Notornis, 2008, Vol. 55: 101-103
0029-4470 © The Ornithological Society of New Zealand, Inc.

SHORT NOTE

A brief survey of breeding seabirds on 4 islets off Banks Peninsula, South Island, New Zealand

KERRY-JAYNE WILSON
Bio-Protection and Ecology Division, P.O. Box 84, Lincoln University, Lincoln, New Zealand
Kerry-Jayne.Wilson@lincoln.ac.nz

Petrels once bred on ridges and headlands in many parts of New Zealand (Worthy & Holdaway 2002), but on the mainland at Banks Peninsula the only surviving colony is of a few pairs of sooty shearwaters (*Puffinus griseus*) at Stony Bay (Wilson 2000). With the demise of the mainland colonies, petrels are now nearly restricted to islands: in Canterbury their only significant breeding station is on Motunau Island where sooty shearwaters, fairy prions (*Pachyptila turtur*), and white-faced storm petrels (*Pelagodroma marina*) breed (Cox *et al*. 1967). The only other sizeable islands in Canterbury are in Lyttelton Harbour and Port Levy, and, as these are accessible to predators and people, they no longer support nesting petrels. There are however, a few islets and rock stacks around Banks Peninsula, and although small these are potential refuges for seabirds. Fairy prions were recorded on 3 of these rock stacks in 1960 (Bell 1961) during the only previous published survey of their birds.

On 20 Dec 2000 I landed by helicopter on 4 islets off the southeastern coast of Banks Peninsula and spent 35-80 min on each. During each visit, I inspected as many burrows as possible, searching initially the burrows of the size used by prions until a fairy prion adult, chick, or egg was found. I then searched for burrows that were smaller or larger than typical prion burrows. My priority was to maximise the number of species found rather than to make a systematic estimate of the populations of prions or other species, as in the time available on each islet it was not possible to do both. During these visits, botanical surveys were made and the vegetation on each was described by Head (2001).

Islet in Island Nook, near Flea Bay
NZMS 260, N37, 124036
I visited the summit plateau from 1000 to 1115 h. The *c*.70 × 30 m plateau sloped moderately but was surrounded by precipitous cliffs. The surface was covered by a shallow loess soil, and ice plant (*Disphyma australe*) dominated the plant cover (Head 2001). The entire plateau was densely burrowed and most burrows were of similar size. Many burrows intersected, and there were many more entrances than habitable burrows. Only a few of the burrows inspected contained eggs or chicks, and these were all of fairy prions. No smaller burrows were found. I found 12 larger, sooty shearwater-sized burrows but of the 10 it was possible to inspect, 5 were too short, 1 contained a prion egg, 1 was empty, and 3 were too long for me to reach the nesting chamber. It was not possible to census the prion-sized burrows accurately, but a quick count on part of the island revealed 268 entrances. I estimated that there were c.475 other entrances on the plateau. Burrow inspections indicated that only a fifth of these burrows would have contained a fairy prion egg or chick suggesting a total of about 150 pairs of prions nesting on this islet. The soil was probably too shallow to support sooty shearwaters, but it is possible that up to 5 pairs may have been breeding there.

Southern black-backed gulls (*Larus dominicanus*) were overhead throughout our visit but there was no evidence that they bred on the islet. White-fronted terns (*Sterna stiata*) and spotted shags (*Stictocarbo punctatus*) were seen feeding close to the islet but none was nesting on those parts of the cliffs visible from the plateau.

Islet in Redcliff Nook, near Stony Bay
NZMS 260, N37, 131039
I visited the 30 × 10 m top of this islet from 1120 h to 1205 h. The surface is mostly bare, sloping rock littered with rock debris, with a small thicket of *Muehlenbeckia complexa* at one end. A few fairy prions nested in between rocks and under the *Muehlenbeckia* thicket. Twelve prion-sized 'burrows' were found, 2 of which contained an egg. The *Muehlenbeckia* thicket was not searched adequately

Received 11 Dec 2006; accepted 31 May 2007

and there may have been up to 30 pairs of prions nesting on the islet.

Both black-backed and red-billed gulls (*Larus novaehollandiae*) were roosting on the islet but no nests, eggs or chicks of gulls were found.

Crown I

NZMS 260, N36, 192125

We landed on this island at 1215 h and left at 1335 h. Crown I had several wide, sloping ledges encircling a central high point. By climbing from ledge to ledge it was possible to access most parts of the island. I inspected all partly-vegetated ledges but did not visit those at sea level. The main vegetation was introduced herbaceous weeds, with some native shrubs on the southern face (Head 2001). A few spotted shags were nesting on the central part of the island, but this was too steep and rocky to support other seabirds. The ledges had little soil and fairy prions nested amongst rock debris, in shallow burrows, in small caves, or under overhanging rocks.

I counted *c*.255 burrows and crevices that appeared to be suitable for prions. The count was only approximate and the proportion of burrows actually used by prions could not be determined, because of time constraints and many burrows were too small to allow inspection. A few prions also nested in small caves and crevices close to sea level. All but 1 of these burrows were on the southern side. One incubating fairy prion (128 gm; bill length 23.9 mm) was captured.

Fourteen black-backed gull nests were counted, 3 of which still contained eggs and 3 had small chicks. Larger chicks had left their nests and amongst rocks and vegetation when the helicopter arrived.

The contents of 9 of 30 spotted shag nests were determined: 3 contained 1 chick, 3 had 2 chicks, 1 had 3 chicks, and 2 contained 2 fledglings each. Spotted shags were found nesting only on the northern side of the island.

Fifty-eight white-flippered penguin (*Eudyptula minor albosignata*) nests were counted on Crown I on 7 Dec 2001 (Challies & Burleigh 2004).

Islet off Island Bay

NZMS 260, N37, 994012

I was ashore on the summit plateau from 1355 h to 1430 h. This is the largest of the islets visited and the plateau is *c*.75 × 30 m wide. It slopes from a ridge along the eastern side down to cliff tops to the west. The summit plateau was entirely surrounded by precipitous cliffs. The vegetation was a uniform turf of iceplant, with scattered grasses and herbs, and a small area of Cook's scurvy grass (*Lepidium oleraceum*) (Head 2001). The entire area was densely burrowed, with most of the burrows suitable for prions. The burrow density was so great that many burrows intersected others. Perhaps up to half the entrances did not lead to usable nesting chambers. Although time ashore did not allow an accurate estimate of the number of burrows, there were probably *c*.1000 prion-sized entrances on the plateau, and up to 100 others on a very steep loess slope just below the plateau, which was too dangerous to visit. About one-third of the burrows inspected contained fairy prion chicks, and there could have been up to 300 pairs of fairy prions present. A line of about 10 larger burrows was found in a small bank where the soil was deepest. All but 1 of these were too long to search. Their size suggested that there may have been up to 10 pairs of sooty shearwaters nesting on the island. The only short, large burrow contained a fairy prion chick.

DISCUSSION

The only previous visits to these islands that I have been able to discover were by Bell (1961), who landed on Crown I and the islets in Island Nook and Island Bay, and a penguin census team who landed on Crown I and the Island Bay islet in Dec 2000. Bell (1961) recorded fairy prions, white-flippered penguins, and black-backed gulls nesting on Crown I. He noted that fairy prions nested 'in large numbers in the limited area available to them' but gave no estimate of the numbers present. Bell was unable to reach the summit plateau of either of the other islets, but he found fairy prions nesting on ledges close to sea level on both. He suggested that white-flippered penguins and black-backed gulls also nested on the islet in Island Nook (Bell 1961). The penguin survey team found 2 fairy prions on a ledge close to sea level on the Island Bay islet (M. Watson, *pers. comm*.). Crown I had been explored briefly but our landings were probably the 1st visits to the plateaux on the tops of the other 3 islands.

Fairy prions have become extinct, or are threatened with local extinction, on all islands that have been invaded by introduced mammals. Given the inaccessibility of these islets, with precipitous cliffs guarding their summit plateaux, these islands are fairly secure from invasion by rats or other mammal predators. The summit plateaux of the Island Nook and Island Bay islets were so densely burrowed that it was impossible to walk around without collapsing burrows. Visits to the summits of these islets should be permitted only under exceptional circumstances. I found no evidence of other petrel species nesting on any of these islets, although there were a few large, sooty shearwater-sized burrows on 2 islets. Even if shearwaters do breed, the population must be small (up to 5 pairs at Island Nook and ≤10 pairs at Island Bay). I collected feathers and bird bones from Crown I and Island Nook: these were all from fairy prions or black-backed gulls.

Sixty spotted shag nests were counted on Crown I in 1960 and 92 in 1996 (Doherty & Brager 1997).

Spotted shags lay their eggs in Sep so my late-Dec count was not comparable with the previous counts between 24 Oct and 4 Nov, because by late Dec many chicks would have fledged. Likewise, counts of gull nests on Crown I will have underestimated the total number of pairs using the island.

Although small, these islands are important to the conservation of endemic fauna and flora. They support the only extant colonies of fairy prion around Banks Peninsula. Spotted skinks (*Oligosoma lineoocellatum*) were seen on the Redcliff Nook I and large skinks, probably the same species, on Crown I. Spotted skinks are now very rare on the Canterbury mainland (Freeman 1997), so these small islands provide refuges for this vulnerable species. Smaller skinks and small geckos, probably *Hoplodactylus maculatus*, were also seen at Redcliff Nook. On a national scale, the presence of a population of Cook's scurvy grass on the islet off Island Bay (Head 2001) is perhaps the most significant conservation value of the islands. This is the only location between Marlborough Sounds and Otago where this endangered plant is known to survive.

The precipitous cliffs on the islets themselves and on the neighbouring mainland should keep the islets safe from invasion by introduced mammals, but the bird, lizard, and plant communities may still not be secure. Although 2 of these islets are riddled with burrows, most entrances intersected with other burrows. This would suggest intense intra-specific competition for burrows, with consequent low reproductive success resulting from interference by prions prospecting for or digging burrows. This situation would be analogous to that on Rangitira I, Chatham Is, where intense competition between the locally abundant broad-billed prion (*Pachyptila vittata*) and the endangered Chatham petrel (*Pterodroma axillaris*) for burrows results in very low breeding success for the Chatham petrels. It may also − although there are no data yet to test this possibility − affect the prions themselves and other burrow-breeding petrels (Sullivan & Wilson 2001; Was *et al.* 2000).

A small colony of sooty shearwaters at nearby Stony Bay is protected by a predator-proof fence (Wilson 2000). If nest boxes suitable for prions were installed there, broadcasting fairy prion calls might attract prions to breed in this safe refuge, re-establish fairy prions as a breeding species on the Banks Peninsula mainland and reduce the crowding on the islets.

AKNOWLEDGEMENTS

I thank Robin Burleigh and Alistair Hutt of the Akaroa Field Centre, Department of Conservation, for the opportunity to visit these islets and to Nick Head for his company ashore. The skilled flying by Canterbury Helicopters made these visits possible. Adrian Paterson critically read the manuscript.

LITERATURE CITED

Bell, B.D. 1961. Banks Peninsula – spotted shag census and itinerant observations. Unpubl. report to the Conservator of Wildlife, Wildlife Branch, New Zealand Department of Internal Affairs.

Challies, C.N.; Burleigh, R.R. 2004. Abundance and breeding distribution of the white-flippered penguin (*Eudyptula minor albosignata*) on Banks Peninsula, New Zealand. *Notornis 51*: 1-6.

Cox, J.E.; Taylor, R.H.; Mason, R. 1967. Motunau Island, Canterbury, New Zealand. An ecological survey. New Zealand *Department of Scientific and Industrial Research bulletin no. 178*.

Doherty, J.L.; Brager, S. 1997. The breeding population of spotted shags (*Stictocarbo punctatus punctatus*) on Banks Peninsula: 36 years later. *Notornis 44*; 49-56.

Freeman, A.B. 1997. The conservation status of a coastal duneland lizard fauna at Kaitorete Spit, Canterbury, New Zealand. *Herpetofauna 27*: 25-30.

Head, N. 2001. Rediscovery of Cook's scurvy grass (*Lepidium oleraceum*) on Banks Peninsula. *Canterbury botanical society journal 35*: 43-47.

Sullivan, W.; Wilson, K-J. 2001. Differences in habitat selection between Chatham petrels (*Pterodroma axillaris*) and broad-billed prions (*Pachyptila vittata*): implications for management of burrow competition. *New Zealand journal of ecology 25*: 65-69.

Was, N.W.; Sullivan, W.J.; Wilson; K-J. 2000. Burrow competition between broad-billed prions (*Pachyptila vittata*) and the endangered Chatham petrel (*Pterodroma axillaris*). *Science for conservation 167*. Wellington, New Zealand Department of Conservation.

Wilson, K-J. 2000. Mainland muttonbirds. Conservation for one of New Zealand's most abundant species. *Southern bird 1*: 4-5.

Worthy, T.H.; Holdaway, R.N. 2002. *Lost world of the moa: prehistoric life in New Zealand*. Bloomington, Indiana University Press.

Keywords bird survey; inshore islands; Banks Peninsula; South Island; New Zealand; fairy prion; *Pachyptila turtur*