

## Integrated conservation of the South Georgian diving petrel in New Zealand

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Seabirds have a disproportionate influence on their surrounding environment and are thus often considered ecosystem engineers. For example, seabirds can boost the diversity and abundance of other taxonomic groups. The South Georgian diving petrel (SGDP; Fig. 1) is a Nationally Critical seabird species in New Zealand. Its range is limited (< 2 ha of foredunes on Whenua Hou/Codfish Island) and its population size is perceived as tiny. Furthermore, the SGDP is vulnerable to storms, storm surges, and climate change. However, the SGDP is the only seabird species in New Zealand that breeds *en masse* in coastal dunes and may thus fulfil a crucial role in these ecosystems. To prevent the SGDP, and the species potentially supported by it, from sliding towards extinction, I will study the SGDP to investigate: 1) SGDP population size and sex ratio, 2) SGDP breeding biology, and 3) The effect of SGDP presence on the local herpetofauna.

Specifically, I will use a capture-mark-recapture study, utilizing custom-made burrow traps and spotlights, to accurately estimate the SGDP population size on Whenua Hou. Additionally, I will sex all captured individuals (using contour-feather samples), to assess a potential skewed sex ratio. Moreover, I will study the breeding biology of the SGDP using custom-made study burrows and a burrow scope, to assess SGDP growth curves, breeding phenology, and breeding success. Finally, I will assess the influence of SGDP presence/absence, slope, aspect, sand cover, plant cover, and distance to sea on green (Fig. 2), southern grass, and southern skink densities. Combined, this study will provide the data required to structure conservation strategies to protect the SGDP, as well as other species supported by this potential ecosystem engineer.



Figure 1. South Georgian diving petrel fledgling



Figure 2. Green skink basking in front of a South Georgian diving petrel burrow