

Conservation genetics of the Chatham Island taiko

Thought to be extinct for almost 100 years until its miraculous rediscovery in 1978, the Chatham Island taiko (*Pterodroma magentae*) is a petrel species endemic to the main Chatham Island. Thanks to extensive conservation efforts by DOC and the Taiko Trust, the critically endangered taiko has increased to a population size of about 25 known breeding pairs. This project will investigate the genetics of taiko and is made possible thanks to access to an unprecedented set of blood samples which have been taken from almost every bird ever banded since 1996, constituting almost the entire known population. Using Next Generation Sequencing (NGS) I will develop genetic markers specific to taiko which will be used to determine relatedness between individuals and assess genetic variation.

Detailed knowledge of taiko genetics will provide managers with a deeper understanding of population dynamics, allowing management decisions to be better informed. New unknown taiko continue to be caught and it is therefore assumed that breeding burrows remain to be discovered and significant effort is expended trying to locate these burrows each season. Knowing if these birds do in fact originate from yet unknown burrows or if alternatively, they are offspring of known burrows that were fledged prior to burrow discovery will allow for optimal resource allocation. Following the establishment of a predator free fence in 2006, taiko chicks have been translocated to the safe area (Sweetwater). The Sweetwater population is now rapidly increasing meaning that future translocations need to be targeted at “genetically valuable” chicks to give the species the best chance at maintaining variation into the future and to reduce any founder effects in the area. Some breeding pairs have failed to produce offspring over the course of many years indicating they are likely to be closely related. Knowledge of the relatedness between individuals will help managers decide whether or not to intervene and to plan attempts to introduce birds in the hope they will pair.

This generous support from Birds New Zealand will assist with the costs involved in developing and testing genetic markers as well as genotyping the roughly 160 samples that will be analysed. I am very grateful to Birds NZ for their assistance on this project which would not be possible without the efforts of a variety of individuals and groups.



Jacqui measuring the concentration of taiko DNA samples