

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p><b>Fourth Meeting of the Population and Conservation Status Working Group</b></p> <p><i>Wellington, New Zealand, 7 – 8 September 2017</i></p> <p><b>Estimating the total population size of black petrel</b></p> <p><b><i>Elizabeth Bell</i></b></p> <p>Wildlife Management International Ltd, email: <a href="mailto:biz@wmil.co.nz">biz@wmil.co.nz</a></p>
---	---

### **SUMMARY**

This paper summarises a range a range for monitoring and research which aimed to better estimate the total population size of black petrel, a New Zealand endemic species known only to nest on Great Barrier Island/Aotea and Hauturu-o-Toi/Little Barrier Island.

On Great Barrier Island an updated estimate was obtained for the 2015/16 breeding season of between 1947-2197 breeding birds in the core 35 ha breeding area around the summit of Mount Hobson/Hirakimata. Acoustic monitoring and seabird-detector dogs were used to identify a number of additional breeding areas on the island, but further work is required to establish a complete population estimate for the island.

On Little Barrier Island a stratified survey of the entire island was undertaken which estimated a total population size of 620 pairs for the Island. This represents the first comprehensive population estimate for the entire island. Previous informal estimates were in the region of only 100 pairs.

Moehau Range, Coromandel was identified as one possible area on the adjacent mainland where black petrel could potentially also breed, based on historical presence. Acoustic monitoring was undertaken, but no presence of breeding black petrels was detected.

## 1. BLACK PETREL POPULATION STUDY ON GREAT BARRIER ISLAND

### 1.1. Abstract

The ongoing study of the black petrel, *Procellaria parkinsoni*, on Great Barrier Island/Aotea began in the 1995/96 breeding season. During the 2015/16 breeding season, 433 numbered burrows within the 35-ha study area near Mount Hobson/Hirakimata were checked and intensively monitored. Of these 419 are used as study burrows and 286 were used by breeding pairs, 75 by non-breeding adults and the remaining 59 burrows were non-occupied. By 10 May 2016, 191 chicks were still present in the study burrows, corresponding to a breeding success of 66.8%. Nine census grids were monitored within the study area and accounted for 164 of the inspected burrows and 154 of the study burrows, with 103 burrows being used for breeding. There were 108 chicks from earlier breeding seasons were recaptured within the Mount Hobson/Hirakimata colony area this season (a total of 254 'returned chicks' have been caught since the 1999/2000 season). Over 1550 hours of recordings were collected by automated acoustic recording units showing black petrels began calling between 2100 and 2252 hours and that activity was highest near the summit (Mt Hobson/Hirakimata). Mean clacking rate varied between 1.1 to 12.7 clacks per minute. Analysis of the stratified census grid and mean transect data estimated that there were 1947-2197 birds present in the 35-ha area around Mount Hobson/Hirakimata.

### 1.2. Citation

Bell, E.A.; Mischler, C.P.; MacArthur, N.; Sim, J.L.; Scofield, R.P. 2016. Population parameters of black petrels (*Procellaria parkinsoni*) on Great Barrier Island/Aotea, 2015/16. Report by Wildlife Management International Ltd for the New Zealand Department of Conservation. Wellington. 58p.

Full paper available at: <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-gbi-final.pdf>

## 2. BLACK PETREL POPULATION STUDY ON LITTLE BARRIER ISLAND

### 2.1. Abstract

On Hauturu-o-Toi/Little Barrier Island, 149 black petrel, *Procellaria parkinsoni*, study burrows were monitored, of which 92 were original study burrows established in 1997 by Mike Imber. Only 56% were being used by breeding pairs, but those pairs had 85.2% breeding success with 69 chicks fledging this season. Twenty automated acoustic devices were placed out across Hauturu-o-Toi/Little Barrier Island in December 2015 and were retrieved in March 2016. Black petrel calls were recorded at five locations: Thumb Ladder (LC7), Summit (LC11), Track 7 junction (LC15), Track 8 highpoint (LC16) and Track 8 halfway to Mt Kiriraukawa (LC17). Thirty-six transects were completed with a total of 49 breeding, 18 non-breeding and 50 unoccupied burrows found (n = 117 burrows). Surveys with a seabird-detector dog covered 52.5 km (approximately 73 ha) finding 121 breeding burrows. Analysis of the acoustic recorder units and surveys estimated that there were approximately 620 breeding pairs of black petrels present on Hauturu-o-Toi/Little Barrier Island.

## 2.2. Citation

Bell, E.A.; Mischler, C.P.; MacArthur, N.; Sim, J.L. 2016. Black petrel (Black petrel (*Procellaria parkinsoni*) population study on Hauturu-o-Toi/Little Barrier Island, 2015/16. Report prepared by Wildlife Management International Ltd for the New Zealand Department of Conservation, Wellington. 24p

Full paper available at: <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-lbi-final.pdf>

## 3. BLACK PETREL POPULATION STUDY ON MOEHAU RANGE, COROMANDEL

### 3.1. Abstract

An important factor for addressing the estimation of the total black petrel (*Procellaria parkinsoni*) population is to identify any additional breeding sites away from Great Barrier Island/Aotea and Hauturu-o-Toi/Little Barrier Island. The Moehau Range, Coromandel was identified as one possible area for black petrel as shown by historical presence. Nocturnal seabirds are ideal candidates for acoustic monitoring because they are highly vocal at their colonies, particularly during the breeding season. Black petrels call on the ground when trying to attract mates to their burrows between October and February, with peak activity between November and January. Seventeen automated acoustic recording units were deployed on the Moehau range between 30 November 2015 and 31 January 2016. No black petrel calls were recorded, but Cook's petrel (*Pterodroma cookii*) flight calls were recorded.

### 3.2. Citation

Bell, E.A.; Stewart, P. 2016. Black petrels (*Procellaria parkinsoni*) population study on Moehau Range, Coromandel, 2015/16. Report prepared by Wildlife Management International Ltd for the New Zealand Department of Conservation, Wellington. 10p.

Full paper available at: <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2015-01-black-petrel-moehau-final.pdf>