

MARINE RECORD

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# First record of a southern elephant seal (*Mirounga leonina*) in Sri Lankan waters



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## Abstract

An unusual sighting of a juvenile southern elephant seal (*Mirounga leonina*), outside its typical range, was recorded off the southern coast of Sri Lanka between 20th November and 20th December 2019. The individual, a male as confirmed by the presence of a prepuce, underwent a catastrophic moult during this 1 month period, following which no further observations were recorded and so it was assumed it returned to sea. This represents the first confirmed sighting of a southern elephant seal, and indeed a phocid, in Sri Lankan waters.

**Keywords:** Northern Indian Ocean, Dispersal, Southern elephant seal, Moulting, *Mirounga leonina*

## Background

The southern elephant seal (*Mirounga leonina*) typically has a circumpolar distribution around the south pole (Bailleul et al. 2007; Hindell and McMahon 2000) and visits the sub-Antarctic islands to breed between September–November. There are four main breeding colonies; South Georgia, Peninsula Valdez, Iles Kerguelen and Heard Island, and Macquarie Island (de Bruyn et al. 2009). Following breeding, they are known to moult mostly during December to February (Condy 1979). The adult seals disperse widely covering several thousand kilometers while spending more than 10 months of the year at sea (Bailleul et al. 2007; Hindell and McMahon 2000). As such, long range foraging trips are typical for southern elephant seals, with vagrants occasionally observed beyond the normal dispersal range of the species (Páez-Rosas et al. 2018).

To date, the only confirmed record of a southern elephant seal within the northern Indian Ocean is limited to a specimen collected off Oman in 1989 which was identified by its skull (Johnson 1990). Prior to that, the northernmost record from this

ocean basin was from Mauritius in 1955 (King 1964) (Fig. 1).

This record represents the first confirmed documentation of a southern elephant seal within Sri Lankan waters. It also represents the first record of a phocid within these waters.

## Results and discussion

On 20th November 2019, a juvenile southern elephant seal was spotted in the waters off Dalawella beach, Unawatuna, southern Sri Lanka. The seal was initially spotted swimming alongshore before hauling out on the beach for a few hours. Three days later the same individual was spotted hauled out on the rocks at Midigama, approximately 15 km further south. The individual remained for at least 3–4 h until the authorities attempted to capture it to do health assessments, which resulted in the animal returning to sea. However, based on visual assessments the animal, approximately 6 ft. in length, was in good body condition as evidenced by its broad body and fat neck (confirmed by Dr. Claire Simeone). There was some scarring that resembled cookie cutter shark bites but otherwise the individual did not appear sick or injured. Photographs from the 7th of

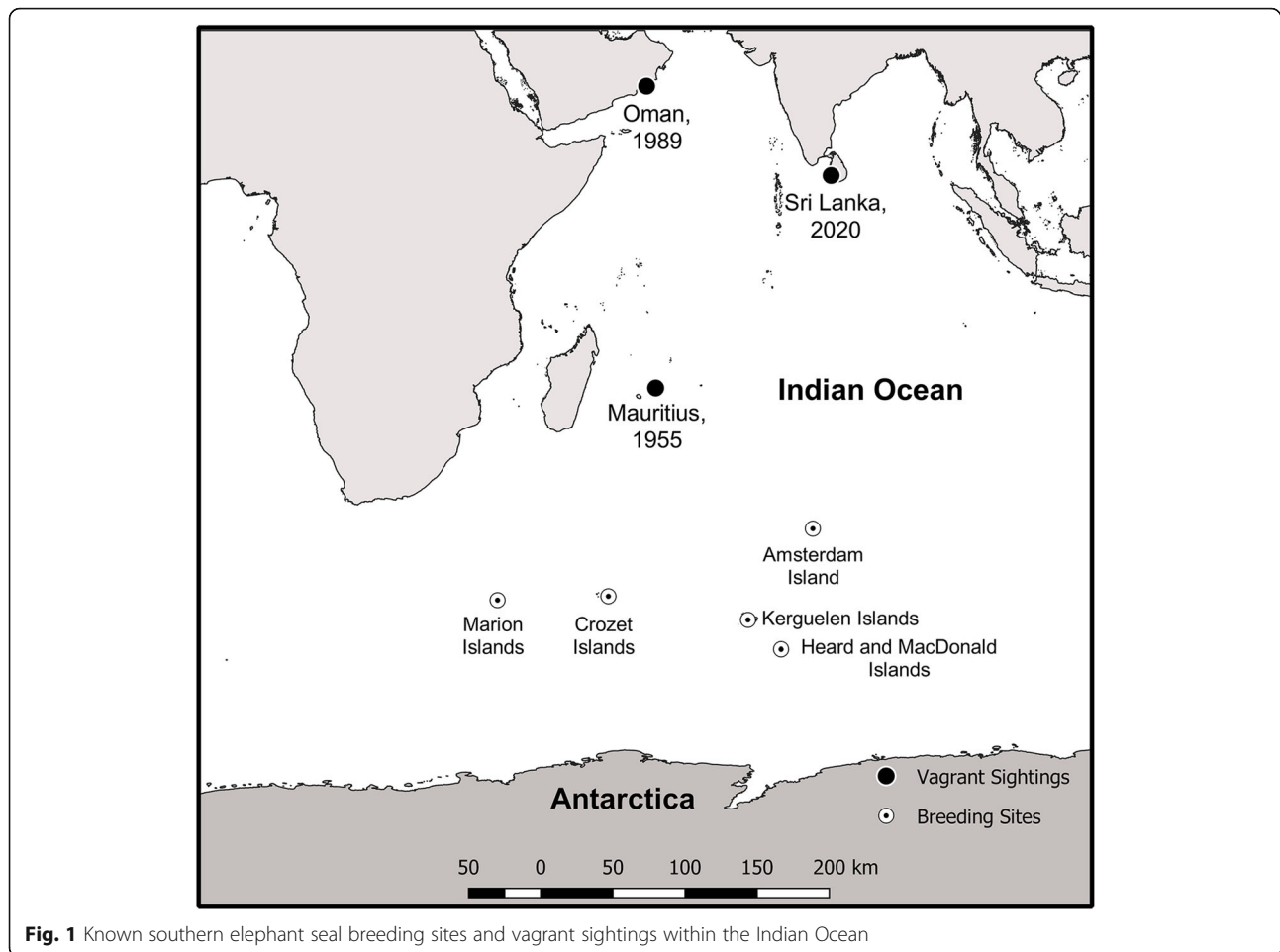
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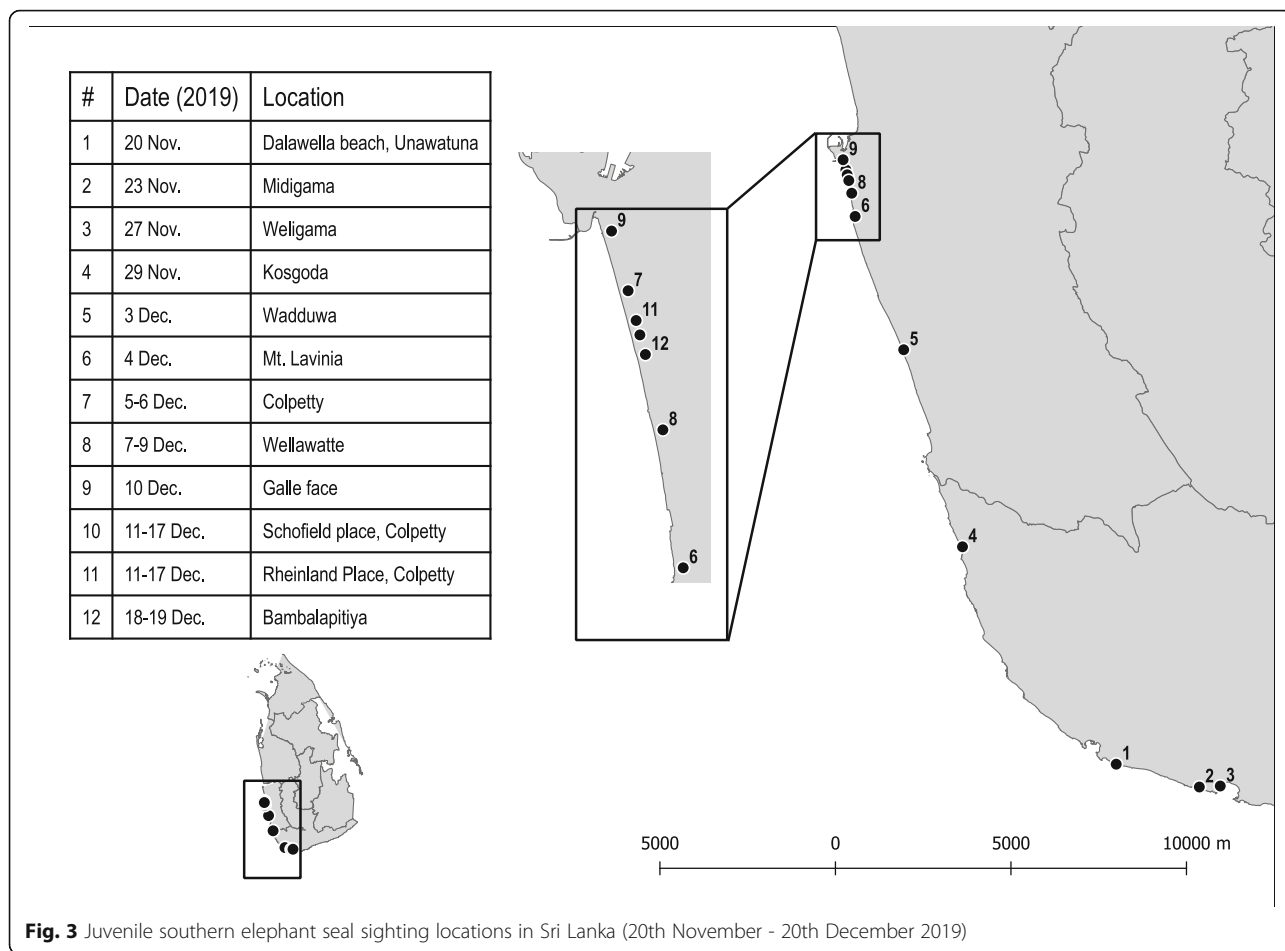
December confirmed that this animal was a male based on the presence of both an umbilicus and prepuce (Fig. 2).

Over the month (20th November – 20th December 2019), this individual was observed at 11 different locations along a 172 km stretch of the coastline, starting in the south and moving in a generally northerly direction along the west coast (Fig. 3). During this period it underwent a catastrophic moult, so called because of the abruptness of the process of shedding and replacement of both the hair and top layers of the epidermis (Hindell et al. 1994).

Female seals tend to return to breeding grounds to moult while mature and sub-adults males typically either return to breeding grounds or migrate to other locations in the Antarctic and sub-Antarctic regions (Setsaas et al. 2007; Slip et al. 1992). The southern elephant seal generally fasts during the moulting period surviving by exploiting the energy in its blubber reserves which have been stocked during the



**Fig. 2** Presence of 1 = umbilicus and 2 = prepuce, indicating that this individual was a male elephant seal



extensive foraging journey (Hindell et al. 1994). According to Slip et al. (1992) the estimated body mass loss of an individual southern elephant seal during the moulting period is 23% on average, with highest recorded loss of 35%. The shedding of the upper layers of the epidermis and increased blood supply to dividing cells in the epidermis results in lowered insulation effectiveness and immunity of the individual. Moulting individuals generally remain on shore for most of the moulting period (Hindell et al. 1994). In some cases however, they may move between moulting sites, spending short periods of time at sea (Slip et al. 1992). In Sri Lanka, the individual moved between sites along the coastline while also spending periods of the day hauled out on the rocks and beach interspersed with time in the ocean. Further, it was observed flipping wet sand on its body on a number of occasions (Fig. 4). Sand flipping is a multi-purpose behavioural response related to managing stress (Slip et al. 1992; Lewis and Campagna 1998) and was presumably a response to the high average air

temperature of 30.5 °C (National and local weather radar 2020), which is 25 °C higher than within its normal moulting region.

We attempted to collect samples of moulted fur and skin from this individual for confirmation of breeding stock but were unable to do so. It is however possible, but unconfirmed, that the individual sighted in Sri Lankan waters was from one of the southern Indian Ocean breeding sites (Kerguelen, Marion, Crozet, and Heard and MacDonald islands. Some individuals also breed on Amsterdam Island) located approximately 6500 km directly south of Sri Lanka (Fig. 1).

**Conclusions**

This is the only confirmed record of a southern elephant seal, and indeed a phocid, from Sri Lankan and Northern Indian Ocean waters. It is a new record outside its expected range and adds to our knowledge on vagrants of this species.



**Fig. 4** The southern elephant seal in Sri Lankan waters sand flipping potentially to regulate body temperature

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#### Author's contributions

AdV conducted the fieldwork, analysed the photos and wrote the paper. The author(s) read and approved the final manuscript.

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#### Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

#### Ethics approval and consent to participate

Not applicable.

#### Consent for publication

Not applicable.

#### Competing interests

The author declares that she has no competing interests.

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