

## SEABIRD ISLANDS

No. 254

## Looking Glass Isle, Broughton Group, New South Wales

**Location:** 32°37'S, 152°19'E. Located approximately 15 kilometres north-east of the entrance to Port Stephens, New South Wales (NSW). It is part of the Broughton Group, situated approximately 250 metres south of Broughton Island.

**Status:** Crown land.

**Other Names:** South Reef.

**Description:** Looking Glass Isle is a dome-shaped island measuring 325 metres by 175 metres; its longest axis aligned north–south. The island is approximately four hectares, half of which is vegetated. It is composed principally of Carboniferous volcanic rhyolite with heavily eroded basalt dykes forming two tunnels, or 'looking-glass' holes, running through the island. Land bridges connect the three parts of the island. The southern part rises to 69 metres, and the steep slopes to the north and south dominate the rocky shoreline.

Vegetation on the northern and central sections is predominantly dense stands of Spiny-headed Mat-rush *Lomandra longifolia*, with stunted thickets of Red Olive-berry *Elaeodendron australe* along the ridgeline. The exotic Bitou Bush *Chrysanthemoides monilifera* also occurs along this ridgeline and as a large stand (~ 0.1 ha) on the edge of the southern dyke. On the southern section, around the summit, the fire-damaged vegetation is comprised of stunted rainforest-derived species, with Tuckeroo

*Cupaniopsis anacardioides* dominant. Other species, including exotics (\*) are:

*Carpobrotus glaucescens*, *Tetragonia tetragonioides*, *Marsdenia rostrata*, *Enchylaena tomentosa*, *Sarcocornia quinqueflora*, *Philothea hispidula*, *Crassula sieberiana*, *Geitonoplesium cymosum*, *Commelina cyanea*, *Plectranthus graveolens*, *Isolepis nodosa*, *Leucopogon parviflorus*, *Monotoca elliptica*, *Acacia longifolia* var. *sophorae*, *Scaevola calendulacea*, *Leptospermum polygalifolium*, *Oxalis perennans*, *Sporobolus virginicus*, *Dianella caerulea*, *Cyperus tetraphyllus*, *Correa alba* var. *alba*, \**Cakile maritime*, \**Sonchus oleraceus* and \**Opuntia stricta* var. *stricta*.

**Landing:** Onto rocks on the north-western end depending on prevailing conditions. Access to the central section is straightforward, but reaching the southern section and summit requires a steep scramble up a narrow, exposed land bridge.

**Ornithological History:** The only ornithological visit appears to be during a 1972 survey of Broughton Island by Lane and others<sup>1</sup> when Looking Glass Isle was climbed to determine whether it was used as a breeding site by cormorants; a negative result on that occasion. Callaghan visited for one hour on 3 September 2011 to search for signs of penguin activity and to document vegetation. The authors visited for two hours on 18 December 2011 to survey nesting seabirds.

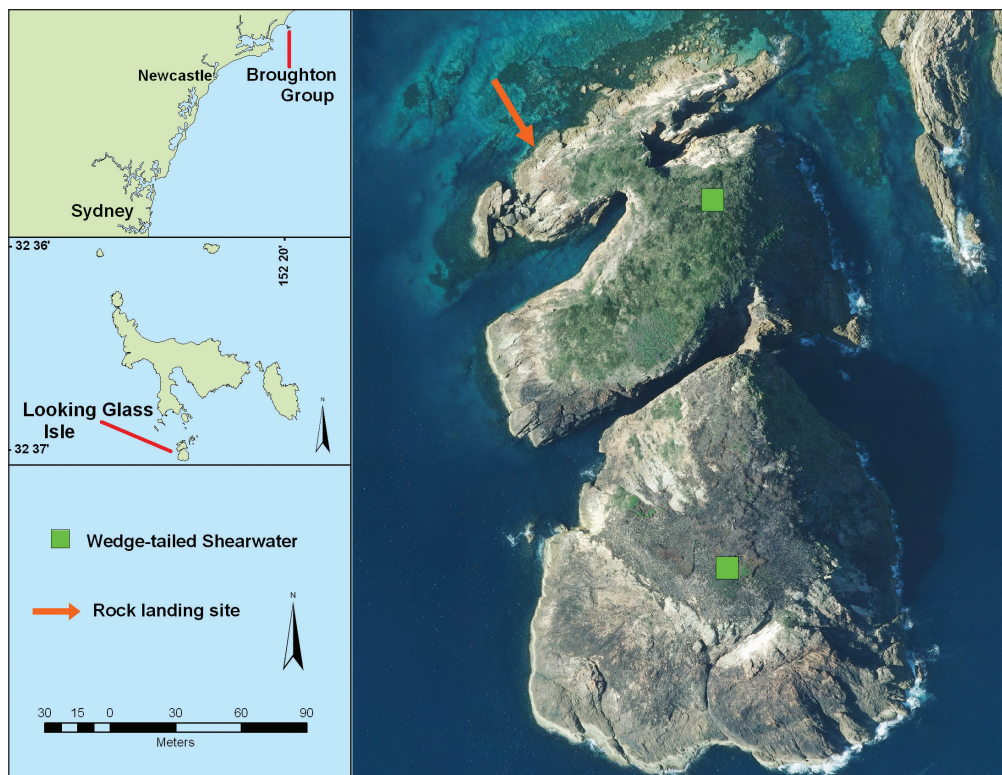


Figure 1. Looking Glass Isle, Broughton Group, New South Wales



**Figure 2.** Looking Glass Isle from the north, as viewed from Broughton Island.



**Figure 3.** Looking Glass Isle, from the southeast. Note the burnt vegetation, photographed in December 2009, shortly after lightning strike.

### Breeding Seabirds and Status

*Ardeana pacifica* Wedge-tailed Shearwater—Suitable nesting habitat is scarce due to very dense Mat-rush vegetation on the northern and central parts of the island and few other areas with soil of sufficient depth for burrowing. Four personnel searching for 1.5 hours found two breeding birds. A group of seven burrows on the southern slope of the island contained a single incubating bird. A second incubating bird was found within Mat-rush on the central section of the island. We estimate that less than 10 pairs breed on the island.

### Factors Affecting Status

A fire, ignited by lightning, burnt out 0.7 hectares of the summit and southern slope of Looking Glass Isle on 20 December 2009; an area that included the larger of the two known breeding sites for Wedge-tailed Shearwater. The fire occurred during the incubation period<sup>2</sup>, possibly resulting in the injury or death of some individuals. Fire can have significant impacts on burrow-nesting seabirds, with the loss of incubating adults leading to nest failure<sup>3,4</sup>. No significant erosion was observed, and the fire-damaged canopy species – Tuckeroo – was re-sprouting from rootstock as well as regrowing from seedlings.

Black Rats *Rattus rattus* were eradicated from the Broughton Group in 2009<sup>5</sup>. White-faced Storm-petrels *Pelagodroma marina* breed elsewhere in the Group<sup>6,7</sup> and the removal of rats may lead to this species expanding its range to nest in the shallow soils that occur around the ridgelines of Looking Glass Isle.

As with all islands in the Broughton Group, predation of shearwaters by White-bellied Sea-eagle *Haliaeetus leucogaster* and Swamp Harrier *Circus approximans* was evident, with the remains of Wedge-tailed Shearwaters found near the summit.

Bitou Bush was not recorded within the Broughton Group during the early 1970s<sup>1</sup> but is now widespread, and stands on Looking Glass Isle will require ongoing management if the species is to be contained. Prickly Pear *Opuntia stricta*, although not prevalent, is present and could expand into the area recently disturbed by fire.

### Other Seabirds Recorded

No other seabirds were recorded. Lane<sup>1</sup> recorded Great Cormorant *Phalacrocorax carbo*, Little Black Cormorant *P. sulcirostris* and Little Pied Cormorant *Microcarbo melanoleucos* roosting on the island in 1959, 1972 and 1973, but recent signs of occupation were absent.

### Other Vertebrates Recorded

No other vertebrates were recorded.

### Banding

No banding has been undertaken on Looking Glass Isle.

### Bibliography

- Lane, S.G. (1976). Seabird islands No. 18: Broughton Island, New South Wales. *The Australian Bird Bander* **14**: 10–13.
- Roberts, P.E., Merritt, F.D. and Floyd, R.B. (1975). Wedge-tailed Shearwaters on Muttonbird Island, Coffs Harbour, NSW. *Emu* **75**: 19–22.
- Carlile N., Priddel, D. and Callaghan, S. (2012). Seabird Islands No. 18/1: Broughton Island, New South Wales. *Corella* **36**: 97–100
- Lane, S.G. (1975). Seabird islands No. 10: South-West Solitary Island, New South Wales. *The Australian Bird Bander* **13**: 14–15.
- Priddel, D., Carlile, N., Wilkinson, I. and Wheeler, R. (2011). Eradication of exotic mammals from offshore islands in New South Wales, Australia. In *Island Invasives: Eradication and Management*. (Eds C.R. Veitch, M.N. Clout and D.R. Towns). Pp. 337–344. (International Union for Conservation of Nature: Gland, Switzerland.)
- Carlile, N., Priddel, D. and Callaghan, S. (in press). Seabird Islands No. 20/1: North Rock, Broughton Group, New South Wales. *Corella*
- Carlile, N., Priddel, D. and Callaghan, S. (2013). Seabird Islands No. 21/1: Inner Rock, Broughton Group, New South Wales. *Corella* **37**: 21–22.

### Acknowledgements

Recent surveys of Looking Glass Isle would not have been possible without the assistance and support of the Hunter Region of the National Parks and Wildlife Service (NPWS). The Broughton Island Conservation Society (BICSI) provided accommodation on Broughton Island. Eleazar O'Connor from NatureFiji-MareqetiViti assisted in the December survey. Jeff Pettifer (BICSI) kindly provided boat transportation and Andrew Hampstead (NPWS) assisted with landings.

Date compiled: 11 February 2012

Nicholas Carlile and David Priddel, Office of Environment and Heritage, PO Box 1967, Hurstville BC, New South Wales 1481, Australia.

Email: Nicholas.Carlile@environment.nsw.gov.au

Susanne Callaghan, Office of Environment and Heritage, Locked bag 99, Nelson Bay, New South Wales 2315, Australia.