

Seabird restoration in the Waitākere Ranges

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The introduction of invasive mammalian predators to New Zealand has resulted in the widespread reduction of ground and burrow nesting seabird colonies across the New Zealand mainland. However, some species, such as the grey-faced petrel or ōi (*Pterodroma gouldi*) have managed to hold on and are now being rediscovered in small, isolated colonies across areas of the New Zealand mainland. At these sites' colonies are vulnerable to predation from invasive mammals (rats, mustelids, feral cats), with colonies believed to be sustained from immigrating birds from predator-free island colonies and protection from community groups involved in predator control. Globally the eradication of invasive mammalian predators has been shown to increase survival and breeding success of seabirds. Unfortunately, some areas where seabirds breed are unable to have invasive mammalian predators eradicated. Therefore, identifying and quantifying the relationship between invasive mammalian predators and seabird survival and breeding success is paramount for the restoration of seabird species on the New Zealand mainland.

Between August 2021 and August 2022, this project, through the assistance of the Birds New Zealand Research Fund, established a monitoring programme for grey-faced petrel and invasive mammalian predators across six colonies in the Waitākere Ranges. Monitoring of grey-faced petrel has been intensive, with burrows visited on average fortnightly over the egg laying and chick rearing period (July – December). The purpose of intensive monitoring is to identify crucial periods for breeding failure. At the same time ongoing predator monitoring is being undertaken in the same areas through tracking tunnels and trail cameras. The relationship between breeding success and relative abundance of predators is predicted to identify threshold levels of predators that will allow for substantial restoration gains.

This information will not only ensure the persistence of grey-faced petrel breeding on the mainland but will also underpin work on attracting rarer and more vulnerable seabird species to breed on the mainland. For example, Cook's petrel, diving petrel, flesh-footed shearwaters, and fluttering shearwater have been recorded in the Waitākere Ranges but have struggled to establish in the area.

Early results from this 3-year research project have identified varying abundances and composition of invasive species across the colonies as well as varying levels of breeding success. Predator control operations are also implementing various approaches including use of poison, type and spacing of traps, and number of traps per hectare, offering an avenue to investigate suitability of trapping operations.

