SEABIRD ISLANDS No. 35

Cabbage Tree Island, New South Wales

Location: 32°42′ S., 152°14′ E.; north-east of the entrance to Port Stephens; 1.4 km from North Head.

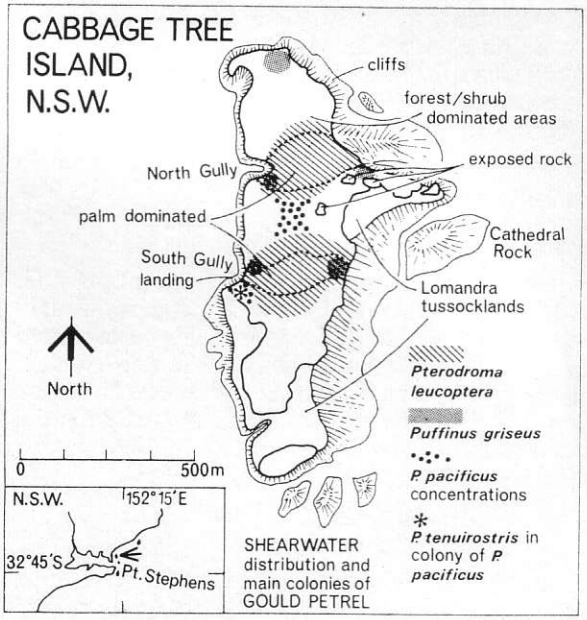
Status: Nature Reserve controlled by the National Parks and Wildlife Service (N.S.W.): Entry permit required.

Other Names: Gould Island; John Gould Nature Reserve.

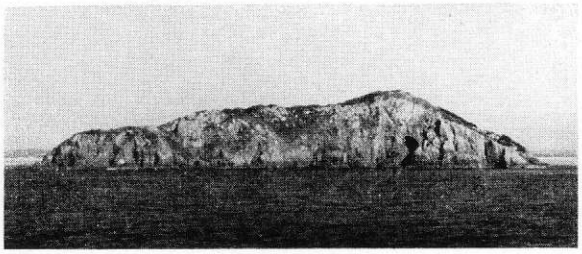
Description: The island has a plan area of about 30 ha; 1 km long by 490 m at its widest. It is a steeply sloped wedge-shaped granitic island, the highest point along its ridge being 120 m above sea level. It has a moderately steep and well vegetated western aspect, but a very much steeper, exposed and rocky eastern aspect. A pinnacle, Cathedral Rock, is located on the north-eastern side, and there are some small rocky islets off the southern end and another to the north. At several points along the northern and eastern sides the island is precipitous.

The well vegetated western slopes cover a plan area of about 18 ha, of which 14 ha are sub-tropical rainforest and scrub, the remainder is dense mat rush *Lomandra longifolia* tussock grassland.

The rugged eastern slopes are more sparsely vegetated. Trees and shrubs present in the forested areas include: *Podocarpus elatus, Wilkiea huegeliana, Hedycarya angustifolia, Pisonia umbellifera, Pittosporum undulatum, P. revolutum, Acmena smithii, Ficus stenocarpa, F. henneana, Malaisia scandens, Pseudomorus brunoniana, Elaeodendron australe, Acronychia imperforata, Guioa semiglauca, Cupaniopsis anacardioides, Diospyros australis, Planchonella australis, Ligustrum lucidum, Notelaea venosa,* and *Rapanea variabilis.* Epiphytes include orchids and ferns. *Asplenium nidus* is particularly conspicuous. Climbers and vines include *Clematis glycinoides, Piper novaehollandiae, Cissus antarctica, Cayratia clematidea, Tetrastigma nitens, Flagellaria indica, Smilax australis,* and *Eustrephus latifolius.* The summit area and upper ridge is dominated by *Acacia glaucescens* and *Ficus rubingenosa.* At the southern end of the island there is some *Banksia integrifolia* associated with *Acacia longifolia.* The exotic Prickly Pear, *Opuntia stricta,* is well established on the eastern slopes. Two gullies on the western side are dominated by the Cabbage Tree Palm, *Livistona australis.* Both are about 1 ha in area.

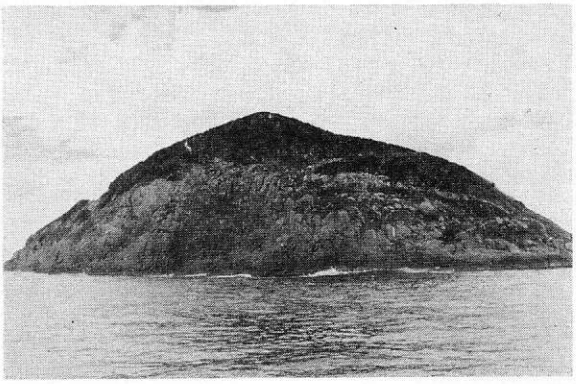


Landing: Accomplished from a small boat with difficulty, except in a calm sea, onto rocks at a point almost midway along the western side. This is at the bottom of South Gully.



• *The exposed seaward side of Cabbage Tree Island (looking north-west).*

Photo: S. G. Lane



• *The north end of the island from the sea.*

Ornithological History: Hindwood and Serventy[9] have summarised the early ornithological history of the island and of the Gould Petrel. They gave a detailed account of Cabbage Tree (including useful photographs of the South Gully and south-west and south-east aspects of the island from the sea) and made some observations on the Gould Petrel resulting from their several visits late in 1940 and early in 1941. A. F. D'Ombrain has spent more time than anyone else on the island, with visits spanning the period 1930 to 1974. He has made a lifelong study of the Gould Petrel[2,3,4,5]. An aerial view of the western aspect of Cabbage Tree was published by D'Ombrain in 1970[5]. The status of the breeding colony of the Gould Petrel was investigated by J. L. McKean and P. J. Fullagar in 1969 and 1970. These studies have continued on an annual basis since 1971 by P.J.F. with the assistance of the National Parks and Wildlife Service (N.S.W.). Many undocumented visits have been made to the island in more recent years, but most have been for the purpose of banding shearwaters and a few petrels.

Breeding Seabirds and Status

Eudyptula minor Little Penguin — Penguins can be found ashore in any month of the year. Breeding usually from August to January; moulting birds present on the island in autumn. Nest sites in burrows, below rocks, bushes or tussocks. Population estimated at less than 1 000 pairs, probably only a few hundred.

Pterodroma leucoptera Gould Petrel — Cabbage Tree Island is the only known breeding locality of this petrel. The two main colonies are located within the palm-dominated gullies; but a few nest sites have been found elsewhere on the island; some even close to the shoreline just above high water level, in particular below South Gully[5]. The nest site is almost always located amongst rocks, most often with fallen palm fronds forming the only cover. Occasionally a short burrow is used or the hollowed out trunk of a fallen palm tree. Very little nest material is present, usually no more than a few dry chips of palm fronds. Occupied sites seem to be aggregated into groups here and there. Present from October to April. Egg-laying occurs late in November and early December, with hatching in January and departure of most young by April. McKean and Fullagar (unpublished records) estimated the total colony to be between 250-500 pairs in December 1970. They calculated that there were about 100-150 nest sites in each of the main colony areas of North and South Gully. This estimate is considerably higher than that given by Hindwood and Serventy[9] in 1940, when a total of between 50 and 100 pairs was suggested. Breeding success (measured as the percentage survival that well-grown chicks represent of the number of eggs laid each year) runs at about 40 per cent (Fullagar, unpublished data). This would suggest an annual production of about 100 or at the most optimistic, 200 young birds. Heavy summer rainfall and the consequent soaking of nest sites is possibly the greatest cause for hatching failures and chick losses.

Puffinus pacificus Wedge-tailed Shearwater — Present from August-September to early May. Eggs laid in late November, early December; hatch in January and most chicks fledge in April. Particular concentrations of burrows occur along a section of forest floor on the west side between the two gullies. Other breeding sites are scattered throughout the gully areas with some nesting in sites similar to those used by Gould Petrel[16]. There are several other local concentrations of burrows near the high ridges and also on the lower edges of the vegetated slopes. There appear to be some colonies in the tussock areas to the east[2] and possibly to the south of the island. Estimated numbers are between 1 000 and 5 000 pairs.

Puffinus griseus Sooty Shearwater — Present on island from September with a similar pattern to its breeding activities as the Wedge-tailed Shearwaters. At least six discrete colonies of burrows are known, but numbers not well documented. Population is estimated as almost certainly less than 500 pairs, probably 50-100 pairs.

Puffinus tenuirostris Short-tailed Shearwater — Five birds found by C. Kogon amongst *P. pacificus,* when examining some burrows just above and south of the landing area 18 December 1973. At least two of these birds were confirmed as incubating eggs. Extent of colony unknown. Previously this colony area was only known to be occupied by *P. pacificus.*

• *A typical view of the forest floor in South Gully.*

Factors Affecting Status

There have been attempts to control or eradicate the introduced Prickly Pear (D'Ombrain pers. comm.). It is still quite plentiful on the exposed eastern slopes of the island. Fire has occurred on the island[15] and burn marks were still visible on many palm trees in lower South Gully in 1976. The sticky seeds of Pisonia trees cause some mortality amongst Gould Petrels in late summer due to incapacitation[2,3,4,7,9]. Additionally, predation on the Gould Petrel or its eggs also occurs from Grey Goshawk *Accipiter novaehollandiae,* Raven *Corvus coronoides,* possibly Kookaburra *Dacelo novaeguineae* and Pied Currawong *Strepera graculina.* Resident Peregrine Falcons *Falco peregrinus* based on Cathedral Rock, probably take Gould Petrels in flight over the island at night[5]. The island was considered for use in gunnery practice early in World War II, but some prompt action avoided any serious consequences[8]. At present the availability of suitable crevices amongst rocks and the additional protection of fallen palm fronds seem to be critical factors in providing sufficient nest sites to maintain the Gould Petrel colony.

OTHER VERTEBRATES

A small venemous snake, *Cacophis squamulosus,* was collected (Australian National Wildlife Collections R132 housed at Division of Wildlife Research, CSIRO) in December 1970, but no others have ever been reported. The rabbit, *Oryctolagus cuniculus,* is said to have been introduced about 70 years ago[9] and occurs in small numbers. Its influence on the vegetation is not known and its interaction with nesting seabirds has not been studied.

Other Seabirds Recorded

Puffinus bulleri Buller's Shearwater. A bird found ashore during the day in a burrow, 11 December 1960[6].
Phalacrocorax carbo Black Cormorant
Phalacrocorax sulcirostris Little Black Cormorant
Egretta sacra Reef Heron
Larus novaehollandiae Silver Gull
Sterna bergii Crested Tern

Banding

First banding 26 January 1948 with Victorian Fisheries and Game Department bands; data received up to 30 June 1975.

P. leucoptera — 226 nestlings and 1 405 'adults' banded; 235 recovered on 335 occasions on the island; Three recoveries away from island — 295 km SSW, and 145 km SW and 9 km WNW (*Aust. Bird Bander* 10: 40; 12: 42; 13: 62). The figures for Gould Petrel include 79 adults and 53 nestlings banded with Victorian Fisheries and Game bands up to 1956.

These recoveries supplement the very few reports of Gould Petrel other than at Cabbage Tree Island[1,7,10-14].

Birds banded as nestlings have been retrapped at the breeding colony in their third year (*Aust. Bird Bander* 9: 89). Adults have been recovered up to 12 years after banding (*Aust. Bird Bander* 8: 41; 9: 65; 12: 41).

P. pacificus — 10 nestlings and 459 'adults' banded; 53 recovered on 59 occasions on the island; no recoveries away from the island.

P. griseus — 1 nestling and 22 'adults' banded; four recovered on four occasions on the island; one recovery away from island — 1 900 km ESE Dargaville, New Zealand (*Aust. Bird Bander* 12: 65).

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Acknowledgements

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