Vagrant sub-Antarctic fur seal at tropical Ascension Island, South Atlantic Ocean

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Abstract

Knowledge of extra-limital movements of seals improves our understanding of species' dispersal and dispersion abilities and patterns, and perhaps environmental changes. Canvassing and internet literature searches revealed the sighting of a vagrant adult male sub-Antarctic fur seal *Arctocephalus tropicalis* on the coast adjacent to George Town (7° 56' S, 14° 25' W), Ascension Island, in 2010. Although finer details of the sighting are sketchy, this is the first sighting of any seal at Ascension Island, and the northernmost sighting on record for the species on the mid-Atlantic Ridge islands. The likely source of the vagrant is the population at Gough Island (40° 20' S, 9° 54' W) some 3624 km further south in the Atlantic. The vagrant likely moved westward from Gough Island to the Brazilian coast, then northwards in coastal waters, eventually reaching Ascension Island.

Keywords: *Arctocephalus tropicalis;* Ascension island; South Atlantic ocean; Geographic distribution; Sightings; Vagrants

Introduction

A vagrant is an individual organism found outside the region that is known for that particular species (https://biologywise.com/biology-glossary-of-terms-definitions#ZoologyGlossary), i.e. a biological phenomenon in which a species appears outside of its typical geographical zone. One of the most fundamental functions of animal movement is to find food (Stern and Friedlaender 2018) but extra-limital sightings of marine predators may also be due to navigational errors acting independently or in concert with other factors (Carpenter-Kling et al. 2017). Here vagrancy of sub-Antarctic fur seals that breed on islands within the South Atlantic Ocean is explored to improve understanding of the species' dispersal and dispersion abilities and patterns (Zanre and Bester 2011).

Methods

Southern Ocean seal literature within the Mammal Research Institute (MRI) collection, as well as those sourced through the University of Pretoria's Merensky library were scrutinised. Additional information was acquired through canvassing and a Google Scholar internet literature search using various key words, some of which are included in the listing after the abstract (above).

Results and discussion

The first ever seal on Ascension Island (Fig. 1) was recorded in 2010. The adult male sub-Antarctic fur seal *Arctocephalus tropicalis* (Fig. 2) was seen on a beach next to George Town (7° 56′ S, 14° 25′ W). Further details (e.g. day, month) of the sighting(s) are lacking. Photographs taken with two different cameras, suggested that two different observers may have been involved. The fur seal was photographed in the intertidal zone (Fig. 2a), and then again when it had settled down on the dry rocks (Fig. 2b). The duration of the animal's haulout is unknown, or whether the photographs were taken on different days. It is impossible to ascertain the fur seal's condition from the photographs, although the roughed up fur on its lower back (Fig. 2b) might indicate moulting and/or superficial injury.

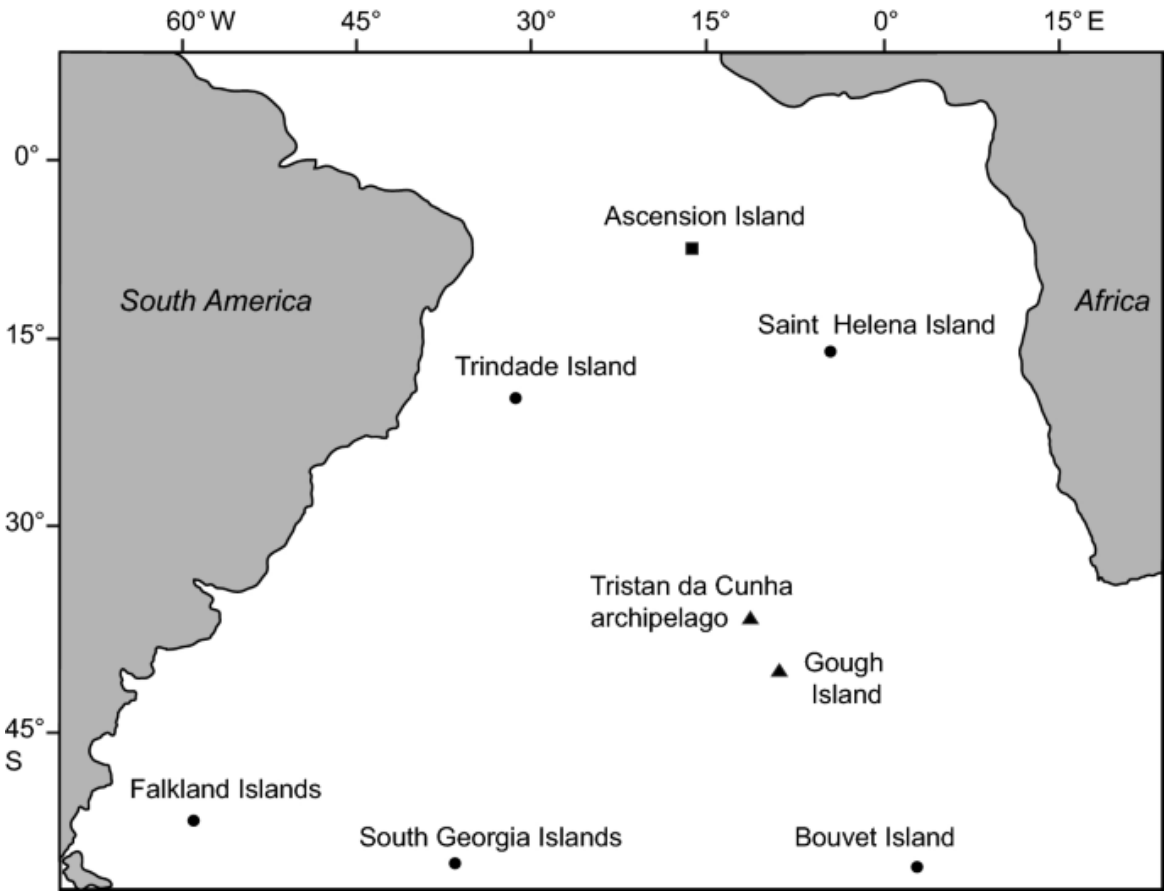

Fig. 1. Map showing location of islands (black dots) in the South Atlantic Ocean, including Ascension Island (black square). The breeding colony sites of sub-Antarctic fur seals are indicated (black triangles)

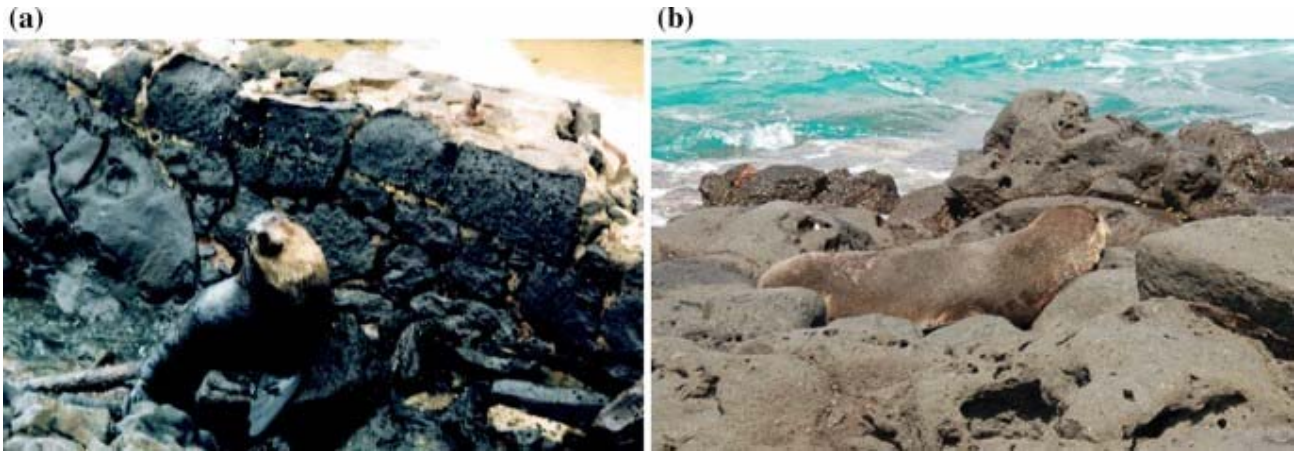

Fig. 2. a, b The adult male sub-Antarctic fur seal seen at Ascension Island **a** in the intertidal zone, and **b** hauled out on the rocks. Note the roughened up fur of the lower back of the fur seal

Sub-Antarctic fur seals breed at numerous sites on eight islands or island groups within the Southern Ocean and some 99% breed at three of these sites, i.e. Gough Island, Prince Edward Islands and Amsterdam Island (Hofmeyr et al. 2016). Sub-Antarctic fur seals may cover vast distances, and were encountered from the Antarctic continent (Shaughnessy and Burton 1986) to the tropics (Zanre and Bester 2011; this study). A tagged sub-adult male from Amsterdam Island (37° 50′ S, 77° 32′ E) hauled out on Gough Island (40° 20′ S, 9° 54′ W) some 5000 km to the west (Hänel et al. 2005) amongst conspecifics.

Extra-limital records of sub-Antarctic fur seals in the tropics include two adult males found on the Atlantic seaboard in Angola at 9°20′ S (Carr et al. 1985), and an adult male from Gabon at 03° 41′S (Zanre and Bester 2011). An immature male and female were recorded on the coast of Brazil, South America, between 9° 40′ S and 12° 54′ S (Pinedo 1990), while at least 27 individuals, mostly immature males, were recorded (1954–2008) in Rio de Janeiro State, centred on ~ 22° 54′ S (de Moura et al. 2011). Genetic profiling of vagrant sub-Antarctic fur seals found on the Atlantic seaboard of Brazil suggested that the majority of the vagrant individuals came from Gough Island, the closest breeding site to the Brazilian coast (Fig. 1). However, some also arrived from the Crozet Islands (46° 25′ S, 51° 45′ E), South Indian Ocean, a distance of ~ 16,500 km to the east from the Brazilian coast (Ferreira et al. 2008). Two immatures were found in the Indian Ocean, at Unguja (Zanzibar) Island, Tanzania at 05° 52′ S (Hofmeyr and Amir 2010), a juvenile on the Comore Islands at 12° 30′ S (David et al. 1993), one on the east coast of Madagascar at 22° 08′ S (Garrigue and Ross 1996) and one on the island of Rodrigues at 19° 43′ S. A further two were recorded on Mauritius at 20° 30′ S (David and Salmon 2003).

Vagrant sub-Antarctic fur seals have never been recorded at inhabited Ascension Island before, neither have any other seal species. The most northerly confirmed sub-Antarctic fur seal sighting is from Gabon (Zanre and Bester 2011), almost 2844 km eastwards of Ascension Island on the tropical West African coast.

Milmann et al. (2019) report the incidental sighting of a live young fur seal which was photographed by a crew member of a fishing vessel during 2013 in deep pelagic waters (~ 00° 56′ N, 29° 22′ W) about 1931 km northward from Ascension Island. The sighting took place just above the equatorial line in the Atlantic Ocean at the São Pedro and São Paulo Archipelagos, which is about 1010 km away from the Brazilian mainland. They hypothesized the fur seal to be one of three main species, *A. tropicalis*, *A. australis*, or *A. pusillus pusillus*. The latter species breed southwards from southern Angola on the eastern Atlantic seaboard (Kirkman et al. 2016), but Thibault (1999) claimed to have seen, and photographed a vagrant South African fur seal (*A. p. pusillus*) on a beach in south-western Gabon, the nearest location to the Milmann et al. (2019) sighting. However, neither a physical description nor the photograph of the aforementioned sighting was presented, and the identity of the Thibault (1999) sighting must remain uncertain.

On the western Atlantic seaboard, Brazil has no breeding colonies of any pinniped, but every year hundreds of seals of various species are found along the southern Brazilian coast (summarized in Procksch et al. 2020). These are South American fur seals (*A. australis*) and South American sea lions (*Otaria flavescens*) that probably arrive from their closest breeding sites in Uruguay and Argentina to the south. More polar Antarctic and sub-Antarctic pinnipeds such as Antarctic fur seals (*A. gazella*), sub-Antarctic fur seals (*A. tropicalis*), crabeater seals (*Lobodon carcinophaga*) leopard seals (*Hydrurga leptonyx*), and southern elephant seals (*Mirounga leonina*) occur in the region as occasional or rare visitors (de Moura et al. 2011; Procksch et al. 2020), with the first record of a Weddell seal (*Leptonychotes weddellii*) in Brazilian waters (Frainer et al. 2017) at Trindade Island (Fig. 1).

It is therefore likely that the vagrant sub-Antarctic fur seal at Ascension Island originated at Gough Island, 3624 km to the south, similar to most of conspecifics found on the South American coast (Ferreira et al. 2008). It is impossible to speculate on the cause of such movement to Ascension Island, other than the adult male sub-Antarctic fur seal probably having lost its way by virtue of navigational errors due to severe storms or anomalous ocean conditions acting independently or in concert with other factors (Woehler 1992; Carpenter-Kling et al. 2017). After reaching the Brazilian coast (Ferreira et al. 2008), sub-Antarctic fur seals likely move in a northerly direction similar to a number of other seal species (n = 6) that annually move into the area from further south (Procksch et al. 2020). Such movement is facilitated by the intensive northward flow of the Malvinas/Falkland Current especially during winter (de Moura et al. 2011), the individual in the present study conceivably reaching Ascension Island after this fashion (this study).

The continued reporting of extra-limital vagrants improves our understanding of the species' dispersal and dispersion abilities and patterns (Zanre and Bester 2011), and perhaps environmental changes linked to climate change (Prado et al. 2016). In terms of continued reporting of marine mammals in the South Atlantic, at Saint Helena Island a recording system allows members of the public to report sightings of marine species (https://www.sainthelena.gov.sh/directorates/environment-natural-resources-planning/environmental-management/marine-division/). Encouraging citizens to report potential sightings (Hofmeyr et al. 2016) would improve the database on extra-limital vagrants.

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Ethics declarations

Conflict of interest

I declare that I have no conflict of interest.

Ethical approval

Past field procedures were cleared by the University of Pretoria Animal Ethics Committee (Project Number EC077-15), executed under an Environmental Research Permit, including the Wildlife and Protected Areas Research Permit, of the Tristan da Cunha Government.

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