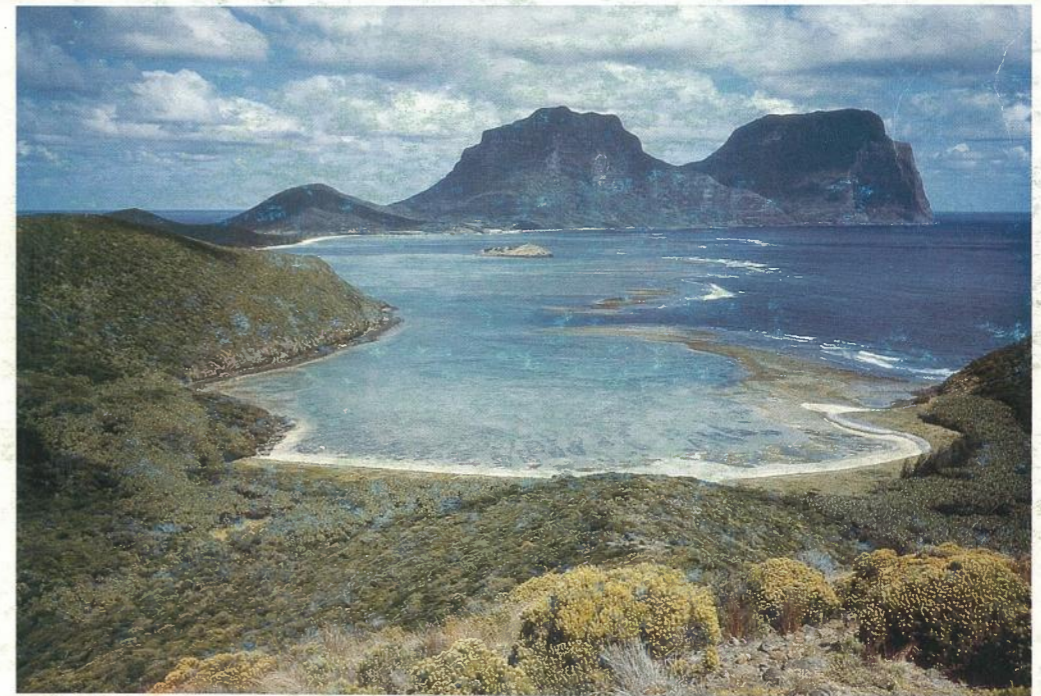


Nomination of

**THE LORD HOWE ISLAND GROUP
by the Commonwealth of Australia**

For inclusion in the

WORLD HERITAGE LIST



Prepared by:
**New South Wales Government
Australian National Parks and Wildlife Service
Australian Heritage Commission
December 1981**

Convention concerning the protection of the world cultural and natural heritage

World Heritage List

Nomination Form

Under the terms of the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by the General Conference of Unesco in 1972, the Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, called "the World Heritage Committee" shall establish, under the title of "World Heritage List", a list of properties forming part of the cultural and natural heritage which it considers as having outstanding universal value in terms of such criteria it shall have established.

The purpose of this form is to enable States Parties to submit to the World Heritage Committee nominations of properties situated in their territory and suitable for inclusion in the World Heritage List.

Notes to assist in completing each page of the form are provided opposite the page to be completed. Please type entries in the spaces available. Additional information may be provided on pages attached to the form.

It should be noted that the World Heritage Committee will retain all supporting documentation (maps, plans, photographic material, etc.) submitted with the nomination form.

The form completed in English or French should be sent in three copies to:

The Secretariat
World Heritage Committee
Division of Cultural Heritage
Unesco
7, Place de Fontenoy
75700 Paris

Australian Heritage Commission



To protect the National Estate.

1. Specific Location

a. **Country**

Give full name of State Party on whose territory property is located.

Australia

b. **State, Province or Region**

Give full name of State, Province or Region where property is located. If property overlaps State, Provincial or Regional Boundaries, provide names of all overlapped States, Provinces and/or Regions.

New South Wales

c. **Name of Property**

Lord Howe Island Group, comprising Lord Howe Island and adjacent islets including the Admiralty Islands, Mutton Bird Islands and Balls' Pyramid, and associated coral reefs and marine environ.

d. **Exact location on map and indication of geographical co-ordinates**

Maps and plans showing exact location and boundaries of property are essential (see 3b below). Please provide latitude and longitude co-ordinates and/or a grid reference. For grid references, the type of grid should also be given. For properties in urban areas, the name of the town or city, and the street and number, should be added. If an area surrounding nominated property is considered essential for the protection of the property, e.g., a buffer zone, indications should also be provided on the boundaries of this area.

Located in the South Pacific Ocean, 700 kilometres north-east of Sydney.

The nominated area is shown on the submitted map (Royal Australian Navy Survey Chart Aus. 213, dated 7th May, 1965) and includes an area of ocean as a buffer zone around the nominated islands.

The area is bounded by the following latitude and longitude co-ordinates.

Latitude: 31° 25' S — 31° 50' S

Longitude: 159° 00' E — 159° 20' E

For location of nominated item see Map, page 13.

2. Juridical data

a. **Owner**

Specify the name and address of the current owner(s) of property.

The Government of the State of New South Wales

b. **Legal Status**

Indicate the category of ownership (public or private) and in the case of privately owned property, whether public acquisition is in process or being considered. Provide details of protective, legal and administrative measures envisaged or already taken for the conservation of the property (e.g., creation of national park). Give details on the state of occupancy of the property and its accessibility to the general public.

Balls Pyramid and adjacent islets to the south of Lord Howe Island are part of the same volcanic complex as Lord Howe

2. Juridical data (cont.)

Island and are included in this nomination. Lord Howe Island and adjacent islands are administered by the Lord Howe Island Board, responsible to the New South Wales Minister for Lands, under the Lord Howe Island Act, 1953 as amended. The Lord Howe Island Permanent Park Preserve was established under the Lord Howe Island (Amendment) Act 1981. The boundaries of the Preserve are described in Appendix 2 to this nomination and set out on the attached map. The Preserve which includes land areas only is permanently dedicated for the purposes of preserving flora and fauna.

Under the 1981 Amendment Act Part V of the National Parks and Wildlife Act 1974 will apply to the lands forming the Preserve. Under these provisions the National Parks and Wildlife Service will be responsible for preparation of a Plan of Management for the Preserve. The 1981 Amendment Act also provides that no part of the Preserve may be revoked other than by an Act of Parliament which affords it the same protection as a National Park under legislation of the State. Such legal status is considered to be in accordance with the description of a National Park recommended in 1978 by the IUCN Commission on National Parks and Protected Areas.

The provisions of the Environmental Planning and Assessment Act 1979 also now apply to the entire Island Group under the provisions of the Lord Howe Island (Amendment Act) 1981. Under these provisions the settled areas of the main Island have been constituted as a region under the Environmental Planning and Assessment Act 1979 and a planning scheme, deemed to be an environmental planning instrument under the Act, has been adopted by the Board.

Private interests in the Island are held as leasehold of varying tenure and are shown on the map, page 13.

c. *Responsible administration*

Give name(s) and address(es) of body (bodies) responsible for administration of property.

Lord Howe Island and its associated islands are under the care, control and management of the Lord Howe Island Board, Lands Department Building, 23 Bridge Street, Sydney, 2000.

Under the Lord Howe Island (Amendment) Act 1981 the Board consists of three Island members, a member nominated by the Minister for Lands, and an officer of the National Parks and Wildlife Service nominated by the Minister for Planning and Environment. This last mentioned member provides the Board with expertise in environmental matters and is able to call upon the resources of the National Parks and Wildlife Service for advice.

The address of the New South Wales National Parks and Wildlife Service is P.O. Box N189, Grosvenor Street P.O., Sydney, NSW 2000.

3. Identification

a. *Description and inventory*

A detailed description of the property is to be provided. The property should fall into one of the following categories, defined in Articles 1 and 2 of the Convention:

Cultural Heritage

"monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;

"groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;

"sites: works of man or the combined works of nature and of man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view."

Natural Heritage

"natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;

"geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;

"natural sites or precisely delineated areas of outstanding universal value from the point of view of science, conservation or natural beauty."

Give the size of the area of the property and, where applicable, of the buffer zone. The description should include precise details on the particular characteristics of the property. Details of the present and/or proposed use of the property should be included in this description.

Lord Howe Island is considered to satisfy at least three of the four criteria adopted by the UNESCO Committee for the Protection of the World Cultural and Natural Heritage for inclusion of natural properties in the World Heritage List.

The Lord Howe Island group is considered to be an outstanding example of an island system developed from submarine volcanic activity. The Island displays a high proportion of endemism of species for such a small area. While the effects of man have unfortunately led to the loss and endangerment of some species responsible management has begun to reduce these threats. The future integrity of the ecosystems of the area promises to continue to be in a better state of preservation than most other similar island groups.

The islands have exceptional natural beauty. The diversity of the landscapes and biota and the high proportion of rare and endemic animals, plants and invertebrates make them an outstanding example of independent evolutionary processes from the point of view of science and conservation.

The area of the islands combined is approximately 1540 ha of which Lord Howe Island represents 1455 ha. The greater part of Lord Howe Island is taken up by Mts Lidgbird and Gower. Mt. Gower rises to a height of 875 m above sea level. Balls Pyramid which is located 23 km to the south is a narrow pinnacle about 650 m high supporting little vegetation. The area of the buffer zone around the nominated islands, is approximately 1463 square kilometres.

3. Identification (cont.)

Geology

Lord Howe Island, the Admiralty Islands and Ball's Pyramid are the eroded remnants of a volcano situated on the western ridge of the Lord Howe Rise, a major physiographic feature of the southwest Pacific area. The islands rise from a seafloor over 2000 m deep on most sides and the submarine parts of the islands are relatively level and many times the area of the present islands.

In late Miocene times (circa 8 million years B.P.) volcanic activity built up a large shield volcano about 50 kilometres from north to south and 16 kilometres east to west with an estimated height of about 4,400 metres above the sea floor or approximately 1,700 metres above sea level.

Subsequent erosion has removed over 90% of the volume of the volcano, so that the present islands occupy about one fortieth of its original area. The wide submerged shelves which surround Lord Howe Island and Balls Pyramid were probably cut by wave action during the eustatic change of sea level associated with the last Pleistocene glaciation. Balls Pyramid represents the nearly complete stage in the destruction of a volcanic island.

Sedimentary deposits on Lord Howe Island are of Pleistocene and Holocene (recent) age, and include cross-bedded calcarenite with intercalated soil horizons, lagoonal deposits, a single sand dune, and alluvium.

Lord Howe Island supports the southern most true coral reef in the world. The reef is of Pleistocene to recent age. Due to the lower temperature regime at the Island's latitude, the structure and biological content of the Lord Howe Island reef differ considerably from those of more northerly warm water coral reefs. The reef acts as a breakwater preventing storm waves eroding the low-lying central region of Lord Howe Island. Apart from the geological significance of Lord Howe Island as a surviving remnant of a once larger physiographic feature, the island has yielded important palaeontological data. The calcarenite and especially the intercalated soil horizons have yielded land snail shells (*Placostylus sp.*) and bird bones but by far the most important and intriguing animal preserved in the sedimentary rocks of Lord Howe Island is the giant horned turtle *Meiolania platyceps* Owen.

Meiolania had clawed feet rather than flippers, and thus was essentially land living. Fossil remains of related animals have been discovered at several sites in Eastern mainland Australia and from Walpole Island southeast of New Caledonia. Radiocarbon dating of sedimentary deposits on Lord Howe Island suggests that *Meiolania* probably became extinct prior

to 20,000 years ago. This coincides with the period of lowest world-wide sea levels believed to have been caused by glaciation in the Northern Hemisphere. The lowering of sea-level of at least 100 m at that time would have left a vast wave cut platform up to 30 km in diameter surrounding the islands.

The Lord Howe Island Group provides the only accessible outcrop of a wide range of volcanic rocks with oceanic affinities in the Tasman Sea west of the Lord Howe Rise, the Norfolk Island Group to the east being the only other example.

The Lord Howe Island Group has remarkable volcanic exposures; there are nearly 1000 m of unweathered exposed volcanics which show a great variety of upper mantle and oceanic type basalts. Such exposures are not known elsewhere.

The reef is also unique in that it is a transition between an algal and coral reef, caused by oscillations of hot and cold water around the island.

Marine Biota

The waters surrounding Lord Howe Island provide an unusual mixture of temperate and tropical organisms. Many of the marine organisms found there are tropical forms. Other marine fauna are those species normally found in cooler waters to the south.

The total number of fish species recorded at Lord Howe Island totals 447 species in 107 families of which 4% are unrecorded elsewhere other than in Norfolk Island-Middleton Reef waters.

The Lord Howe Island fish fauna consists of a number of zoogeographic components, the tropical one being the most common. Other important components are oceanic and southern temperate species. While the inshore waters of the Lord Howe Island Group contain few endemic fish species they are central to a region of significant endemism among fishes and other marine organisms.

A recent study of Lord Howe Island's corals revealed fifty-seven species of thirty-three genera, a considerable reduction compared with the Great Barrier Reef but more than the number found at the Solitary Islands off the northern New South Wales coast. Two undescribed species are not known from the Great Barrier Reef.

The communities differ substantially from their tropical equivalents due to growth form deviations of dominant species and depauperate species composition. Available surface circulation and temperature data suggest existing coral communities are the result of a balance between periodic denudation by cold, sub-antarctic currents and recolonisation by larvae from tropical currents. The coolness of the islands' waters are considered to be the reason the alga *Lithothamnion* is the main reef building organism.

3. Identification (cont.)

Terrestrial Biota

Lord Howe Island is spectacular in its topographic relief. The peaks of Mout Gower (875 metres above sea level) and Mount Lidgbird (777 m a.s.l.) rise dramatically in the south and dominate the view from any other position on the island.

At the opposite end of the island the prominent east-west ridge of the Northern Hills forms a broad arc enclosing the lagoon to the west. Sheer cliffs rise hundreds of metres on the sides of Mts Gower and Lidgbird and form the seaward side of the Northern Hills. Weathering and erosion have superimposed on these volcanic masses a complex system of valleys and ridges.

The central low-lying part of the island offers a marked contrast to this ruggedness with its sedimentary deposits.

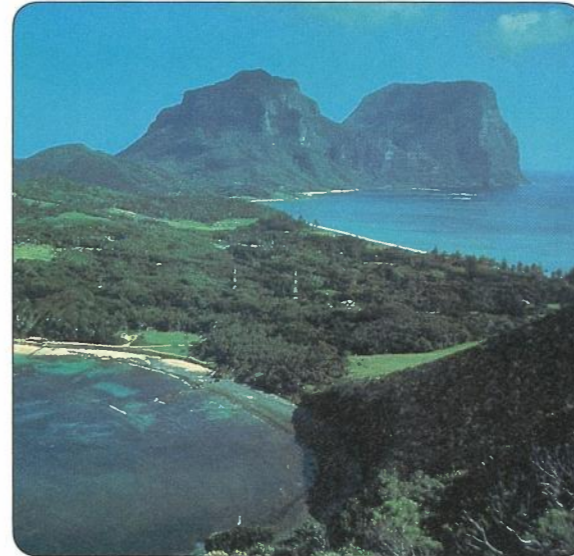
Climatically Lord Howe Island is humid sub-tropical but with a low annual fluctuation between 16 °C (minimum monthly mean temperature in August) and 23 °C (maximum in February). The lowest temperature recorded on the lowlands is 6.0 °C and 0 °C on the summit of Mt. Gower. The mean annual rainfall of more than 1600 mm is distributed fairly evenly throughout the year, with an average low of 100 mm in February and 200 mm in June. Lowest rainfall coincides with highest temperatures in February to create particularly adverse conditions for vegetation. Winter growth is markedly similar to that of the Australian coastline much further south in Victoria rather than the equivalent Australian latitudes.

Relative humidity is consistently high at 75-78 per cent and wind levels are generally high, averaging 13 knots in August down to 9-10 knots in January and March.

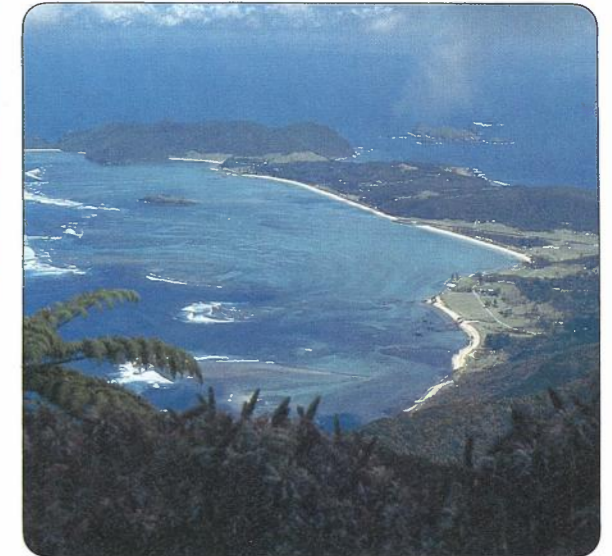
Vegetation

The complex pattern of valleys and ridges, the contrast between montane and lowland environments and maritime influences have combined to produce a wide array of vegetation types. In the 25°-35° zone of latitudes Lord Howe Island is almost unique among small oceanic islands in that its mountains have sufficient altitude to have led to the development of a true mist forest on their summits. The only other comparable warm temperature islands are Juan Fernandez off the coast of Chile and the Canary Islands off West Africa. However both are located in quite dissimilar biogeographic regions from the Lord Howe Island Group.

Seven structural formations are recognised in the vegetation of Lord Howe Island (Pickard, 1974) from closed forest (including rain forest) to short grassland. Pickard also recognises 19 Plant Alliances and Habitat Groups.



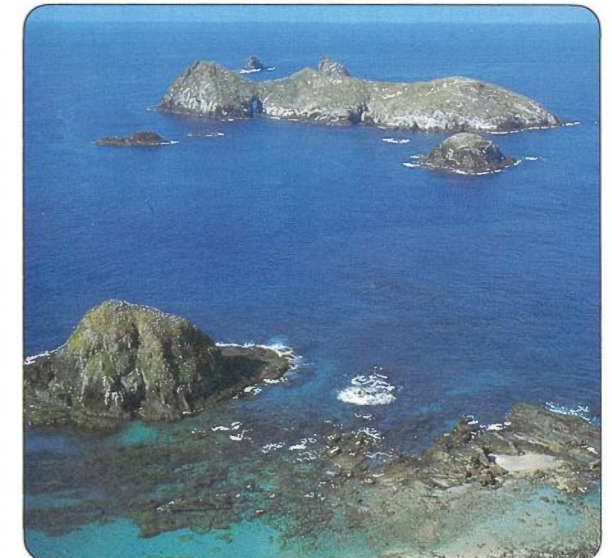
2. Looking south towards Mts Lidgbird and Gower.



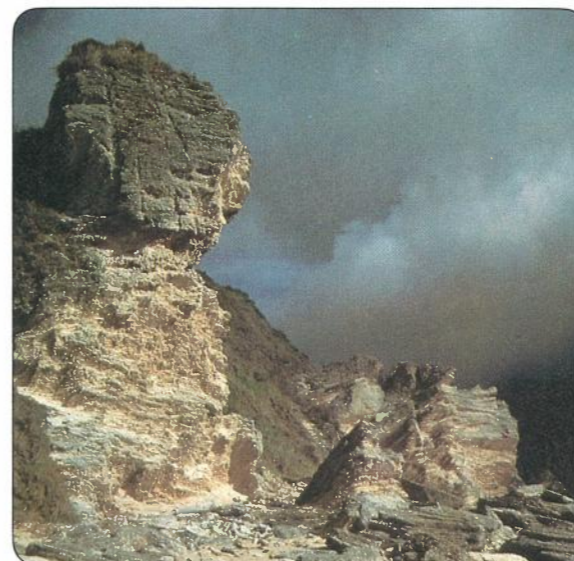
3. Looking north along the island.



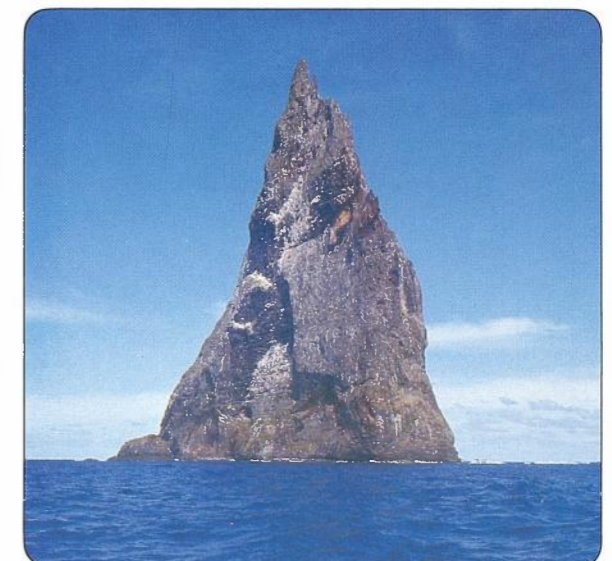
4. Masked booby *Sula dactylatra*.



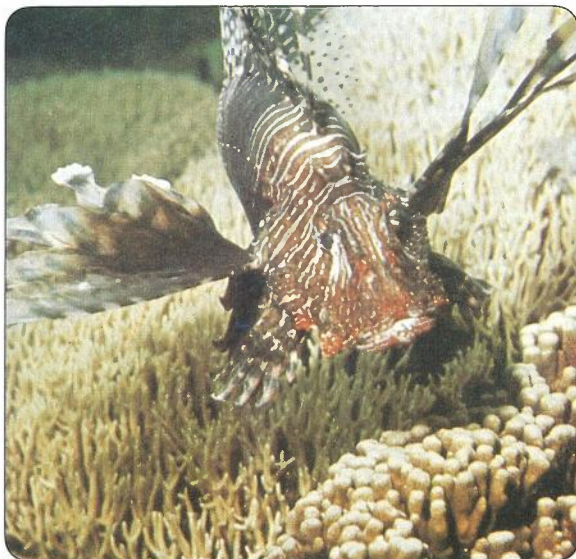
5. The Admiralty Islands.



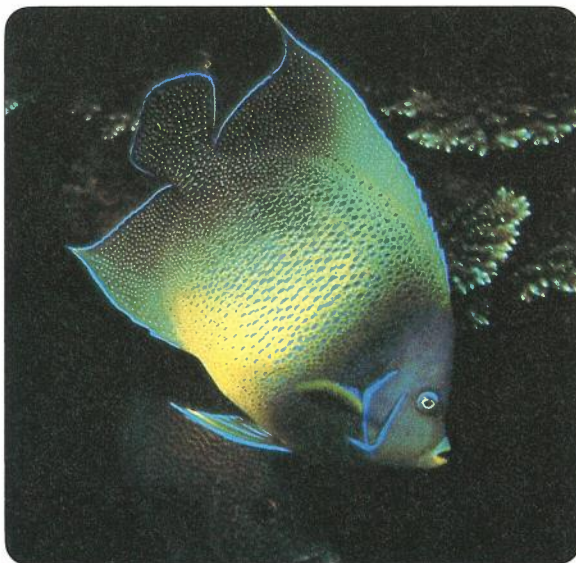
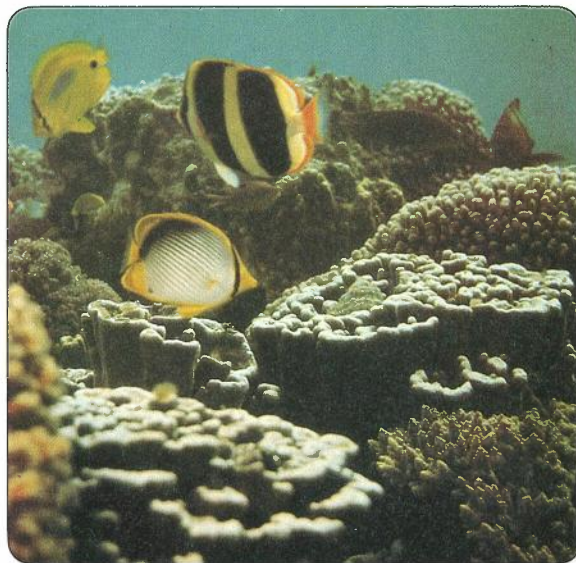
6. Outcrop of weathered calcarenite.



7. Ball's Pyramid.

8. The Lionfish *Pterois volitans*.

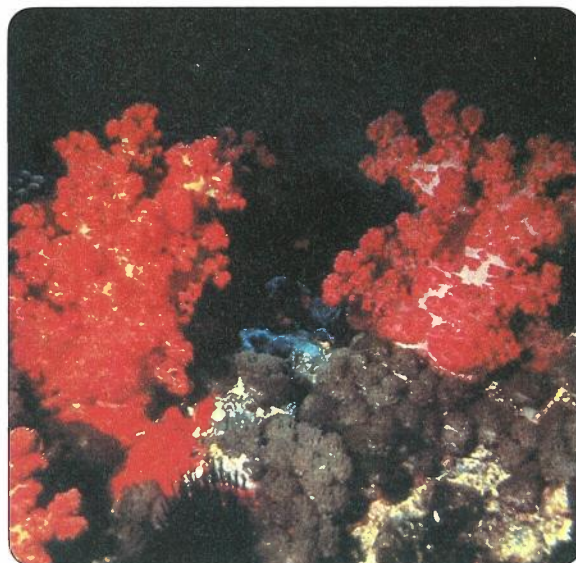
9. Lord Howe Island coral reef.

10. Angel fish *Pomacanthus semicirculatus*.

11. Crown of coral gallery.



12. Morwong on the reef.



13. Soft coral.

There are 48 species of indigenous *Pteridophytes* belonging to 32 genera and 21 families recorded from Lord Howe Island. 17 endemic species belong to 10 genera.

There are no *Gymnosperms* but indigenous *Angiosperms* number 180 species belonging to 149 genera and 78 families. Of these 56 species belonging to 47 genera are endemic. A further 4 species are represented by endemic sub species or varieties. Approximately 175 exotic plant species are naturalised on the island. They belong to 141 genera and 58 families. Of these, 38 species are grasses (family *Poaceae*) and 23 are composites (family *Asteraceae*). Another 43 species are mainly distributed among the families *Cyperaceae*, *Brassicaceae*, *Caryophyllaceae*, *Euphorbiaceae*, *Fabaceae*, *Malvaceae* and *Solanaceae* with a few species representing the remaining families.

Geological evidence indicates that Lord Howe Island was once part of a much larger land mass, probably linked with Malaysia in the north and New Zealand in the south by other island "stepping stones". Dispersal of a great variety of plant species would then have been facilitated.

Though the origins of the vegetation are unclear some of the endemics suggest recent speciation. The Island shares 75 genera with New Zealand, 102 with New Caledonia and 129 with Australia.

Other endemics are more isolated taxonomically or are geographically remote from related plants suggesting they are relict species. The origins of the species of *Dietes* that occurs on the Island are remarkable in that its three congeners are endemic to southern Africa and its seeds do not appear to provide for distant dispersal. The three endemic palm genera, *Howea*, *Hedyscepe* and *Lepidorrhachis* pose similarly confusing questions regarding their origins, and so do a number of endemic ferns, fern allies, bryophytes, cryptogams and lichens.

Nineteen species of the ferns recorded from the Island are endemic. Many plant species are rare or very restricted in distribution on the Island. The most extreme example is *Pandanus peduncalatus* (Family: *Pandanaceae*), a nonendemic with only one plant on the Island.

Chionochoa conspicua ssp. nov. (Family: *Poaceae*) is endemic and known only from a single clump high on Mount Lidgbird. However other endemic species, such as the *Howea* (formerly *Kentia*) palms, are abundant and some are commonly cultivated.

Fauna

Invertebrates

Many highly mobile invertebrates such as butterflies, which have been recorded from Lord Howe Island are found elsewhere. However the flies (Diptera) of the island, include

3. Identification (cont.)

five endemic species and a further nine which are restricted to Lord Howe and Norfolk Islands.

The small gastropod molluscs (Hydrobiidae) of Lord Howe Island includes nine species of five genera. Three species have subspeciated and the total number of species and subspecies is sixteen, which is more than on the eastern Australian mainland. Most forms live in small streams but one lives on waterfalls and another has a subterranean habitat.

The terrestrial molluscs have suffered from habitat changes and the introduction of predators since the arrival of people. Nevertheless two colonies of the large, spectacular ground-dwelling snail *Placostylus sp.* appear to be maintaining their numbers near settled areas. Distinct forms of the species seem to have become extinct on other parts of the Island.

Specimens of the Lord Howe Island Phasmid, *Dryococoelus australis*, a large flightless phasmatid thought to be now extinct on Lord Howe Island have recently been found on Balls Pyramid. Of more than a hundred species of spiders recorded for Lord Howe Island, over fifty per cent are apparently endemic. One endemic species of leech and ten endemic species of earth worm have also been recorded. Many of the Island's endemic invertebrate species have been collected and described from the unique moss forest on the summit of Mt. Gower.

The terrestrial and freshwater crustacea of Lord Howe Island are not well known. They include a freshwater crab, *Halicarcinus lacustris* in the gullies and a freshwater prawn *Paratya (Xiphatyoida) howensis*. Three new genera and twelve new species of terrestrial isopod have been recorded and recently a new species of talitrid amphipod was described from the top of Mt. Gower.

Vertebrates

Mammalia fauna

The Islands have at least one extant bat, the Large Forest Eptesicus *Eptesicus sagittula* which has been recorded from Lord Howe Island. A fossil bat skull found in a cave in 1972 has been described as a new species *Nyctophilus howensis*. It may have occurred in modern times.

Avifauna

The birdlife of the Lord Howe Island group is one of its most notable features. These small islands of only 15.4 square kilometres support nearly 120 bird species on either a permanent or visitor basis. There are significant populations of seabirds on the islands although no accurate estimates of the numbers breeding on Balls Pyramid are available because of its precipitous slopes. They are, however, extensive and diverse.

Twelve species of seabird nest on the island group and another eighteen species visit the area. Lord Howe Island is one of the few places where nesting colonies can be readily visited and studied.

The islands have been estimated to support over 100,000 pairs of Sooty Terns *Sterna fuscata* and constitute the only remaining breeding locality for the Providence Petrel *Pterodroma solandri* where there was an estimated 96,000 breeding pairs in 1975.

The Flesh-footed Shearwater *Puffinus carneipes* and the Wedge-tailed Shearwater *Puffinus pacificus* also breed on the islands in significant numbers. A provisional assessment in 1971 of the number of Flesh-footed Shearwater breeding on the islands, other than Balls Pyramid, was 17,500 pairs. In summer these birds range to the east coast of Australia. The Wedge-tailed Shearwater is a summer breeder on the islands with an estimated 30,000 pairs nesting in the island group, mainly on Roach Island. It is estimated that 4,000 pairs of Little Shearwater *Puffinus assimilis* also nest on Roach Island, the largest of the Admiralty Islands and the species probably also breeds on Balls Pyramid with Wedge-tailed Shearwaters. Other seabirds breeding on the islands are the Black-winged Petrel *Pterodroma nigripennis*, White-bellied Storm Petrel *Fregatta grallaria*, Masked Booby *Sula dactylatra*, Red-tailed Tropicbird *Phaethon rubricauda*, Noddy *Anous stolidus*, the Grey Ternlet *Procelsterna albivittata* and White Tern *Gygis alba*.

Lord Howe Island is one of the most southerly breeding stations of the Noddy *Anous stolidus* and the breeding population has been estimated at approximately 1,000 pairs. The Kermadec Petrel *Pterodroma neglecta* breeds on Balls Pyramid, the only breeding station for the species in the Australian region.

Among the terrestrial avifauna there are four endemic species or sub-species. These are the Lord Howe Island Woodhen *Tricholimnas sylvestris*, the Lord Howe Island Golden Whistler *Pachycephala pectoralis contempta*, the Lord Howe Island Silvereye *Zosterops tephroleura* and the Lord Howe Island Pied Currawong *Strepera graculina crissalis*.

Of these the Lord Howe Island Silvereye is the most common having a population estimated at several thousand. The other species exist in lesser numbers.

The flightless Lord Howe Island Woodhen *Tricholimnas sylvestris* is one of the world's rarest birds. Approximately 33 individuals are estimated to remain in the wild mainly on the plateaux of Mounts Gower and Lidgbird.

A captive breeding program was begun in 1980 with three wild caught pairs taken from the summit of Mt. Gower and produced 25 chicks in its first two years of operation. Only

3. Identification (cont.)

eight young were produced by five pairs in the wild in the first year. Four of the captive bred birds were released in May 1981 to repopulate a part of the island where they no longer occur. The success of the project will not be known for at least 5 years.

Nine species of landbirds have become extinct since the settlement of Lord Howe Island. The Lord Howe Island Pigeon *Columba vitiensis godmanae* and the White Gallinule *Notornis alba* were exterminated for food before the end of the 19th century. The Lord Howe Island Parakeet *Cyanoramphus novaezelandiae subflavescens* was exterminated as an agricultural pest by about 1870.

A further five species of bird became extinct between 1919 and 1938 following the accidental introduction of the black rat *Rattus rattus* to the main Island from the wrecked 'S.S. Makambo'. Numbers of this pest are now controlled by poisoned feeding stations located over many areas of the Island.

The islands support two species of terrestrial reptile, the skink *Leiopisma lichenigera* and the gecko *Phyllodactylus guentheri*. Although nearing extinction on the main island probably due to predation by *R. rattus* both are abundant on the other islands in the group. Both are found on the Norfolk Island group.

b. Maps and/or plans

Detailed maps showing the location and boundaries of the property (see section 1d above) should be attached to this form, referring to official survey maps where possible.

For properties which are located in urban areas, it may be necessary to use in addition to a small-scale map on which the geographical co-ordinators will be indicated, a large-scale map or a detailed plan so that the location of the property will be accurately indicated. List under item 3b the maps and/or plans attached.

See map, page 13.

c. Photographic and/or cinematographic documentation

Supporting documentation in the form of photographs, slides, etc., may be attached. List under section 3c all such documentary items, and indicate their source.

See photographs, Plates 1-25.

d. History

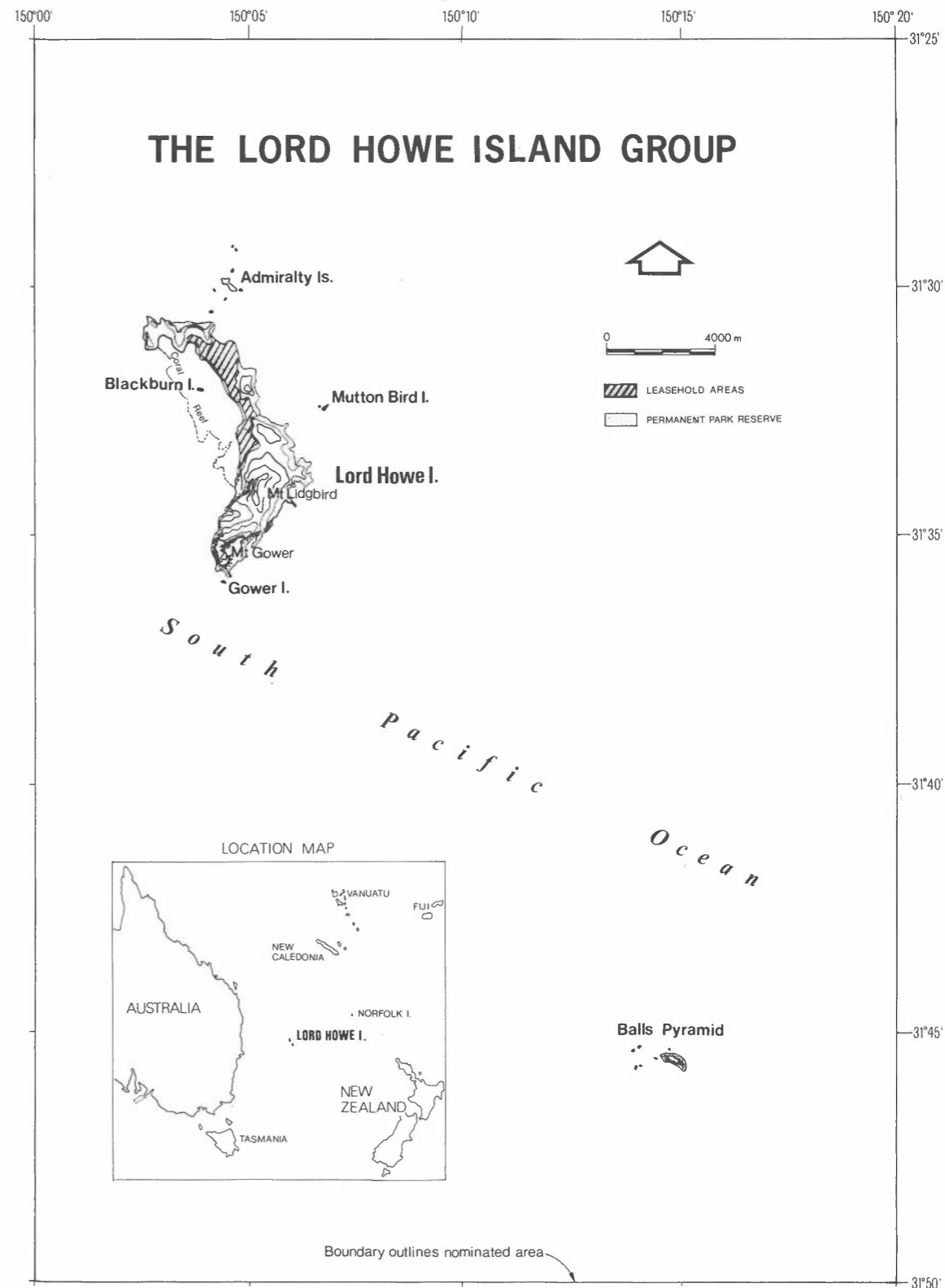
As far as cultural property is concerned, information may be supplied on the following:

- for monuments and groups of buildings: the period(s) represented, with the date(s) of construction and name(s) of principal architect(s) if known; original condition and subsequent changes; original and later functions;
- for an archaeological site: its origin; subsequent principal changes in terms of form, group occupying site, significance, etc.; year of discovery and name of archaeologist concerned if appropriate.

For property located in zones where natural disasters may occur (earthquakes, landslides, floods, etc.), provide all relevant data; for instance, in the case of property located in a seismic zone, give details on all previous seismic activity, on the precise location of the property in relation to the seismic zone, seismic calculations and analysis, etc.

As far as natural property is concerned information may be supplied on the following:

- natural history of the site:



3. Identification (cont.)

- present and past modifications by man of the natural property including information on human population and settlements within the natural heritage site;
- history of the natural property as a conservation unit.

Lord Howe Island was evidently unknown to human beings until the late eighteenth century when the ship 'Supply' en route from Sydney to establish a settlement on Norfolk Island sighted the islands and they were named and claimed as a British possession. By 1834 there was a small settlement on Lord Howe Island selling vegetables and fruit to calling ships.

In May 1869 the first party of a scientific nature sent to the Island by the New South Wales Government arrived on the 'Thetis' and found many new specimens.

A seed industry based on the endemic palm *Howea forsterana* commenced in the 1880s when the seeds were harvested for propagation as indoor plants.

The population of Lord Howe Island did not exceed one hundred until early in the twentieth century when tourism gradually replaced the palm seed industry as the island's main industry.

e. Bibliography

List but do not attach all published material that includes important references to property and which provided sources for the compilation of this nomination.

A selected list of references on the Lord Howe Island Group is given in Appendix 2.

4. State of Preservation/Conservation

a. Diagnosis

Describe the present condition of property. In cases where the condition of the property is in imminent or potential danger, provide details.

Present Condition:

Lord Howe Island has suffered fewer changes than many other islands colonised by Europeans in the past three centuries. It remains heavily vegetated and there are few introduced plants which have invaded the indigenous plant communities. Seabirds also remain abundant, although some colonies on the main island have been reduced in size or eliminated and a few species are now restricted to nesting on off-shore islands. The greatest effects of European colonisation have been on the endemic terrestrial birds, reptiles and land snails. Of the fifteen land bird species on Lord Howe Island at its discovery in 1788, nine are now extinct. This includes seven forms endemic to the island. The two endemic lizards remain abundant on the off-shore islands but on Lord Howe Island they are restricted to a few small areas of weathered aeolian calcarenite rock (sandstone) in dense *Howea* palm forests. The exact status of all the species of land snails endemic to Lord Howe Island has not been determined in detail, but it is certain that the larger species are no longer abundant and are confined to a few isolated colonies.

The destruction of bird life has resulted from the combined depredations of man and rats *Rattus rattus* and from habitat changes caused by feral goats and pigs. A large native pigeon, white gallinule and parrot were exterminated by man. Several species of smaller terrestrial birds and, perhaps, some of the seabirds were victims of introduced rats and cats and altered habitats. The Woodhen has declined principally by predation by and habitat changes due to feral pigs, and in the distant past by human predation for food.

The habitat changes have been greatest on the lower lying parts of the island which have been cleared for farming, grazing and settlement. In such areas, the destruction of native vegetation has largely been complete and regrowth is a mixture of weedy species, including introduced forms such as guava. Fortunately, it appears that adequate samples of the lowland vegetation remain in the less accessible parts of the island and in parts set aside as reserves for native flora.

Programs to eradicate introduced animals have been commenced in the last couple of years and have succeeded to the point where feral goats, pigs and cats have been almost eliminated.

In sum, Lord Howe Island retains a very satisfactory complement of its original terrestrial flora and fauna and can be managed to ensure the continuation of its natural condition.

Following the growth in popularity of spearfishing in the late 1950s the residents of Lord Howe became concerned about the effect of this sport on fish life, particularly in the Lagoon. As a result legal measures were taken in 1961 to ban spearfishing, netting and dynamiting from the lagoon and two fish species, the Lionfish *Pterois volitans* and a large then undescribed species of Wrasse, were protected from spearing all around the main island.

Since 1967 the islanders have actively discouraged certain types of fishing and collection over much of the barrier reef and the lagoon. As well an unofficial marine preserve also exists at a sheltered bathing beach where fishing is actively discouraged and large numbers of fish have become accustomed to people by being hand fed.

As a result of these measures and the absence of any significant commercial fishing activities the marine resources of the islands are in a healthy and viable condition.

The main industry on Lord Howe Island is tourism. Visitors are flown in by light aircraft and accommodated in low-profile guest houses. They commute about the island's limited road system principally by bicycle. The island's natural values and beauty are their economic basis and should continue to be so.

4. State of Preservation/Conservation (cont.)

b) *Agent responsible for preservation/conservation*

Given name and address of body or bodies responsible for state of preservation/conservation of property (as distinct from administrative responsibility — see item 2c above).

Lord Howe Island is currently administered by a Board, established under the Lord Howe Island Act, 1953, as amended and responsible to the New South Wales Minister for Lands.

c) *History of preservation/conservation*

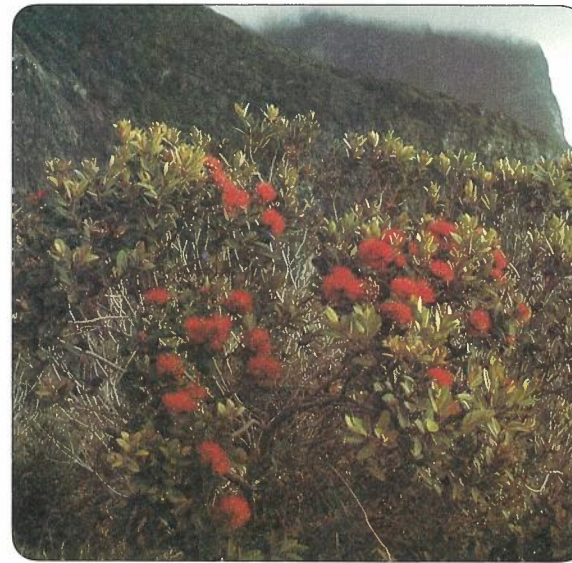
Provide details of preservation/conservation work undertaken on property and of preservation/conservation work that is still required.

A decision was made by the Government of New South Wales early in the history of human habitation that no freehold title be given to land. As a result permanent private occupation has always been by leasehold subject to a number of terms and conditions. Certain areas including Mts Gower and Lidgbird in the south and the Malabar range in the north and all foreshores are set aside as sanctuaries. Resources such as minerals, palm seeds and trees are reserved by the Government. The Lord Howe Island Act enacted in 1953 established a Board to oversee the management of the Island's resources.

A number of measures to protect the coral reef communities have been applied since the early sixties. While not embodied in legislation the Island's community agreed to the following measures. The Lagoon reefcrest between the North and South Passages is closed to walking and thus shell collecting at low tide. Spearfishing and netting the waters of the lagoon is prohibited and the southern half of Ned's Beach is closed to all forms of fishing. The spearing of two fish species is prohibited in all Island waters and line fishing in the more popular viewing holes in the coral reef is discouraged. The community concern for these elements of their environment is in part due to their economic reliance upon the marine attractions for the tourist industry. Social pressure plus a virtual monopoly on the availability of pleasurecraft have combined to make such measures very effective.

Recent studies have highlighted the imminent danger of extinction facing the Lord Howe Woodhen and a program is initiated to ensure its survival. The strong indication that feral pigs were primarily responsible for the birds' precarious status led the Lord Howe Island Board to fund a pig eradication program. Local hunters have since taken 182 pigs from the mountainous forests. Islanders now claim only one boar remains and a resurgence of vegetation is evident.

In 1978 the National Parks and Wildlife Foundation, a voluntary fund raising organisation, provided \$200,000 to the New South Wales National Parks and Wildlife Service for a conservation program for the species. Techniques were used



14. The Lord Howe Island Rose.



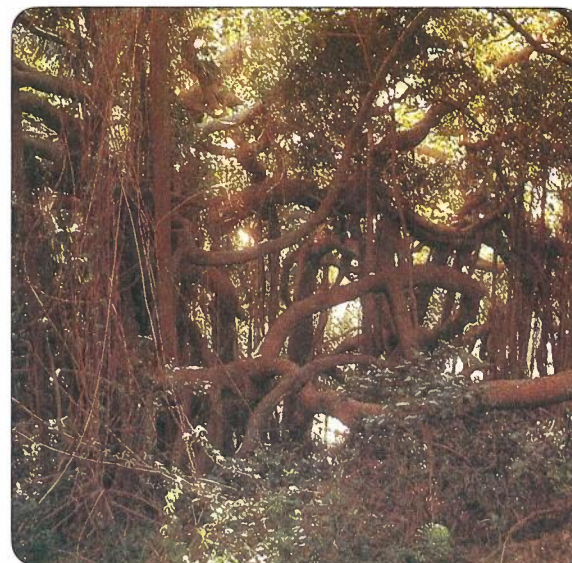
15. Mist Forest, Mount Gower.



16. The Lord Howe Island Woodhen *Tricholimnas sylvestris*.



17. Howea palm *Howea forsteriana*.



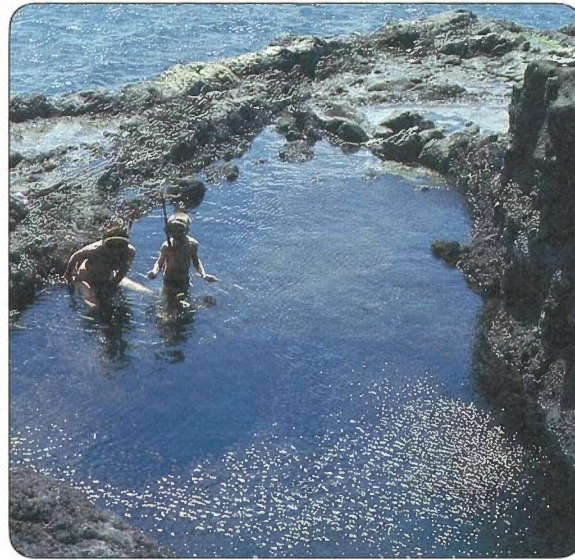
18. Banyon Tree.



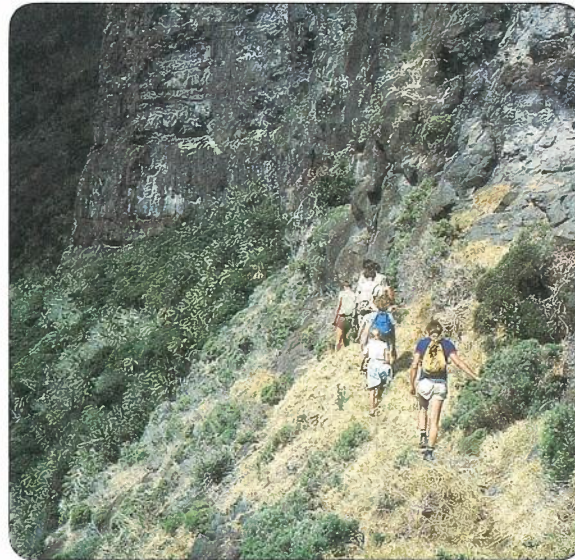
19. Farm on Lord Howe Island.



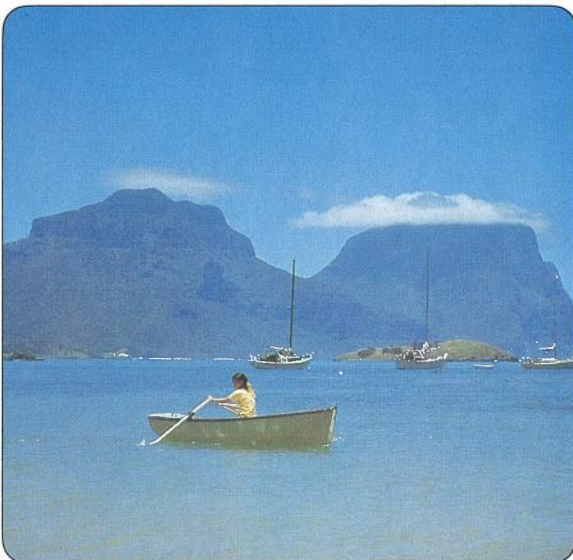
20. Old Gulch.



21. Snorkelling in the herring pools.

22. Red-tailed Tropicbird *Phaethon rubricauda*.

23. The track to Mt Gower.



24. Boating on the lagoon.



25. Tunnel at Roche Island.

which derive from the New Zealand Wildlife Service experience with the Weka *Gallirallus australis*, a closely related species. In May 1980 three fertile adult pairs were transferred to a captive breeding centre established on the lowlands. Exceptional results have been obtained in the first two seasons with 25 woodhen being reared. In December 1980 an old pair of wild-caught woodhen were released at a new site in the lower part of the island. As neither of these birds were seen again it was decided that releases of captive bred birds would be preceded by a period of enclosure at the selected release site. Accordingly two pairs were released in May 1981 on Little Slope below Mt Gower, a site where they were numerous as recently as 1910 prior to the release there of goats. Feral goats were exterminated from Little Slope in 1955 and the habitat at this site is considered to have now regenerated sufficiently to support woodhen. These birds were enclosed in two separate enclosures on the slope and monitored for two weeks prior to release.

Board rangers visit Little Slope each month to check for signs of woodhen but it is unlikely that they will be located till spring when territories may be established and defended.

Feral goats have been reduced in recent years to about fifty animals living in the most isolated areas. Domestic goats are now required to be licensed and tethered.

d) **Means for preservation/conservation**

For many years proposals have been advanced for establishing a national park on Lord Howe Island. In 1981 the Lord Howe Island Act was amended to provide for the establishment of the Lord Howe Island Permanent Park Preserve. This Preserve which was established to permanently preserve native flora and fauna covers the bulk of the main island and all of the smaller islands in the Group. The legislation provides regulatory powers to enable the protection of fauna, flora, coral rock and soil, etc. It also provides powers to control noxious plants, public use of the land and scientific research activities.

e) **Management Plans**

Give details of any relevant existing local, regional or national plans (urban development, land reform etc.) and their implications for the property.

Legislative Provisions

Under the recently enacted provisions of the Lord Howe Island (Amendment) Act 1981 Part V of the New South Wales National Parks and Wildlife Act 1974 is applied to the lands dedicated as the Lord Howe Island Permanent Park Preserve. These provisions require the preparation of a plan of management for the Preserve in accordance with procedures set out in the Act.

4. State of Preservation/Conservation (cont.)

The 1981 Amendment Act also applies the provisions of the Environmental Planning and Assessment Act 1979 to the Island. A planning scheme for the settled area of the Islands has been adopted by the Lord Howe Island Board and will be deemed under these new provisions to be an environmental planning instrument under the Environmental Planning and Assessment Act.

Once adopted by the State Minister for Environment and Planning all developments within the area designated in the plan must comply with its provisions.

5. Justification for inclusion in the World Heritage List

A statement to be made on the significance (i.e., its "outstanding universal value" in the terms of the Convention) of the property that justifies it for inclusion in the World Heritage List. Property will be evaluated against the following criteria adopted by the World Heritage Committee:

- a. For cultural property, outstanding universal value will be recognised when a monument, group of buildings or site — as defined in Article 1 of the Convention — submitted for inclusion in the World Heritage List is found to meet one or more of the following criteria. Therefore, each property should:
- (i) represent a unique artistic or aesthetic achievement, a masterpiece of the creative genius; or
 - (ii) have exerted considerable influence, over a span of time or within a cultural area of the world, on subsequent developments in architecture, monumental sculpture, garden and landscape design, related arts, or human settlement; or
 - (iii) be unique, extremely rare, or of great antiquity; or
 - (iv) be among the most characteristic examples of a type of structure, the type representing an important cultural, social, artistic, scientific, technological or industrial development; or
 - (v) be a characteristic example of a significant, traditional style of architecture, method of construction, or human settlement, that is fragile by nature or has become vulnerable under the impact of irreversible socio-cultural or economic change; or
 - (vi) be most importantly associated with ideas or beliefs, with events or with persons of outstanding historical importance or significance.

In every case, consideration must be given to the state of preservation of the property (which should be evaluated relatively, in comparison to the state of preservation of other property dating from the same period and of the same type and category).

In addition, the property should meet the test of authenticity in design, materials, workmanship and setting; authenticity does not limit consideration to original form and structure but includes all subsequent modifications and additions, over the course of time, which in themselves possess artistic or historical values.

- (b) For natural property, outstanding universal value will be recognised when a natural heritage property — as defined in Article 2 of the Convention — submitted for inclusion in the World Heritage List, is found to meet one or more of the following criteria. Therefore properties nominated should:
- (i) be outstanding examples representing the major stages of the earth's evolutionary history. This category would include sites which represent the major "eras" of geological history such as "the age of reptiles" where the development of the planet's natural diversity can well be demonstrated and such as the "ice age" where early man and his environment underwent major changes; or
 - (ii) be outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment. As distinct from the periods of the earth's development, this focuses upon ongoing processes in the development of communities of plants and animals, landforms and marine and fresh water bodies. This category would include for example (a) as geological processes, glaciation and volcanism, (b) as biological evolution, examples of biomes such as tropical rainforests, deserts and tundra, (c) as interaction between man and his natural environment, terraced agricultural landscapes; or
 - (iii) contain unique, rare or superlative natural phenomena, formations or features or areas of exceptional natural beauty, such as superlative examples of the most important ecosystems to man, natural features (for instance, rivers, mountains, waterfalls), spectacles presented by great concentrations of animals, sweeping vistas covered by natural vegetation and exceptional combinations of natural and cultural elements; or
 - (iv) be habitats where populations of rare or endangered species of plants and animals still survive. This category would include those ecosystems in which concentrations of plants and animals of universal interest and significance are found.

It should be realised that individual sites may not possess the most spectacular or outstanding single example of the above, but when the sites are viewed in a broader perspective with a complex of many surrounding features of significance, the entire area may qualify to demonstrate an array of features of global significance.

In addition to the above criteria, the sites should also meet the conditions of integrity.

- The areas described in (i) above should contain all or most of the key interrelated and interdependent elements in their natural relationships; for example, an "ice age" area would be expected to include the snow field, the glacier itself and samples of cutting patterns, deposition and colonisation (striations, moraines, pioneer stages of plant succession, etc.).

- The areas described in (ii) above should have sufficient size and contain the necessary elements to demonstrate the key aspects of the process and to be self-perpetuating. For example, an area of "tropical rain forest" may be expected to include some variation in elevation above sea level, changes in topography and soil types, river banks or oxbow lakes, to demonstrate the diversity and complexity of the system.
- The areas described in (iii) above should contain those ecosystem components required for the continuity of the species or of the objects to be conserved. This will vary according to individual cases; for example, the protected area for a waterfall would include all, or as much as possible, of the supporting upstream watershed; or a coral reef area would be provided with control over siltation or pollution through the stream flow or ocean currents which provide its nutrients.
- The areas described in (iv) above should be of sufficient size and contain the necessary habitat requirements for the survival of the species.

a. Cultural Property

Lord Howe Island is not considered to merit World Heritage listing on the basis of any cultural property, although the island is an interesting example of a restricted island settlement pattern.

b. Natural Property

In terms of natural heritage Lord Howe Island, its adjacent islands and marine environment are of outstanding universal value because:

- they are an outstanding example of an oceanic island group with a diverse range of ecosystems that have been subject to human influences for a relatively limited period.
- they are an outstanding example of the development of a characteristic insular biota that has evolved a considerable number of endemic species or sub-species of animals, plants and invertebrates in a very limited area;
- the islands support extensive colonies of nesting seabirds and as such are of considerable significance over a wide oceanic region;
- the islands are the only known breeding locality for the Providence Petrel *Pterodroma solandri*. They also contain probably the largest breeding concentration in the world of the Red-tailed Tropic bird *Phaethon rubricauda*. They include the most southerly breeding colony of Masked Booby *Sula dactylatra* in the world and among the most southerly breeding stations known for the Sooty Tern *Sterna fuscata* and the Noddy *Anous stolidus*;
- the reef is the only known example where there is a transition between algal and coral reefs;
- the island group is secure from outside environmental influences and legislative provisions exist to ensure that development, mainly the small tourist industry, does not jeopardise the island's natural values;
- the nomination includes the most southerly coral reef in the world;
- the islands are the only known occurrence of a remarkable volcanic exposure, there being some 1000 m of unweathered volcanics with a great variety of upper mantle and oceanic type basalts.

5. Justification for inclusion in the World Heritage List (cont.)

- Lord Howe Island supports populations of endangered endemic species or sub-species of birds in particular the Lord Howe Island Woodhen *Tricholimnas sylvestris* and the Lord Howe Island Pied Currawong *Strepera graculina crissalis*;
- the islands contain features, formations and areas of exceptional natural beauty;
- the islands are an outstanding example of significant ongoing geological and biological processes and man's inter-relationship with those processes.

Thus the Lord Howe Island Group is presented as an area of outstanding natural significance worthy of inclusion in the World Heritage List.

Signed (on behalf of State Party)

Full name

Title

Date

Appendix 1

Act No. 50, 1981
Lord Howe Island (Amendment)
SCHEDULE 7

(Sec. 4.)
 INSERTION OF DESCRIPTION OF THE LAND COMPRISING THE
 LORD HOWE ISLAND PERMANENT PARK PRESERVE INTO THE
 LORD HOWE ISLAND ACT, 1953.

Schedule 1—

At the end of the Act, insert:
SCHEDULE 1.

(Sec. 19A.)

Part 1

All that piece or parcel of land situated at Lord Howe Island: Commencing at the easternmost corner of Portion 117 and bounded thence by part of the southeastern boundary of that portion to the northernmost corner of Portion 119; thence generally by the eastern boundaries and part of the southeastern boundary of the said Portion 119 to the northernmost corner of Portion 124; thence by the northeastern boundaries of Portions 124, 123 and 131 to the easternmost corner of the said Portion 131; thence by the southeastern boundary of Portion 131 and its prolongation southwesterly to the southernmost corner of Portion 129; thence by the generally southeastern boundaries of Portion 128 to the southernmost corner of the said Portion 128; thence by part of the southernmost southwestern boundary of the said Portion 128 to a point east of and distant 50 metres from mean high water mark of the South Pacific Ocean; thence by a line 50 metres east of and parallel to that mean high water mark and extending southwesterly for a distance of about 1.400 metres; thence by a line westerly 50 metres to the mean high water mark; thence by that mean high water mark generally southwesterly, northeasterly and northwesterly around all the bays and headlands including King Point, Red Point, Sugarloaf Point, Cut Grass Point, East Point, Edmanoch Point (Boat Harbour Point), Rocky Point and Mutton Bird Point to a point on the mean high water mark of Ross or Blinkenthorpe Bay due east of the aforesaid easternmost corner of Portion 117, thence by a line extending westerly to the point of commencement.

Part 2

All that piece or parcel of land situated at Lord Howe Island: Commencing at the southernmost corner of Portion 74 and bounded thence by the generally northwestern boundaries and the northernmost northeastern boundary of the said Portion 74; thence by northeastern and northwestern boundaries of Portion 73 to the northernmost corner of the said Portion 73; thence by the northern end of road separating Portion 73 from Portion 66; thence by generally southwestern, northeastern and northwestern boundaries of the said Portion 66 to the most easterly northern corner of Portion 66; thence by the northeasterly prolongation of the easternmost northwestern boundary of the said Portion 66 to the mean high water mark of the South Pacific Ocean at Neds Beach; thence by that mean high water mark generally northerly, westerly, southerly and easterly around all the bays and headlands including Old Gulch, Phillip Bluff (Fishy Point), New Gulch, Phillip Point (North Head), North Bay, Dawsons Point and part Hunter Bay to a point at the western end of Old Settlement Beach; thence by a line being the southeasterly prolongation of the southernmost southwestern boundary of Portion 74 extending northwesterly to the point of commencement.

Part 3

All those pieces or parcels of land situated at Lord Howe Island being the following named islands: Flat Rock, North Rock, Tenth of June, Roach Island, South Island, Sugarloaf, Noddy, Soldiers Cap, Blackburn Island, Gower Island, Sail Rock, Mutton Bird Island and unnamed island north of the most northerly point of Lord Howe Island lying between that point and Soldiers Cap.

Part 4

All those pieces or parcels of land situate at the islands known as Balls Pyramid, Wheatsheaf Island, Observatory Rock, South-East Rock and the unnamed islands in the vicinity thereof.

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