

DISTRIBUTION OF SEABIRD COLONIES IN STINKER POINT, ELEPHANT ISLAND

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<https://doi.org/10.4322/apa.2016.005>

Abstract: *Stinker Point is located on Elephant Island. It presents an ice-free area where different seabird species breed during the austral summer. To evaluate the distribution of Antarctic seabird breeding sites, colonies and breeding groups were mapped into the study area. There are breeding colonies of 13 species. Southern Giant Petrel *Macronectes giganteus* and Wilson's Storm-petrel *Oceanites oceanicus* are the species with most breeding groups mapped, totaling 10 of both species, followed by Cape Petrel *Daption capense* with nine breeding groups recorded. The high number of species observed in Stiker Point confirms the significance of this area as an Important Bird Area in Antarctica (IBA 071).*

Keywords: Mapping, Breeding Groups, South Shetlands, Antarctic

Introduction

Elephant Island belongs to the northern group of South Shetland Islands. It presents a slightly different climate situation, influenced by cold winds and storms from the Weddel Sea. Stinker Point is a summer ice-free area where different species breed (Bruce & Furse, 1973; Petry, 1994). This region is considered an Important Bird Area (IBA 071) (Harris, 2011) because of the high diversity of species and large number of individuals recorded in this region.

Seabirds concentrate in colonies during the breeding period. This behavior facilitates sample collection and allows clarification on biology and ecology aspects of populations (Cline *et al.*, 1969; Ainley *et al.*, 1994). Knowledge on the distribution of these colonies allows evaluation of the population status from these seabird species, which is of great importance taking into account that the Antarctic region is one of the wildest preserved ecosystems. To contribute to these data, the distribution of Antarctic seabirds was mapped in Stinker Point, Elephant Island.

Materials and Methods

During austral summers, from 2009 to 2012, the breeding areas of seabird species were mapped using a handheld GPS receiver. Censuses were conducted in all ice-free areas. Three observers counted the nests to estimate the number of breeding pairs, with each nest representing a breeding pair. The average of the three counts with a margin of error not larger than 10% (CCAMLR 2014) was used to estimate the population size. The data was collected in Stinker Point region (61°13'20.5"S; 55°21'35"W), Elephant Island, Maritime Antarctica. A colony was conceptualized as birds breeding within a minimal distance of 500 meters from each other. Polygons of the map were created and plotted in a map using Arc Gis 10.0 software.

Results

Thirteen seabird species were recorded using Stinker Point as a breeding area. Colonies are distributed on rocky walls, hillsides, plateaus, and small elevations close to the sea. Species that use rocky walls and burrows are Cape



Petrel (*Daption capense*), Wilson's Storm-Petrel (*Oceanites oceanicus*), Black-bellied Storm-petrel (*Fregetta tropica*), and Snowy Sheathbill (*Chionis albus*). Chinstrap Penguin (*Pygoscelis antarcticus*), Southern Giant Petrel (*Macronectes giganteus*), and Brown Skua (*Stercorarius lonnbergi*) use the plateaus between 50 and 100 meters high. King Penguin (*Aptenodytes patagonicus*), Macaroni Penguin (*Eudyptes chrysolophus*), Gentoo Penguin (*Pygoscelis papua*), Chinstrap Penguins (*Pygoscelis antarcticus*), and Kelp Gulls (*Larus dominicanus*) use areas with small elevation close to sea level. Blue-eyed-shag (*Phalacrocorax atriceps*) breeds in isolated areas.

Southern Giant Petrel and Wilson's Storm-petrel are the species with the largest number of breeding groups, totaling 10 of each species, followed by Cape Petrel with nine breeding groups recorded. Macaroni Penguin is distributed in one single breeding group representing one colony in the southern region of the study area. This colony is mixed with a Chinstrap colony. Blue-eyed-Shag breeds in isolated areas located on the beaches in exposed rocks close to the sea. The distribution of species of seabirds on Elephant Island was expressed in a map (Figure 1).

Discussion

The first species recorded breeding in Stinker Point were Chinstrap Penguin, Gentoo Penguin, Macaroni Penguin, Blue-eyed-shag, and Southern Giant Petrel in 1971 (Bruce & Furse 1973). In the 1980s, Petry (1994) include six species in the list of seabirds: Cape petrel, Brown Skua, Snowy Sheathbill, Kelp Gull, Black-bellied Storm-petrel, and Wilson's Storm-petrel. Currently, there are two breeding pairs of King Penguins attempting to breed (Petry *et al.*, 2013). However, there is lack of recent works describing and discussing the distribution of seabird colonies in Stinker Point (Harris *et al.*, 2011). Therefore, these data contribute to the update of the distribution of seabird species in this area.

There is segregation of the breeding areas of species in Stinker Point. The exception is the mixed colony composed of Macaroni and Chinstrap Penguins. A slight variation on the distribution of colonies can be verified, but it is very small, as a retraction of some breeding groups of Chinstrap and Gentoos compared with those of previous works (Petry, 1994), thus the number of breeding groups remains practically the same. These changes may be a result of abiotic influences such as large accumulation of snow in some breeding season and wind direction and velocity. Furthermore, the movement of colonies observed in 1990s could be a contributor to the small changes in distribution. It was observed that the colonies were distributed in slope, whereas they are currently located only on the flat region.

Conclusion

Most of the ice-free areas in Stinker Point are being used by seabirds as breeding grounds. These areas concentrate different species that are distributed into colonies with a large number of breeding groups. These data confirm the significance of Stinker Point as an Important Bird Area in Antarctica.

Acknowledgements

This work integrates the National Institute of Science and Technology Antarctic Environmental Research (INCT-APA) that receives scientific and financial support from the National Council for Research and Development (CNPq process: no. 574018/2008-5) and Carlos Chagas Research Support Foundation of the State of Rio de Janeiro (FAPERJ no. E-16/170.023/2008). The authors also acknowledge the support of the Brazilian Ministries of Science, Technology and Innovation (MCTI), Environment (MMA), and Inter-Ministry Commission for Sea Resources (CIRM).

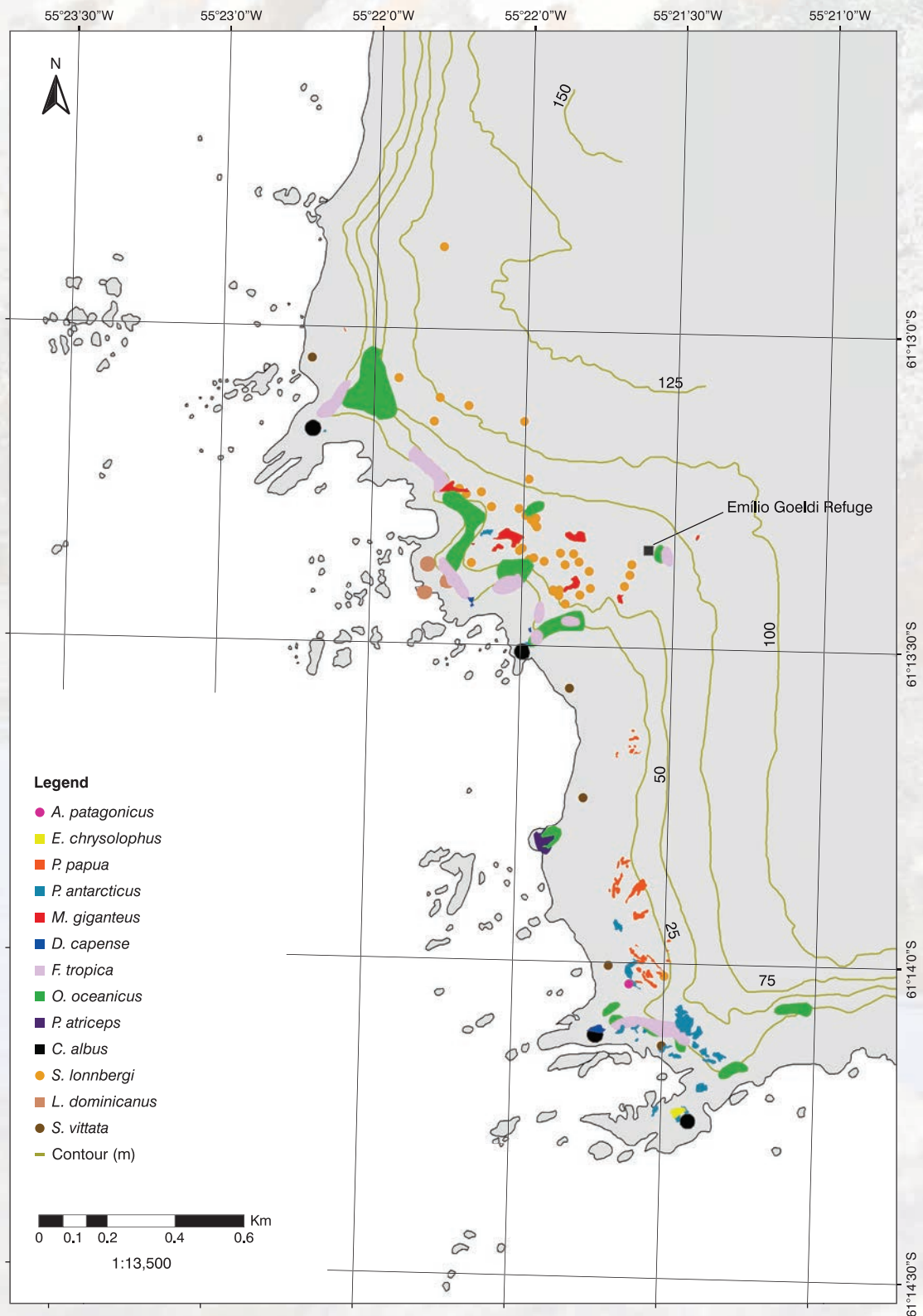


Figure 1. Distribution of seabirds species in Stinker Point, Elephant Island.



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