

SEABIRD ISLANDS

No. 21/1

Inner Rock, Broughton Group, New South Wales

Location: 32°36'S, 152°18'E. Located approximately 16 kilometres north-east of the entrance to Port Stephens, New South Wales (NSW). It is part of the Broughton Group, situated approximately 600 metres north-west of Broughton Island.

Status: Together with nearby North Rock, forms Stormpetrel Nature Reserve, gazetted in 1976 for the conservation of seabird nesting habitat. It is part of the Myall Coast Reserves administered by NSW National Parks and Wildlife Service, Office of Environment and Heritage.

Description: Inner Rock is a teardrop-shaped island of 0.9 hectares, with an elevated (10 m) vegetated area of 0.3 hectares. The island is composed of Carboniferous volcanic rhyolite; the rocky shoreline and cliffs on the southern and eastern side make access difficult. Vegetation, rooted in shallow soils, is dominated by Spiny-headed Mat-rush *Lomandra longifolia* with low stands of Coastal Wattle *Acacia longifolia* ssp. *sophorae* and Tree Broom Heath *Monotoca elliptica*. Other species not mentioned by Lane¹ and including exotic (*) species are:

Hydrocotyle peduncularis, *Doodia aspera*, *Histiopteris incisa*, *Crassula sieberiana*, *Westringia fruticosa*, *Duboisia myoporoides*, *Peperomia leptostachya*, *Poa poiiformis* var. *poiiformis*, *Sporobolus virginicus*, **Chrysanthemoides monilifera*, **Phytolacca octandra*, **Andropogon virginicus* and **Solanum nigrum*.

Landing: A difficult landing onto sloping rocks on the north-west shore or onto a south-west rock stack abutting the island, depending on prevailing conditions.

Ornithological History: Lane¹ summarised two previous visits up to 1973, which recorded breeding populations of Wedge-tailed Shearwater *Ardenna pacifica* and White-faced Storm-petrel *Pelagodroma marina*. Carlile and others visited the island overnight on 2–3 October and 21–22 December 2010 to survey penguins and other seabirds. The authors visited briefly on 18 December 2011 to confirm that storm-petrels were breeding.

Breeding Seabirds and Status

Pelagodroma marina White-faced Storm-petrels—Previously recorded nesting in burrows located amongst Mat-rush¹. The only burrows seen during the October 2010 survey were on the south-east edge of the island where soil was particularly shallow. Fresh excavations were noted, and a few individuals seen overflying the island at night. In December 2010, a total of 100 burrow entrances were counted, but no evidence of breeding was detected. In December 2011, five downy chicks were extracted from accessible burrows, confirming that breeding occurs here. Assuming a mean occupancy rate of 63 percent², we estimate the total population for Inner Rock to be approximately 63 pairs, significantly less than Lane's 1973 estimate of 500 pairs¹. How Lane obtained his estimate is not recorded, but his description of their location on the island in 1973¹ suggests their former widespread distribution may have contracted.

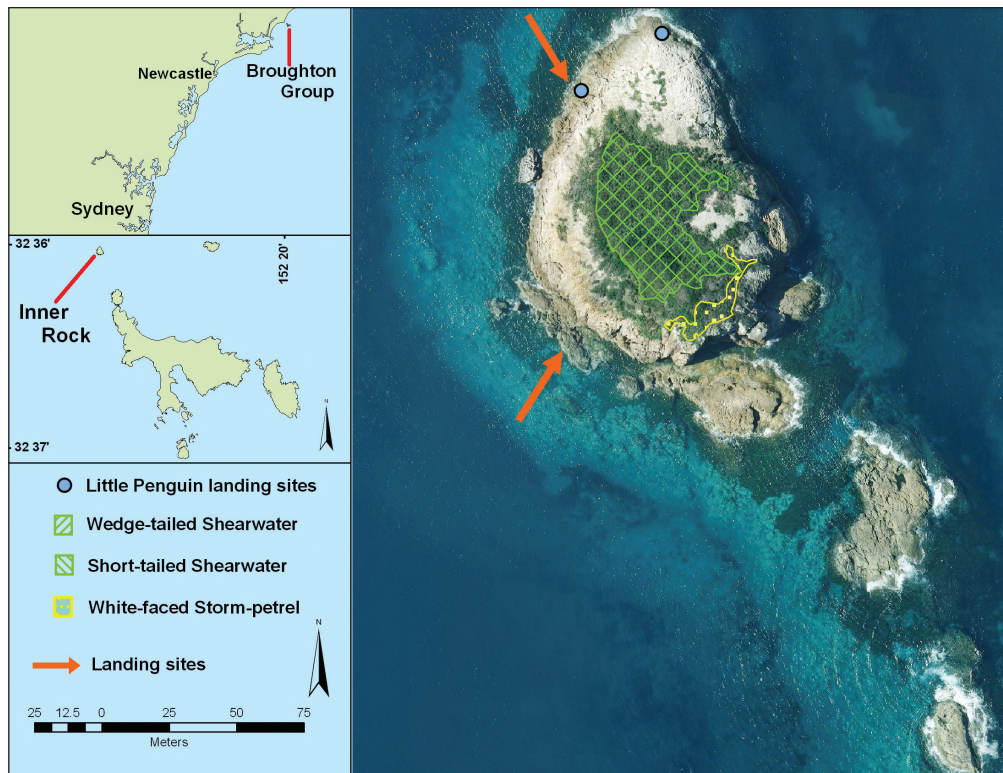


Figure 1. Inner Rock, Broughton Group, New South Wales

Ardenna pacifica Wedge-tailed Shearwater—Nests across most (0.18 ha) of the vegetated part of the island, either in short burrows among thick vegetation or in excavations under clumps of Mat-rush, as soil is shallow. The boundaries of the colony were mapped using a GPS and geographic information system (GIS). Population size was estimated by sampling burrows within a series of four random transects (each 20 m x 4 m). The area surveyed was approximately 18 percent of the area of the colony. At the time of the survey, adult birds were incubating eggs. All burrows within each transect were counted and searched; if occupied, the occupant was extracted and identified. In total, the transects contained 54 burrows, of which 17 were occupied; an occupancy rate of 31 percent. Of those birds present, 71 percent were Wedge-tailed Shearwaters. We estimate the total number (\pm s.e.) of shearwater burrows on the island to be 304 ± 34 , and the population of Wedge-tailed Shearwaters to be 68 ± 34 . This is similar to the estimate of 100 pairs made by Lane in 1973¹.

Ardenna tenuirostris Short-tailed Shearwater—Nocturnal observations in October 2010 indicated the presence of this species on the island. In December 2010, transect sampling revealed that they nest across the island, in a mixed colony with Wedge-tailed Shearwater. Twenty-nine percent of shearwaters present were Short-tailed Shearwaters. We estimate the population (\pm s.e.) of Short-tailed Shearwaters to be 28 ± 6 pairs. This species was not recorded breeding on Inner Rock previously.

Eudyptula minor Little Penguin—In October 2010, no landing sites could be identified from excrement trails. However, from a nocturnal patrol of the island's perimeter between 1900 hr and 2000 hr, two birds were found coming ashore at the northern tip of the island and five birds 40 m along the shoreline to the south-west near the boat landing site. In December 2010, nine birds came ashore at the northernmost site, and three at the other site. Also, two nests, containing chicks four and six weeks old, were located in dense vegetation during transect surveys (see below). Assuming that birds landing in October were arriving to relieve their partner during incubation (1 arrival per nest), and birds landing in December were arriving to feed large nestlings (2 arrivals per nest), we estimate five pairs using each landing site; i.e. 10 pairs in total. Little Penguins have not been recorded breeding on Inner Rock previously.

Factors Affecting Status

The addition of Little Penguins and Short-tailed Shearwaters to the breeding seabirds of Inner Rock is not surprising as both species breed on West End, Broughton Island, 700 metres away³. The possible reduction in White-faced Storm-petrel is surprising and, if accurate, not easily explained. Shearwaters can exclude storm-petrels^{2,4} from nesting sites, but there has been no apparent change in shearwater numbers on Inner Rock, nor has there been comparable reductions in storm-petrels on most other NSW islands that remain free of rodents^{5,6,7}.

Bitou Bush *Chrysanthemoides monilifera* and Prickly Pear *Opuntia stricta* are well established on the island and, after Mat-rush, are the most dominant plants. These invasive weeds require ongoing management if they are to be prevented from spreading across the entire island.

White-bellied Sea-eagle *Haliaeetus leucogaster* and Swamp Harrier *Circus approximans* were both observed hunting over the island and would likely take shearwaters and penguins not utilising the thick cover of vegetation during daylight.

Other Seabirds Recorded

Silver Gull *Chroicocephalus novaehollandiae*.

Other Vertebrates Recorded

Yellow-bellied Water-skink *Eulamprus heatwolei*.

Banding

First banding – 10 December 1973.

Pelagodroma marina – six nestlings; no recoveries.

Ardenna pacifica – three adults, with one recovery at banding place 37 years after banding. Another recovery of an adult banded at-sea off Ulladulla NSW, 278 kilometres to the south two years and five months previously.

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