

# THE WHITE-CHINNED PETREL *PROCELLARIA AEQUINOCTIALIS* POPULATION OF THE FALKLAND ISLANDS

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## SUMMARY

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A survey of all known colonies of the White-chinned Petrel *Procellaria aequinoctialis* within the Falkland Islands was conducted during the austral summers of 2004/05 and 2005/06. From these surveys, a minimum population of 55 pairs was observed. Most of these were on Kidney and New islands, with a very small colony on Bottom Island in Port William. Although evidence of a decrease in the size of the population on Kidney Island is limited, the population in the Falklands is likely historically to have been small.

Key words: White-chinned Petrel, *Procellaria aequinoctialis*, Falkland Islands, population size

## INTRODUCTION

In recent years, populations of a number of species of albatrosses and petrels (Procellariiformes) have been shown to be in decline (for reviews, see Brooke 2004). There is evidence that one of the major reasons for this decline is mortality attributable to interactions with fisheries such as longlining (Brothers 1991, Nel *et al.* 2002) and trawling (e.g. Sullivan *et al.* 2006). White-chinned Petrels *Procellaria aequinoctialis* are one of the species suffering the most from fisheries bycatch. It was estimated that, in the 1996/97 season, 145 000 seabirds were killed in the Patagonian Toothfish *Dissostichus eleginoides* fishery worldwide, with approximately 80% of them being White-chinned Petrels (SC–CCAMLR 1998).

White-chinned Petrels breed on a number of island groups in the Southern Ocean. These include the South Georgia, Prince Edward, Crozet, Kerguelen, Antipodes, Campbell and Auckland groups (Marchant & Higgins 1990). The largest population is estimated to be that of South Georgia, with two million pairs (Prince & Croxall 1983). Relatively little detailed data are available on the population status and trends of White-chinned Petrels worldwide. Records of birds at sea in Prydz Bay, Antarctica, decreased by 16.4% annually from 1980/81 to 1992/93 (Woehler 1996). Burrow occupancy on Bird Island, South Georgia, decreased by 28% between 1981 and 1998 (Berrow *et al.* 2000).

Within the Falkland Islands, White-chinned Petrels have been recorded breeding at Kidney and New islands (Woods 1988,

Strange 1992, Woods & Woods 1997). No accurate published counts exist for either locality. An estimate of 100–1000 pairs was made for Kidney Island in December 1992 (Woods & Woods 1997). Earlier estimates had suggested a few hundred pairs breeding there in the 1960s (Woods 1970, 1988) and a “very common” presence in 1936 (B.B. Roberts, quoted by R. Woods pers. comm.). In October 2000, 123 adults were reported dead on the landing beach (R. Woods pers. comm.). During 1960–1962, 71 adults were banded, only two of which were caught again, suggesting a population in the hundreds of pairs (Woods 1975). However, other observations made on Kidney Island between December 1960 and December 1969, including field studies carried out regularly in the breeding season of 1965/66, when occupied nest burrows were marked and birds banded, estimated that the population was in the region of 50–60 pairs (I. Strange pers. comm.). The species was first reported from New Island in 1936 by B.B. Roberts, when one specimen was collected (R. Woods pers. comm.). At this same site, 32 pairs breeding were reported in 1972 (I. Strange pers. comm.), and up to 100 pairs were estimated to be present in January 1986 (Woods & Woods 1997). Surveys carried out between 27 December 1981 and 9 January 1982, and in December 2000 to January 2001, found 30–40 burrows occupied, with a maximum of 50 pairs each season (I. Strange pers. comm.). The fact that none of these previous figures resulted from systematic surveys may account for the large discrepancies in some of the estimates.

Here, we report on the first systematic breeding surveys of the White-chinned Petrel within the Falkland Islands.

## METHODS

Kidney Island is 32 ha in area. It is situated in Berkeley Sound in East Falkland (Fig. 1). The island is almost completely covered by Tussac Grass *Poa flabellata* and is known to be totally free of introduced mammalian predators (Woods 1970). A large population of Sooty Shearwaters *Puffinus griseus* breeds on the island (Woods & Woods 1997).

Following a preliminary visit on 4 December 2004, Kidney Island was visited on two further occasions. During 18–22 January 2005, all parts of the island were visited during the late afternoon and evenings to observe White-chinned Petrels approaching their breeding areas on the island and later to listen for birds calling from their burrows. Burrows were marked and visited the following day, when recorded playbacks of the calls of White-chinned Petrels were used to elicit a response from birds within the burrows. Playbacks have been shown to be an effective method to detect White-chinned Petrels inside burrows (e.g. Berrow 2000). On New Island, 72% of 18 burrows known to be occupied were confirmed by playback with a single visit, this figure rising to 94% after a second visit was made (P. Catry & M. Lecoq unpubl. data). During 9–11 January 2006, playback was used during the day at all apparently suitable nest entrances to detect incubating birds; further observations of arriving birds were made in the evenings. Calls were played for at least one minute at all burrows, and both call types described by Berrow (2000) were played at each burrow. Two assumptions are implicit in our estimates. First, we assume that, at the time of our survey, nest loss attributable to egg failure was minimal. Second, we assumed that most birds were still incubating at this time, because the mean hatching date in South Georgia is 17 January (Berrow 2000). However, it is possible that Falkland Islands birds breed earlier and may already have hatched chicks by the date of our survey, in which case it is possible that some adults were already absent from the nests, with the population estimate obtained for Kidney Island being an underestimate.

New Island, off West Falkland (Fig. 1) is 2363 ha in area. Despite the presence of introduced mammals such as Black Rats *Rattus rattus*, House Mice *Mus musculus* and feral Domestic Cats *Felis catus*, the island harbours a large population of burrowing petrels. During December 2004, the area of the known colony on Rookery Hill was surveyed. (Additionally, other areas were visited to look for signs of occupation.) Burrows on New Island tend to have short tunnels, and so many could be checked by inspection using a torch. Deeper burrows were checked by the use of call playback. Nests

were checked in a similar manner on 16 November 2005, and then again on 11 December 2005 with the use of a burrowscope [Peep-A-Roo: Sandpiper Technologies, Manteca, CA, USA (see Hamilton *et al.* 1997 and Hamilton 2000 for a description and application of a similar device)].

Several other islands that are covered in Tussac Grass and are free of mammalian predators were visited to search for further colonies of White-chinned Petrels. These were Beauchêne Island (3–11 November 2005); Bird Island (12–15 November 2005); Top and Bottom islands (8 February 2005 and 27 December 2005 respectively); Middle Island, three tussac islands off its northeast point and Fox Point Island (13 March 2005); and Cochon Island (11 January 2006). Several other, apparently less suitable, islands were also visited during the two summers.

Counts on New Island were made by M. Lecoq & P. Catry; counts at other localities were made by T. Reid.

## RESULTS

### Kidney Island

Occupied burrows on Kidney Island were found in two areas. During 2005, 23 occupied burrows were found (six behind the landing beach and 17 along the southern shore); in 2006, 27 occupied burrows were located (nine behind the landing beach and 18 along the southern shore).

Burrows of White-chinned Petrels had wider entrances than did burrows of Sooty Shearwaters. All White-chinned Petrel burrows were in areas of wet peat amongst Tussac Grass, on south-facing slopes of 30 degrees or more, either immediately behind the beach or up to 50 m from the shore.

### New Island

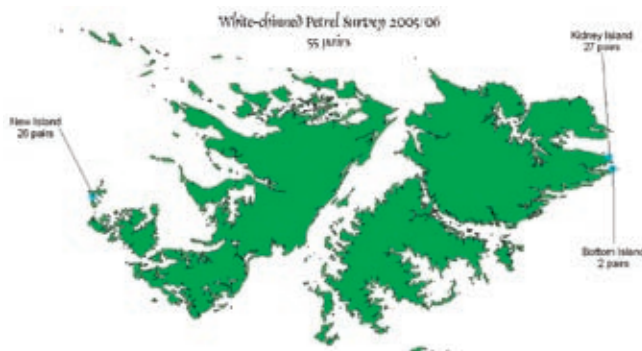
All burrows on New Island were located at Rookery Hill. During 2004/05, 36 occupied burrows were located; during 2005/06, 26 occupied burrows (containing eggs) were found. Several nests occupied during 2004/05 had been destroyed by winter rain erosion in 2005/06, and only a small number of new nests were located. Burrows on New Island are in an area with very little Tussac Grass cover and were located high (>100 m) above the sea.

### Other islands visited

Two occupied burrows were found on Bottom Island in Port William during this survey. This island is approximately 3.4 nautical miles south of Kidney Island. In 2001, rats were eradicated from Bottom (and nearby Top) Island. The burrows had broad, wet entrances and positioning very similar to the burrows on Kidney Island.

## DISCUSSION

During 2005/06, White-chinned Petrels were observed breeding at three localities in the Falkland Islands. Most were breeding at the previously known colonies of Kidney Island and New Island, and a new colony was found at Bottom Island. During 2005/06, 55 occupied burrows were found, giving an estimated total population for the islands of a minimum of 55 pairs. This is significantly fewer birds than is found in the most recently published estimate for the population [1000–5000 pairs (Woods & Woods 1997)].



### Kidney Island

No demographic or productivity studies of White-chinned Petrel populations have been undertaken on Kidney Island, although historical estimates indicate a larger breeding population than that estimated in the current census (Croxall *et al.* 1984, Woods & Woods 1997). Small numbers of White-chinned Petrels have been killed in the longline and trawl fisheries around the Falkland Islands (Reid *et al.* 2004, Sullivan *et al.* 2006). However, these birds may belong to the very large South Georgia population that is known to regularly forage in Falkland Islands waters (Weimerskirch *et al.* 1999). The observation of significant numbers of birds washed up during October 2000 suggests the possibility of mortality attributable to some toxin or food-related source; however, no samples were collected, and therefore identification of that source is not possible.

### New Island

A comparison of the present census with results from previous counts suggests that the population of New Island has remained broadly stable since 1972 (I. Strange pers. comm.) despite the very small size of the colony and the fact that there is some evidence of predation of chicks by feral cats (P. Catry unpubl. data).

### Other populations

At Bottom Island, birds had previously been recorded in 2003 calling while flying over the island (N. Huin pers. comm.), however the island has seldom been visited at night. This population is important in giving a further breeding site for the species within the Falkland Islands.

Several other islands that were considered to have the potential to support breeding White-chinned Petrels were visited during 2005/06, but no other breeding records were made. Given the large burrows that the species uses and its noisy behaviour while ashore (pers. obs.), it is unlikely that the species was present at any of the surveyed sites. Many other tussac islands in the Falkland Islands remain unexplored at this time, and so additional colonies may be located in the future. However, it seems unlikely that any such colony would be very large.

The population of White-chinned Petrels in the Falklands is less than 1% of the total world population. Whether this small population maintains itself or is replenished from South Georgia (or elsewhere) is currently unknown. Nevertheless, the species breeds only at eight island groups in the Southern Ocean (Marchant & Higgins 1990). Thus the population in the Falklands has the potential to be an important, if small, genetic reserve for the wider species' conservation.

There is evidence to suggest that the population at Kidney Island may have declined recently, but in the absence of previous systematic surveys, the scale of or reasons for any decline are impossible to judge. It seems likely that the population of the White-chinned Petrel within the Falkland Islands has always been small. Such a small population, of a species known to suffer significant mortality in association with fishing activities, is probably highly vulnerable to local extinction. For this reason, it will be important to monitor its population within the Falklands, especially at Kidney and New Islands.

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