great Frigatebird population on Trindade has undergone severe decline and is estimated at just a few individuals (Mancini *et al.* 2016). It is difficult to know whether Trindade Great Frigatebirds regularly move to equatorial latitudes. Nevertheless, the possible sighting in Argentina (López-Lanús & López-Lanús 2011), as well as the record reported herein, indicate that Trindade Great Frigatebirds possibly undertake long-distance movements, as their counterparts do in the Indian Ocean. Therefore, observers should pay attention to frigatebirds in equatorial and subtropical Atlantic waters to eliminate the possibility of wandering by this species.

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