



Agreement on the Conservation of Albatrosses and Petrels

Second Meeting of Advisory Committee

Brasilia, Brazil, 5 – 8 June 2006

Seabird Translocations in New Zealand

Department of Conservation, New Zealand

Seabird Translocations in New Zealand

Translocation is a commonly used conservation method for establishing new seabird colonies, and there are several techniques in current use.

The cues that birds associate with suitable breeding locations can be used as an advertisement to encourage natural re-establishment of new sites. Such cues include seabird models, recordings of vocalisations and white paint to mimic guano. As petrels are nocturnal, the most important cues are vocalisations and the presence of artificial burrows and nest sites. Breeding at a new site has been successfully prompted overseas through the use of such techniques for Leach's storm petrel and dark-rumped petrels (Podolsky & Kress, 1989; 1992). In New Zealand, trials were undertaken on Mana Island between 1993 and 1998, and although diving petrels were attracted to the vocalisations, no breeding was observed.

If natural adoption is unsuccessful, it may be necessary to translocate chicks into artificial burrows at the new site. This has been tested in New Zealand, initially on black petrels (McHalick, 1999) and also on fluttering shearwaters (Bell, 1995) with varying degrees of success.

Overall, previous trials have shown that a combination of techniques is likely necessary for the successful translocation of a species. Research on how best to apply these techniques to the species of interest is also needed prior to transfers to ensure minimal losses, particularly of translocated chicks.

The following is a compilation of published seabird translocation work in New Zealand.

- 1. Bell, B. D. (1995) Translocation of fluttering shearwaters: developing a method to re-establish seabird populations. In: *Reintroduction biology of Australian and New Zealand fauna*. Serena, M. (ed.), Surrey Beatty & Sons, Australia, pp 143-148.**

A report on the translocation of fluttering shearwaters from Long Island in the Marlborough Sounds to Maud Island. A total of 249 birds were transferred between 1991 and 1993. A number of things were learnt during the project that will allow for more effective transfers in the future. It was apparent that only those chicks transferred before they were fledged, developed a permanent attachment to the new site. It is also recommended that acoustic playback is more greatly used in the future. See Bell & Bell 1996, 1997 for the results of these transfers.

- 2. Bell, B., Bell, M. (1996) Shearwater transfer success. *OSNZ News* 81:1 (as cited by Taylor, 2000)**

3. Bell, L, Bell, M. (1997) Transferred shearwaters increase. OSNZ News 85:1 (as cited by Taylor, 2000)

A review of the fluttering shearwater translocation from Long Island to Maud Island (See also: Bell, 1995). A total of 308 chicks were transferred between 1991 and 1996. Two pairs of shearwaters bred on Maud Island, and a chick was reared in 1996/97. In 1997/98, six pairs laid eggs and two chicks were fledged. Artificial nest sites and recorded calls were also used as cues, and three unbanded fluttering shearwaters were attracted to the new site by 1998 (Brain Paton pers. comm. 1998).

4. Bull, L. (2003) Pycroft's petrel transfer. Rare Bits. The newsletter about threatened species work, Department of Conservation 48.

<http://www.doc.govt.nz/Publications/004~Science-and-Research/Biodiversity-Recovery-Unit/Rare-Bits/093~Rare-Bits-No-48-Apr.-2003.pdf>

Pycroft's petrel chicks have been transferred from Red Mercury Island to Cuvier Island for three consecutive years. The purpose of these translocations was to both re-establish the former breeding range of this bird and refine transfer and artificial feeding methods for future translocation work. Results from these transfers are hoped to later be applied to the Chatham petrel and Magenta petrel. Pycroft petrel call recordings are also being used as a further cue for chicks, and to attract any adults that may be passing.

5. Chatham Petrel Recovery Plan 2001-2011. *Threatened Species Recovery Plan 37*. Department of Conservation, Wellington. 22 p.

<http://www.doc.govt.nz/Publications/004~Science-and-Research/Biodiversity-Recovery-Unit/PDF/TSRP37.pdf>

The Chatham petrel currently only breeds on Rangatira Island (South East Island) in the Chatham Island group. Options for recovery of this species are outlined. The Department of Conservation's preferred management option is to protect the current population and establish a second population elsewhere on the Chathams. In order to carry out this, reintroduction and research into techniques and possible sites is required.

6. Gangloff, B., Wilson, K-J. (2004) Feeding frequency, meal size and chick growth in Pycroft's petrel (*Pterodroma pycrofti*): preparing for chick translocations in *Pterodroma* species. *Notornis* 51(1): 26-32

Many *Pterodroma* species are threatened, and translocations to predator-free islands are desirable for several species. As these birds are highly philopatric, only

chicks that have not yet imprinted on their natal colony should be transferred but techniques to identify suitably aged *Pterodroma* nestlings are needed. We investigated feeding frequency, meal size and chick growth in Pycroft's petrel (*P. pycrofti*) on Red Mercury Island, New Zealand to provide this information. Mean daily probability of being fed decreased from 0.47 60-23 days before fledging to 0.004 in the last seven days before fledging. Mean meal size was 34 g and morphometric measurements at fledging were similar to mean adult measurements. The best indicator of chick age was wing length. Transferable Pycroft's petrel chicks should have wings measuring 149-184mm and weigh 218-250g.

- 7. Gummer, H. (2003) Chick translocation as a method of establishing new surface-nesting seabird colonies: a review. *DOC Science Internal Series 150*. Department of Conservation, Wellington. 40 p.**

<http://www.doc.govt.nz/Publications/004~Science-and-Research/DOC-Science-Internal-Series/PDF/dsis150.pdf>

The establishment of new seabird colonies, for conservation purposes, has been successfully achieved with a range of burrow-nesting and surface-nesting species. This report reviews international examples of techniques to attract birds to new sites including habitat creation or modification, and artificial visual and acoustic social stimulation. It also discusses the translocation of burrow-nesting seabird chicks at various stages of growth, which has been successfully accomplished, with birds returning to release sites as breeding adults. In New Zealand, chick translocation of burrow-nesting species has developed into a major management tool for increasing the distribution of threatened species, and restoring ecological values to islands recently cleared of predators. Longterm conservation benefit to several threatened, surface-nesting seabird taxa would result from the establishment of additional colonies. Chick translocation would be appropriate, if other social attraction methods proved ineffective, but success may be more difficult to achieve since the age at which chicks (of surface-nesting species) imprint on natal locality is unknown. The report concludes with an investigation to determine the most appropriate New Zealand species to use in trials to establish methods for surface-nesting seabird chick translocation.

- 8. Imber, M. J., McFadden, I., Bell, E. A., Scofield, R. P. (2003) Post-fledging migration, age of first return and recruitment, and results of inter-colony translocation of black petrels (*Procellaria parkinsoni*). *Notornis* 50: 183-190**

Between 1986 and 1990, 249 black petrels (*Procellaria parkinsoni*) close to fledging were transferred from Aotea (Great Barrier Island) 32 km west to Hauturu (Little Barrier Island) in New Zealand's Hauraki Gulf. At the same time, 50 black petrels of similar age to those transferred were banded as controls on Hauturu and 229 on Aotea. Searches for these birds returning to breeding sites on

both islands began in 1991 but three times more search effort was made on more-accessible Aotea. During their first 4.8 years of life at sea the only recovery came from off Ecuador (close to where two 6 year olds were also recovered). Since then to 2001, 32 birds have been recaptured or recovered in New Zealand. Most were first recaptured at 5-6 years old and first breeding at 6-7 years old. A maximum of 42% survived to 6 years old. Survival rates of transferred and control birds were similar. The 1990 cohort had significantly better survival than did the 1986-89 cohorts, and this cohort, just 21% of the experimental birds, contributed 43% of chicks known to have been reared by experimental birds to 2001. Neither body mass at departure nor the El Niño-Southern Oscillation was clearly related to this differential survival. Most transferees returned to Aotea; none of the 1986-89 cohorts was found on Hauturu but 2 of the 3 1990 transferees that were recaptured returned to Hauturu. Given that fledglings were always transferred at a similar stage of development, the earliest transfer of heavy fledglings was the most successful.

9. Massey University. New Zealand Reintroduction Projects.

http://www.massey.ac.nz/~darmstro/nz_projects.htm

A web page describing New Zealand translocation projects conducted since 1990. This includes several seabird species: the black petrel (*Procellaria parkinsoni*), northern diving petrel (*Pelacanoidease urinatrix*), fairy prion (*Pachyptila turtur*), Hutton's shearwaters (*Puffinus huttoni*) and fluttering shearwaters (*Puffinus gavia*).

Black petrels now only breed on Great Barrier and Little Barrier Island. They were reduced to very low numbers on Little Barrier Island by cats, before cat eradication from 1977-80. Transfers from Great Barrier to Little Barrier occurred between 1986 and 1990, with a total of 249 birds being translocated.

Northern diving petrels have been translocated from North Brother Island, Motumahanga and Taranaki to Mana Island as part of the Mana Island Ecological Restoration Programme.

Forty fairy prion chicks were transferred from Stephens Island to Mana Island in 2002. Two diets were trialled to assess which would be better for future translocations. Of the 40 chicks, 39 (possibly 40) fledged successfully.

Hutton's shearwaters have been translocated from the main colony in the Seaward Kaikoura Ranges to a new site on the Kaikoura Peninsula. Ten birds were transferred first as part of a trial translocation. Recently, a further 86 have been transferred.

Fluttering shearwaters were transferred to Maud Island: 102 in 1991, 46 in 1992 and 100 in 1993.

- 10. McHalick, O. (1999) Translocation database summary. *Threatened Species Occasional Publication 14*. Department of Conservation, Wellington. 62 p**

<http://www.doc.govt.nz/publications/004~science-and-research/Biodiversity-Recovery-Unit/PDF/TSOP14.pdf>

A report summarising the Department of Conservation translocation database. Details of the black petrel translocations between 1986 and 1990 are included. A total of 249 chicks were transferred from Great Barrier to Little Barrier island between these years. Only two transferred chicks were known to have returned to Little Barrier Island by 1998 (M. Imber pers. comm., 1999).

- 11. Miller, C. J., Craig, J. L., Mitchell, N. D. (1994) Ark 2020: A conservation vision for Rangitoto and Motutapu Islands. *Journal of The Royal Society of New Zealand* 24(1): 65-90**

<http://www.rsnz.org/publish/jrsnz/1994/4.pdf>

Outlines the strategy through which the restoration of the islands could be best achieved. It is suggested that diving petrels and fluttering shearwaters should be translocated between 2013 and 2018.

- 12. Miskelly, C. M., Taylor, G. A. (2004) Establishment of a colony of Common Diving Petrels (*Pelecanoides urinatrix*) by chick transfers and acoustic attraction. *Emu* 104: 205-211**

http://publish.csiro.au/?act=view_file&file_id=MU03062.pdf

An attempt to restore a colony of common diving petrels on Mana Island by a combination of broadcasting vocalisations and transferring and hand-rearing nestlings until they are fledged.

- 13. Miskelly, C., Timlin, G., Cotter, R. (2004) Common diving petrels (*Pelecanoides urinatrix*) recolonise Mana Island. *Notornis* 51(4): 245-24**

- 14. WWF New Zealand Press release. 29 November 2004. Helicopter flies petrel chicks to new home on Matakoho-Limestone Island.**

<http://www.wwf.org.nz/news/2004/04-11-29-petrel.cfm>

This report details the planned translocation of 40 grey-faced petrel chicks from Taranga-Hen Island to Makakohe-Limestone Island, New Zealand.

Other References Cited:

Podolsky, R. H., Kress, S. W. (1989) Factors affecting colony formation in Leach's storm petrel. *Auk* 106: 332-336

Podolsky, R., Kress, S. W. (1992) Attraction of the endangered dark-rumped petrel to recorded vocalisations in the Galapagos Islands. *Condor* 94: 448-453

Taylor, G. A. (2000) Action plan for seabird conservation in New Zealand. Part B, Non-threatened seabirds. Wellington, N. Z.: Department of Conservation, Biodiversity Recovery Unit. 435 p.