

PLAN OF MANAGEMENT

PART B

SECTION EIGHT



NEPEAN ISLAND



2003

AS APPROVED BY THE NORFOLK ISLAND LEGISLATIVE ASSEMBLY ON 21 MAY 2003



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Section 8: NEPEAN ISLAND PLAN OF MANAGEMENT PART B

8.1 Introduction

This Part B Plan of Management applies to Nepean Island.

Nepean Island is located about 800m south of Norfolk Island, opposite Kingston (Map 1), and is approximately 10 hectares in area. The Island's 30m high coastal cliffs and low coastal vegetation are ideal habitat for a variety of breeding seabirds. Today people rarely visit Nepean Island, but its starkness and the knowledge that it was used as a quarry and source of timber during the Second convict settlement compliments the historic landscape and features at Kingston.



Figure 1 Aerial View of Nepean Island Showing Nepean Island in relation to the Southern Coastline of Norfolk Island¹

Nepean Island was declared a reserve under the *Commons and Public Reserves Ordinance 1936* on 29 March 1968 for the purpose of the conservation of flora and fauna.

¹ Aerial photograph by United Photo & Graphic for AUSLIG: UPG 75: Photo 72, Run 11, 3,020ft ASL, Nepean Island, 31 July 1995.

8.1.1 Previous Plans

This is the first Plan of Management prepared for Nepean Island.

8.1.2 Boundaries

The boundaries of Nepean Island Reserve extend to high water mark.

8.1.3 Register of the National Estate

Nepean Island was listed on the Register of the National Estate on 21 October 1980.

8.1.4 IUCN Category

Nepean Island fits IUCN Category IV: Habitat/Species Management Area: a protected area managed mainly for conservation through management intervention. The definition of this category is an area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

8.2 Conservation Significance

Nepean Island has significant conservation values. It is the major Masked Booby rookery in the region and has significant populations of other breeding seabirds. It is a refuge for one of only two species of lizard occurring in the Norfolk Island group, the endemic Gecko, which is now considered extinct on Norfolk Island. Nepean Island also has stone steps and the remains of a quarry that evidence convict activity on the east coast of the Island.

8.3 Description

8.3.1 Geology and Landform

Unlike Norfolk and Phillip Islands, Nepean Island is not volcanic in origin, but was formed from wind blown sand dunes during the last two ice ages, the most recent of which ended around 12,000 years ago². During the last glacial period the sea level was approximately 105m lower than present and the entire top of the seamount and shelf on which Norfolk and Phillip Islands sit was dry land extending about 90km from north to south and 50km from east to west³. Sand dunes consisting of small fragments of marine shells and coral formed around the south coast of Norfolk Island and between Norfolk and Phillip Islands. The sand grains that formed those dunes have been cemented together by dissolved lime derived from the calcareous sand, to form an aeolianitic calcarenite⁴. Most of the reef and coastal rocks at Kingston, Point Hunter, and the Lime Kiln are also aeolianitic calcarenite.

Nepean Island is exposed to heavy seas, with some protection from the south provided by Phillip Island and from the north by Norfolk Island. There is a strong tidal rip through the channel between Norfolk and Nepean Islands with predominantly east-west tide flows.

8.3.2 Vegetation

The original vegetation of Nepean Island was an open forest dominated by Norfolk Island Pines and an understorey of coarse grasses, presumably including sedges such as Moo-oo⁵. This original native forest was cleared for timber and quarried for building stone during the First Settlement. King reported that

² Green, T. H., 1973, Petrology and Geochemistry of Basalts from Norfolk Island. *J. Geol. Soc. Aust.*, 20(3): 259-272.

³ Jones, J. G. and I. McDougall, 1973, Geological History of Norfolk and Phillip Islands, Southwest Pacific Ocean. *J. Geol. Soc. Aust.*, 20(3):239-257

⁴ A sample of Nepean Island aeolianite has been radiocarbon dated at 21,650 ± 700 years before present: Veevers J.J. 1976, The Modern Coastal Sedimentary Rock Complex of Norfolk and Nepean Islands. In Abell, R.S. 1976, A Groundwater Investigation on Norfolk Island. B.M.R., Geol. and Geophysics Record 1976/62.

⁵ Green, P.S. (1994), "Norfolk Island and Lord Howe," Flora of Australia, Volume 49, Oceanic Islands 1, Ed. A.J.G Wilson, Australian Government Publishing Service, Canberra

there were about 200 mature Norfolk Island Pines on Nepean Island in the early 1790's but an 1840 drawing shows that only one live and one dead tree remained⁶.

8.3.2.1 Native Plant Communities

Nepean Island's native flora now largely consists of coastal herbs and forbs that are tolerant to the exposed windy coastal conditions and salt spray, such as Pigface and Native Spinach, Moo-oo, Native Rush, Native Flax, some Coastal Fern and the possibly native Couch Grass. There are also several small windpruned White Oaks growing to a height of less than 2 metres.

8.3.2.2 Significant Species

A small number of the rare endemic *Senecio hooglandii* occur on the Island. *Samolus repens* var. *stricta* occurs near the quarry steps on Nepean, which appear to be different to other plants attributed to this subspecies in the Norfolk group⁷. Other native species that have restricted distributions in the Norfolk Island group that occur on Nepean include the coastal grass *Sporobolus virginicus* and *Euphorbia obliqua* (which occurs near the access to the plateau on the northern side of Nepean and probably coastally at the quarry).

8.3.2.3 Weeds

The exposed nature of Nepean Island and its separation from Norfolk Island by 800m of sea make it difficult for invasive woody weeds to establish. However, there is a small number of stunted African Olive in some areas of the Island. In some places, the ground cover consists entirely of Kikuyu and Buffalo Grass, which are the most significant weeds on the island. Herbaceous weeds include Mexican Poppy, Sweet Alyssum and Sow Thistle. Poison Weed has also occurred on Nepean.

8.3.2.4 Rehabilitation Programs

In 1994, the Flora and Fauna Society attempted to undertake a project to control Kikuyu and Buffalo Grass on Nepean Island. A number of 44-gallon drums were taken to the Island by boat and hauled up the cliff to the plateau. Fresh water was pumped ashore into the drums to enable herbicide to be mixed on the Island. This effort failed due to a long period of bad weather that prevented access to the island.

8.3.3 Fauna

8.3.3.1 Terrestrial Invertebrates

Larger invertebrate species known to occur on Nepean Island include the centipede, the Little Nipper Landcrab and the Freshwater Crab. There has not been a comprehensive survey of invertebrates on Nepean Island.

8.3.3.2 Reptiles

Green turtles are frequently observed off the southern point of Nepean Island and may still breed at the beach on the western side of the island.

Two native species of lizard, the Marbled Gecko and Phillip Island Skink, occur only in the Norfolk and Lord Howe Island complexes and have the second most restricted total ranges of any Australian reptile⁸. The gecko occurs on Nepean Island, Phillip Island, and other offshore islets such as Bird Rock, where they survive in the absence of the introduced Black Rat and other predators. Although there is fossil evidence from sand dune deposits at Kingston that the gecko formerly occurred on Norfolk Island, there are no confirmed post-1788 records of either lizard on Norfolk Island. Geckos are typically carnivorous

⁶ Green, *ibid* (p6). The "lower part" of two pines remained in the late 1930's (Owen Evans OAM, personal communication July 1999.)

⁷ There appears to be some variation between *Samolus repens* on Nepean and on Norfolk Island. Possible new subspecies? Owen Evans OAM, personal communication.

⁸ Cogger, H., Sadler, R. & Cameron, E. (1983), *The Terrestrial Reptiles of Australia's Island Territories*, Australian National Parks and Wildlife Service, Commonwealth of Australia.

and feed on a wide range of insects; however, this species of gecko is unusual in that it feeds on the nectar of some flowering native species⁹.

8.3.3.3 *Seabirds*

During the summer months, breeding Masked Boobys are the most visible fauna on Nepean Island. The number of breeding pairs is usually between 200 and 300¹⁰. Little Shearwaters breed on the Island between July and December. Other seabirds such as the Whale Bird, Grey Ternlet, Black Noddy, Wedge-tailed Shearwater, Brown Noddy, and Red-tailed Tropicbird also breed on the Island.

8.3.3.4 *Terrestrial birds*

There are about thirty-three species of terrestrial birds resident on Norfolk Island. Of these, about 20 regularly occur, or are likely to occur on Nepean Island. Eleven species of terrestrial birds were recorded at Nepean Island during a bird census undertaken by members of the Royal Australasian Ornithologists Union¹¹ and local naturalists in December 1978¹². Of these, only two were endemic species or sub-species, two were self-introduced and now naturalised and six were introduced. Starlings and Sparrows are relatively common visitors and the introduced Feral Pigeon roosts in shallow cliff caves and overhangs.

Almost all of the endemic species of terrestrial birds inhabit forest and forest edges. This habitat is completely absent from Nepean Island today and few species are likely to occur on Nepean, even as occasional visitors.

8.3.3.5 *Mammals*

The only mammal known to occur on Nepean Island is the introduced House Mouse. This species does not appear to present problems for breeding birds¹³.

8.3.4 Cultural Heritage

Archaeological excavations at Kingston have shown that Norfolk Island was occupied, perhaps continuously, by Polynesian people for hundreds of years from around the 12th century. No evidence of Polynesian occupation of Nepean Island has been found¹⁴.

The treeless landscape and a quarry on the eastern side of the Island, with steps cut into the stone and post holes that indicate the construction of timber slide and/or derricks for moving timber and stone, are legacies of the First and Second Settlements. The convict quarry site is as it was when abandoned during the Second Settlement. The steps and post holes cut into the stone have weathered significantly but are still clearly visible.

Nepean Island is uninhabited. The only evidence of even temporary human habitation on the Island is a comment describing Nepean Island as:

"a place of punishment for convicts whose most abandoned profligacy might otherwise corrupt their less vicious brethren, are here employed in boiling salt, being only occasionally visited by boats"¹⁵.

⁹ Cogger, H., Sadler, R. & Cameron, E. (1983), *The Terrestrial Reptiles of Australia's Island Territories*, Australian National Parks and Wildlife Service, Commonwealth of Australia.

¹⁰ Personal communication Owen Evans and Honey McCoy, 1999.

¹¹ Now named "Birds Australia".

¹² Schodde, R., P. Fullagar and N. Hermes, 1983. *A Review of Norfolk Island Birds: Past and Present*. Australian National Parks and Wildlife Service: Special Publication No. 8.

¹³ Personal communication Honey McCoy, 1999.

¹⁴ Brief investigation by Professor Anderson, Dr Peter White and Peter Davidson: 1998

¹⁵ John Turnbull, 1805, *A Voyage around the world in the years 1800 -1804*, London. In Hazzard, M., (1984) *Punishment Short of Death: A history of the penal settlement at Norfolk Island*. Hyland House, Melbourne. p. 55.

It is generally thought that Lieutenant-Governor King named Nepean Island after Evan Nepean, the undersecretary for the Home Office. However, an alternative has been suggested: in November 1793 trading ship *Britannia* called at Norfolk Island for water and supplies. King commandeered the *Britannia* to return two Maoris to New Zealand and left the colony in the temporary command of its Captain, Nepean¹⁶, after whom the Island may have been named¹⁷.

During October and November, the cultural practice of collecting Whale Bird eggs occurs on Nepean Island to a small extent.

¹⁶ Hazzard, M., (1984) *Punishment Short of Death: A history of the penal settlement at Norfolk Island*. Hyland House, Melbourne.

¹⁷ It seems unlikely that Nepean Island would have remained unnamed until 1793.

8.4 Issues

8.4.1 Public Use and Access

Nepean Island can be difficult to land unless the sea is reasonably calm, with little swell. The Island is therefore visited infrequently and public use is limited to scientific research, Whale Bird egg collecting and more rarely, fishing.

Collecting Whale Bird eggs for food is a traditional Norfolk Islander practice and is permitted for about six weeks at the beginning of the breeding season. Most Whale Bird eggs are collected from Phillip Island, however a small number are collected from Nepean Island.

The climb to the top of the cliffs is up a moderately steep sand/scree slope that can be difficult for less agile people. Private persons installed some ropes and star pickets about ten years ago. These are now in poor condition.

Disturbance of breeding seabird colonies can significantly affect breeding success. Visits to Nepean Island, particularly during the summer breeding season, should not be encouraged.

8.4.2 Breeding Seabird Habitat

Nepean Island is an important breeding location for a number of seabirds. It is the main breeding site in the Norfolk group for Masked Boobies, and an important site for Little Shearwaters.

The state of the groundcover vegetation can significantly affect suitability of nest sites. Some species prefer the shelter that ground cover vegetation affords, however other species such as Masked Booby prefer little, if any. Dense Kikuyu and Buffalo grass can disadvantage other species, such as Wedge-tailed Shearwaters, Little Shearwaters, and Whale Birds, by choking burrows and entangling birds.

8.4.3 Pests species

8.4.3.1 Weeds

Due to its isolation, exposed conditions, and harsh climate, there are few woody weeds on Nepean Island apart from a small number of African Olives.

Much of the Island is covered with Kikuyu and Buffalo Grass, dense swards of which can smother nesting burrows and entangle smaller seabirds. However, these hardy grasses reduce erosion and may reduce invasion by woody weeds.

8.4.4 Habitat Rehabilitation and Development

Re-establishing the original native forest would be extremely difficult, given the exposed, barren nature of the island. Significantly fewer Masked Booby would nest on the Island if it were covered with forest.

Preventing native herbaceous coastal vegetation being overrun by introduced weeds, especially Kikuyu and Buffalo Grass, would maintain habitat diversity and improve seabird breeding habitat. However, there are significant logistical difficulties in controlling Kikuyu and Buffalo Grass on Nepean Island.

8.4.5 Forestry

Forestry is not practical on Nepean Island. Nor would it be compatible with conserving the Island as a seabird breeding site.

8.5 Management Objectives

Vision: To conserve breeding seabird colonies and biodiversity and enhance and maintain coastal native herbfield flora to the extent that is compatible with maintaining seabird breeding colonies and the convict-era landscape.

8.5.1 Cultural Heritage Management

Aim: To maintain the scenic quality and character of the reserve and protect important cultural heritage values.

Objectives:

- Preserve the essential landscape elements of Nepean Island.
- Conserve the Second Settlement quarry site.

8.5.2 Natural Heritage Management

Aim: To protect native flora and fauna and breeding seabird habitat on Nepean Island.

Objective:

- Control invasive introduced weeds in the reserve.

8.5.3 Pest Species Management

Aim: To reduce the negative impacts of pest species in the reserve.

Objective:

- Control invasive introduced weeds in the reserve.

8.5.4 Recreation Management

Aim: To ensure that public use is compatible with habitat conservation and protection of native flora and fauna.

Objective:

- Manage impacts associated with public use of the reserve.

8.5.5 Interpretation and Education

Aim: To promote knowledge and understanding of Norfolk Island's cultural and natural history and issues related to conserving and managing Nepean Island.

Objective:

- Define and develop interpretation/education resource material specific to Nepean Island.

8.6 Management Strategies and Actions

8.6.1 Cultural Heritage Management

The steps and post holes cut into the stone by convicts working in the quarry have weathered significantly but are still clearly visible. The quarry site will be conserved by

- avoiding any use that may accelerate the rate of natural weathering; and
- removing woody weeds that could accelerate deterioration of the site.

The treeless landscape resulting from removal of the Island's pines will be maintained.

8.6.2 Natural Heritage Management

8.6.2.1 Habitat Rehabilitation

Re-establishing the original native forest on Nepean Island is not compatible with conserving the existing seabird colonies. Habitat rehabilitation will be limited to increasing the area of native herbfield by controlling competing weeds.

8.6.2.1.1 Rehabilitation Plantings

Rehabilitation plantings will only be undertaken if native herbfield species do not successfully colonise areas from which competing weeds have been removed. To minimise disturbance to breeding seabirds, as far as is practical rehabilitation planting will not be undertaken during the summer breeding season.

8.6.2.2 Research

Research into Nepean Island's flora and fauna will be encouraged.

8.6.3 Pest Species Management

8.6.3.1 Weed Control

Weed control on Nepean Island is logistically difficult. As far as possible, weed control should not be carried out during the summer breeding season, however windy conditions and rough seas often prevail during the non-breeding period making landing and spraying difficult. It is likely that the best strategy for reducing Kikuyu and Buffalo Grass on Nepean will be based on progressively increasing the areas that are currently free of these grasses, rather than attempting to treat large areas at one time.

The distribution of Kikuyu and Buffalo Grass on Nepean will be mapped and a control strategy developed and implemented.

The long-term weed control strategy on Nepean Island will be based on:

- removing young weeds by hand; and
- appropriate use of herbicides and minimum disturbance control techniques.

8.6.4 Recreation Management

8.6.4.1 Access

Public access to Nepean Island is not restricted, except by the difficulty of landing and the general nature of the Island's terrain. If necessary, the reserve could be closed to protect breeding seabirds, however present levels of public use do not appear to have had any adverse effect on seabirds.

Access to the Island is by boat only and landing conditions are frequently hazardous. The ropes and steel pickets providing access to the plateau were installed by private persons and are now in poor condition. They are not inspected or maintained by the Norfolk Island Parks and Forestry Service. The steel pickets and rope will be removed and will not be replaced. Signs will be erected warning the public that access to Nepean Island and the use of any facility upon it is entirely at the individuals own risk.

8.6.5 Education and Interpretation

Nepean Island has an interesting history and environment that can be used to increase knowledge and understanding of Norfolk Island. However, public visitation to Nepean Island can have significant adverse effects on breeding seabirds and native herbfield vegetation. Embarking and disembarking from a boat and climbing onto the plateau can also be challenging.

Visits by the public to Nepean Island for education or interpretation purposes will not be encouraged.

Information on Nepean Island will be incorporated into interpretive material distributed on Norfolk Island.

8.6.5.1 Signs

Signs will not be placed on Nepean Island unless it is necessary to do so to warn of specific hazards or to notify closure of all or part of the Reserve.

8.6.5.2 School Visits

Nepean Island is not suitable for school visits and they will therefore be a controlled activity in accordance with section 47 of the Public Reserves Act 1997.

8.6.5.3 Tours

Nepean Island is not suitable for organised tours and they will therefore be a controlled activity in accordance with section 47 of the Public Reserves Act 1997.

8.6.5.4 Community Group

A community interest group will be encouraged to assist in the development and implementation of management programs on Nepean Island.

8.7 Research and Monitoring

The Conservator of Public Reserves will develop a strategy for conducting research and for monitoring the effectiveness of management programs in the reserve. Photopoints will be established in significant areas. Where practical, alternative techniques will be trialed to assess management strategies and effects.

8.8 Controlled Activities

This Section shall be read in conjunction with Section 11 of the Plan of Management (Part A) and the *Public Reserves Act 1997*.

Section 11 of the Plan of Management (Part A):

- approves specific controlled activities, with respect to all public reserves;
- provides general guidelines in respect of granting approvals and permits for controlled activities, with respect to all public reserves;
- specifies activities¹⁸ in accordance with section 47(2) of the *Public Reserves Act 1997* that shall not be undertaken in any public reserve without a permit; and
- provides general guidelines in respect of granting permits for activities specified in accordance with section 47(2) of the Act.

This section of the Plan of Management (Part B) specifies controlled activities in accordance with Section 47 of the *Public Reserves Act 1997* in relation to the use of Nepean Island.

8.8.1 Collection of Whalebird eggs

The collection of Whalebird eggs on Nepean Island is permitted only during an annual season declared under the *Birds Protection Act 1913* by the responsible Executive Member of the Norfolk Island Legislative Assembly. Whale Bird eggs may only be taken for human consumption.

The Conservator of Public Reserves may, by notice in the Gazette, impose additional conditions to those contained in the annual season notice, or may further restrict or prohibit the collection of Whale Bird eggs.

8.8.2 Organised Tours and School Visits

No person shall lead or guide an organised tour or a school visit in the reserve without a permit from the Conservator of Public Reserves.

8.8.3 Commercial Activities

Commercial activities shall not be permitted in the reserve unless the Conservator of Public Reserves is satisfied that such activities are in the interests of the conservation and management of the reserve, or essential to the interpretive and education aims of this plan.

“Commercial” has the same meaning as “commercial activity” in section 46 of the *Public Reserves Act 1997*.

¹⁸ The activities specified are additional to the Controlled Activities prescribed in Part V of the *Public Reserves Act 1997*.