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Nota breve | Short note

Is *Sula sula* breeding in the cliffs of Baía do Inferno, Santiago Island, Cabo Verde?

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Eight seabird species breed in Cabo Verde (Semedo *et al.* 2021). Others, including the red-footed booby *Sula sula*, occur as non-breeding visitors or vagrants (Hazevoet 1995, 2014). With three main plumage morphs – white, white-tailed brown, and brown – and several intermediate morphs, *S. sula* is the most polymorphic Sulidae (Nelson 1978). The plumage colour has a genetic basis and allows the identification of their geographical origin (Baião *et al.* 2007). White and white-tailed brown morphs occur in the Atlantic, the former predominantly in the South Atlantic, and the latter in the Caribbean (Hartog 1987).

The first *S. sula* record for Cabo Verde, a white-tailed brown individual on Rombos, dates from August 1986 (Hartog 1987). Almost three decades passed before the next sighting of a white morph adult and a non-confirmed breeding event, both on Raso (Hazevoet 2014, Moran *et al.* 2018), where nowadays about 130 individuals are present, but only between June and October (Biosfera pers. comm.). The oldest record in Baía do Inferno, Santiago Island, one white individual, dates from August 2015 (S. Martins pers. comm.).

The Important Bird and Biodiversity Area 'Coastal cliffs between Porto Mosquito and Baía do Inferno' hosts one of the largest brown booby *Sula leucogaster* colonies in the archipelago (BirdLife International 2021). Close to Ponta Geneanes, seabirds nest along 1.5 km, from near sea level to the 100–250 m high cliff tops (Fig. 1A). From November 2020 to April 2021, we performed 43 19-min drone (DJI Phantom 4 Pro V2.0) surveys to study booby's population size and phenology.

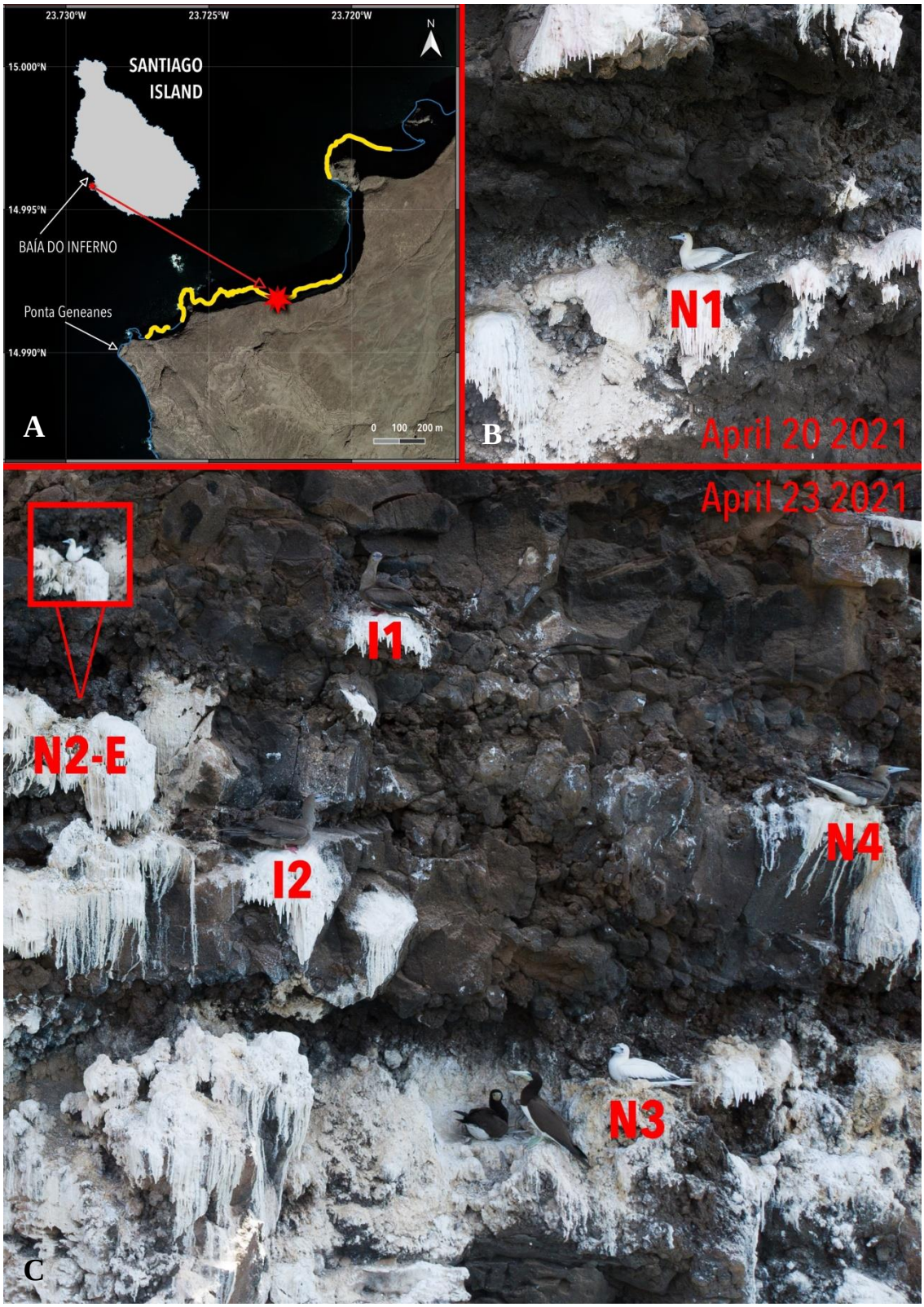

Fig. 1 Study area and records of *Sula sula* in Baía do Inferno, Santiago Island (photos by N.S. Loureiro). **A)** Drone-surveyed area. In blue the coastline, in yellow the distribution of the brown booby *Sula leucogaster* colony, and in red the site of *S. sula* records. **B)** Photograph record performed on April 20 2021. N1 marks a white morph adult *S. sula* on a nest-like structure. **C)** Photograph records performed on April 23 2021. N2-E marks an egg on a nest-like structure, with a detail of the previously taken photograph, when the white morph adult *S. sula*, identified by the red feet, which flew away was still perched on the nest. N3 and N4 mark, respectively, a white and a white-tailed brown morph adult *S. sula* nest-like structures. I1 and I2 mark two *S. sula* immatures, identified by their dark bill tips, and the predominantly brown plumage (with different tones in the breast and the belly), as there are no all-brown adults in the Caribbean and the Atlantic.

On April 20, two white morph *S. sula* adults were found perched on the cliff. One flew off, while the other remained motionless on a nest-like structure, made of plant materials, about 150 m high (Fig. 1B). On April 23, drone photographs documented: i) two white morph adults; ii) one white-tailed morph adult; iii) two immatures; iv) three nest-like structures; v) one egg (Fig. 1C). The egg was incubated by a white morph individual, which flew away during the drone scan.

These are the first confirmed records of breeding attempts of *S. sula* in Cabo Verde. Only future genetic work will clarify if individuals were born in the South Atlantic, the Caribbean or even Cabo Verde. We were unable to determine if egg incubation or chick hatching was successful, but the long temporal occurrence pattern of about 8–10 *S. sula* in Baía do Inferno is different from the one seasonally found on Raso. We recommend future seabird surveys in Cabo Verde to increase their focus on this species, particularly on Raso and Rombos. Using drones, which proved decisive in our study, is recommended to reduce disturbance and increase detection of individuals (Vale & Scarton 2020).

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