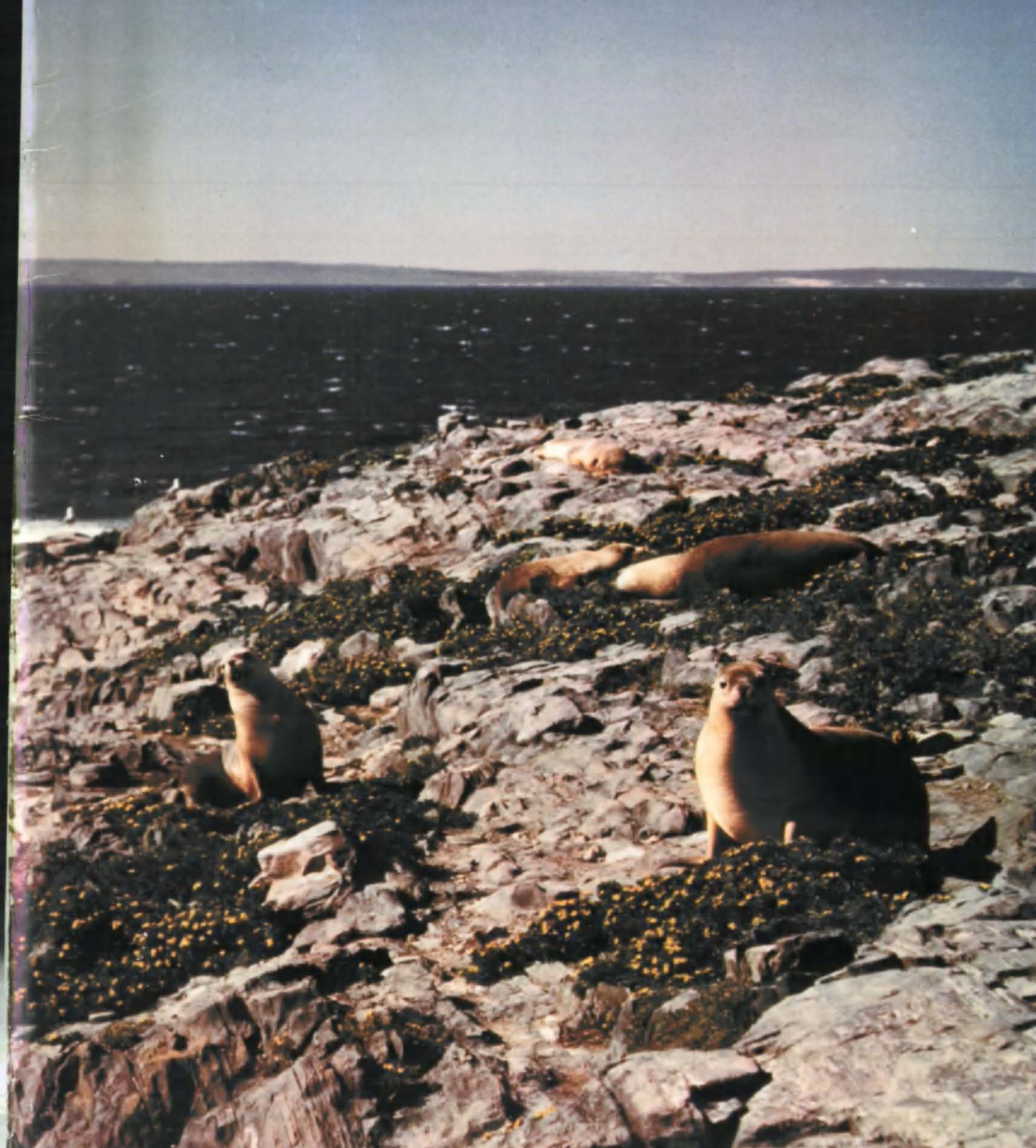


# ISLAND CONSERVATION PARKS OF BACKSTAIRS PASSAGE AND ENCOUNTER BAY MANAGEMENT PLANS

The Pages, West Island, Seal Island and Pullen Island

South Australia



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South Australia

This plan of management has been prepared and adopted in pursuance of Section 38 of the *National Parks and Wildlife Act, 1972-81*.

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Australian Sea lions, South Page Island  
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(A. C. Robinson)

## FOREWORD

These management plans for The Pages, West Island and Pullen Island conservation parks set out management objectives and provide guidelines for their implementation. The objectives are governed by the requirements of the *National Parks and Wildlife Act 1972-1981* and its attendant regulations. Draft Management Plans for these parks were released for public comment in 1980. Comments received have been considered by the Reserves Advisory Committee and, where appropriate, incorporated into these final plans. The background information contained in these documents and upon which the management objectives are based, was derived from already existing information sources. The three parks are considered together because they occur in a single geographical region and to a large extent share similar management problems.

The Pages (20 hectares) are the most inaccessible of all the islands considered here and in addition are geologically different from all the Encounter Bay islands (Figure 1). They support a large and important breeding colony of Australian Sea-lions. They have been included here because they are administered by the same National Parks and Wildlife Service staff responsible for management of the Encounter Bay islands.

In Encounter Bay, on the south coast of Fleurieu Peninsula, there are five small granite islands (Figure 1). Granite Island, linked by a causeway to the town of Victor Harbor, is the largest of these (24 hectares). It is a Recreation Reserve managed as a tourist attraction by the District Council of Victor Harbor. Developments include jetties, walking trails, a chairlift to the summit of the island, a kiosk, and a tractor-drawn train across the causeway. Exotic trees and shrubs have been planted on parts of the island. In 1970 a small group of Dama Wallabies were released on the island and in 1971 some Kangaroo Island Kangaroos were also introduced. Both these introductions were successful and breeding populations are now well established. An attempt to introduce Cape Barren Geese, however, was not successful.

Wright Island, just over 1 hectare in extent, is a Public Pleasure Resort under the care and control of the District Council of Victor Harbor. It consists largely of granite boulders with some shrub vegetation. A small sandy beach allows easy access by boat. A variety of bird species breed here.

West Island (10 hectares), Seal Island (1 hectare) and Pullen Island (1 hectare) are conservation parks managed by the National Parks and Wildlife Service. West Island and Seal island were proclaimed as a single reserve, namely, West Island Conservation Park. West Island protects breeding colonies of Silver Gulls, Little Penguins and Crested, Fairy and Caspian terns. It is surrounded by an Aquatic Reserve managed by the Department of Fisheries.

Seal Island is an exposed heap of granite boulders with little soil, no terrestrial vegetation and is difficult to land on. It supports a breeding colony of Silver Gulls and is a roosting area for other sea-birds.

Pullen Island Conservation Park, guarding the entrance of Horseshoe Bay, is overlooked by the seaside resort town of Port Elliot. Like the other islands, it is largely composed of granite boulders with little vegetation and in stormy weather waves break entirely across the island. It supports breeding colonies of Silver Gulls and Little Penguins as well as introduced starlings and Feral Pigeons.

Together with The Pages, the five Encounter Bay Islands serve a variety of functions ranging from the largely recreational and tourist function of Granite Island to the purely conservation role of The Pages. They all form part of the natural environment for marine animals along the southern coast of the Fleurieu Peninsula. Although Sea-lions only breed on The Pages they make occasional use of all the other islands to rest after hunting fish in the surrounding waters. Likewise, although terns only breed on West Island, they roost and hunt in the shallow water around all the islands.

This document has been adopted under the provisions of the *National Parks and Wildlife Act 1972-1981*. The plans have been prepared by the Programmes Branch of the National Parks and Wildlife Service. Suggestions made by interested members of the public when the plans were released in draft form in 1980 have been considered and advice on the plans has been obtained from the Reserves Advisory Committee, resulting in a number of amendments to the original draft versions.

The text of each plan is divided into four main sections: the first contains background information relating to the physical features, history, visitor use and biology of the park area. The management objectives are listed in the second section which is now formally adopted as required by Section 38 of the *National Parks and Wildlife Act 1972-1981*. The third section outlines strategies for the implementation of these objectives, while the fourth section contains a summary of management proposals to enable the reader to obtain a general overview of the implications of the plans.

(D. J. Hopgood)  
MINISTER FOR ENVIRONMENT AND PLANNING

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## **ACKNOWLEDGEMENTS**

Our thanks go to Mr Scoresby Shepherd of the Department of Fisheries for providing transport to West Island and for giving us the benefit of his long experience of the island.

Thanks also to Mrs Joan Paton who allowed us to use her unpublished data on the tern colonies of the island.

The Australian Bird Banding Scheme kindly allowed us to publish details of recoveries of birds banded on West Island.

**BACKGROUND INFORMATION**

---

**DESCRIPTION OF THE AREA**

**LOCATION AND PHYSICAL FEATURES**

The Pages Conservation Park consists of two small islands and a rocky reef in Backstairs Passage midway between the south coast of Fleurieu Peninsula and the eastern tip of Kangaroo Island (Figures 1 and 2). The park covers an area of 20 hectares and comprises Sections 901-903, Out of Hundreds. The Pages are geologically part of the Kanmantoo Group of sediments deposited during the latter part of the Cambrian Period. The sediments subsequently underwent metamorphosis and the rock of The Pages consists of phyllites of the Brukunga Formation.

The two main islands, North and South Page, are 24 and 20 metres high respectively (Russell 1973) with precipitous slopes and deep chasms cut into them. The tops of the islands are relatively flat with small soil pockets. To the south-west of South Page are two small rocky islets only about 1 metre above sea-level. Landings by boat on these islands are only possible in the calmest weather and must be made straight on to the rocky platforms as there are no beaches. The only reliable means of access to these islands is by helicopter.

**HISTORY**

The Aboriginal group occupying the Adelaide Plains and Fleurieu Peninsula at the time of European settlement of South Australia were the Kurna people. Before the disappearance of the last of these people, the Reverend G. Taplin recorded one of their legends associated with the creation of Backstairs Passage, Kangaroo Island and a number of features along the southern coast of Fleurieu Peninsula (Edwards 1975). It must be understood that at the time of the arrival of Europeans in South Australia, Aborigines had not occupied Kangaroo Island for many thousands of years. The Kurna believed the island to be the home of the spirits of departed ancestors and a complex legendary cycle was associated with this belief. Ngurunderi (pronounced Ngoor-oond-air-ie) a great totemic being, who was responsible for making many features during his Dreamtime journey down the Murray Valley in pursuit of his two unfaithful wives, ultimately arrived on the shores of Encounter Bay where he caused Granite Island and other islets to emerge from the sea (Figure 3). He then hastened westward in search of his fleeing wives, catching sight of them near Blowhole Creek (Tjirbuk pronounced. Cheer-book), from where Kangaroo Island (Ngurungai pronounced Ngoor-oond-gowie), the land of spirits, is clearly visible. Ngurungai was almost connected to the mainland at that time and it was possible to reach it by walking and wading across the shallows. The fugitives attempted to do this. Meantime, Ngurunderi, in very bad humour, had arrived at Tjirbuk and seeing his wives in mid-channel, he called with a thunderous voice for the sea to rise and overwhelm them. Ngurunderi thereupon transformed them into two small rocky islands which are now called The Pages. A reed basket carried by the younger of the women became a nearby reef.



Ngurunderi continued his journey westward to Kangaroo Island where he created a large Casuarina tree and rested in its shade. He then walked to the end of the island and hurled a spear into the ocean and rocks appeared. From these rocks he dived into the sea. He then rose up into the sky to reside in the spirit world. Ngurunderi, before bidding his people farewell, told them that after death they would follow his tracks to Kangaroo Island, where they would reside with him in the spirit world.

The islands known to the Aborigines as Metalong were named The Pages by Captain Matthew Flinders in 1802 during his voyage of discovery in the *Investigator*. They were so named because of their guiding position at the eastern entrance to Backstairs Passage (Praite and Tolley 1970).

The Pages have long been recognised as an important area for sea-birds and seals. As early as 6 May 1900 they were declared part of a Bird Protection District under the *Birds Protection Act 1900*.

In 1955 they were re-proclaimed a closed area with respect to animals and birds generally under the *Animals and Birds Protection Act 1919-1938*.

In the late 1960s when the majority of South Australia's offshore islands were set aside for conservation, The Pages were again re-proclaimed as Fauna Reserves under the *Fauna Conservation Act 1964-1965* (on 8 September 1966) and Fauna Conservation Reserves under the *Crown Lands Act 1929-1967* (on 16 March 1967). They were placed under the control of the Department of Fisheries and Fauna Conservation.

Subsequently, with the passage of the *National Parks and Wildlife Act 1972*, they were re-proclaimed as The Pages Conservation Park under the control of the National Parks and Wildlife Service.

## VISITOR USE

Because of their inaccessibility, few people visit The Pages. Nevertheless, the fact that the South Australian Government saw fit to protect their wildlife as early as 1900 would seem to indicate that there was at that time pressure to exploit the islands, probably from sealers.

## BIOLOGY

The following account is based entirely on a brief helicopter landing on South Page on 20 September 1978 and some low-level aerial photographs taken on 8 December 1976 by the South Australian Museum for the purpose of counting the Sea-lion population.

The soil pockets on the top of the island support an almost pure stand of the Variable Groundsel (*Senecio laetus*), with some scattered plants of an annual saltbush (*Atriplex*) species and the Bulbine Lily (*Bulbine bulbosa*). The steep slopes of the island and the cliffs above the chasms support a mat of Round-leaved Pigface (*Disphyma clavellatum*) and some bushes of Ruby Saltbush (*Enchylaena tomentosa*). No other plant species were found.

Sea-birds undoubtedly use these islands as roosting places and probably also for breeding, but at the time of the 1978 visit to South Page, only Silver Gulls (*Larus novaehollandiae*) were seen and only a single nest of this species was found. Other bird species recorded from The Pages during a visit in 1967 are shown in the list of birds below.

The major vertebrate fauna was the Australian Sea-lion (*Neophoca cinerea*) which has a large breeding colony on these islands. An aerial census of these animals has been undertaken three times: on 6 September

1976, on 8 December 1976 and on 20 September 1978. The first was conducted by Mr D. J. Needham, the second by Needham and officers of the South Australian Museum both using a fixed winged aircraft, while the third was conducted from a helicopter by officers of the National Parks and Wildlife Service. Attempts to count the Sea-lion population from the helicopter were not particularly accurate due to the number of animals and the speed of the helicopter, but Table I gives the best available estimate of the population of adult animals on the islands.

## BIRDS

The species of birds shown below were recorded by Mrs Joan Paton during a brief landing on The Pages on 26 March 1967. Also recorded are species seen at sea in the vicinity of the islands.

The order of species and scientific nomenclature follows that of Condon (1975) and Schodde (1975) with amendments and vernacular nomenclature following that of Royal Australasian Ornithologists Union (1978).

<i>Larus novaehollandiae</i>	Silver Gull
<i>Morus serrator</i>	Australasian Gannet
<i>Phalacrocorax varius</i>	Pied Cormorant
<i>Puffinus gavia</i>	Fluttering Shearwater
<i>Puffinus tenuirostris</i>	Short-tailed Shearwater
<i>Sterna bergii</i>	Crested Tern

## SEA-LIONS

TABLE I: NUMBERS OF SEA-LIONS COUNTED FROM THE AIR

	6 Sept. 1976	8 Dec. 1976	20 Sept. 1978
North Page	12	30	165
South Page	35	60	200
SSW Reef	30	150	35
Total	77	240	400

An attempt to count the numbers in the three basic sex/age classes on South Page (Table II) was also rendered difficult by the short time on the island and the movement of the Sea-lions, but the following gives an estimate.

TABLE II: COMPOSITION OF SEA-LION POPULATION ON SOUTH PAGE ISLAND

Adult Bulls	Cows and Sub-adults	Pups With Natal Coats
30	120	50

## RESOURCE MATERIAL AND REFERENCES

### MAPS

1:250 000 Topographic Barker SI 54-13 (Royal Australian Survey Corps, 1968)

1 inch - 2 miles Cadastral Plan County Hindmarsh (South Australian Department of Lands, 1958)

### AERIAL PHOTOGRAPHS

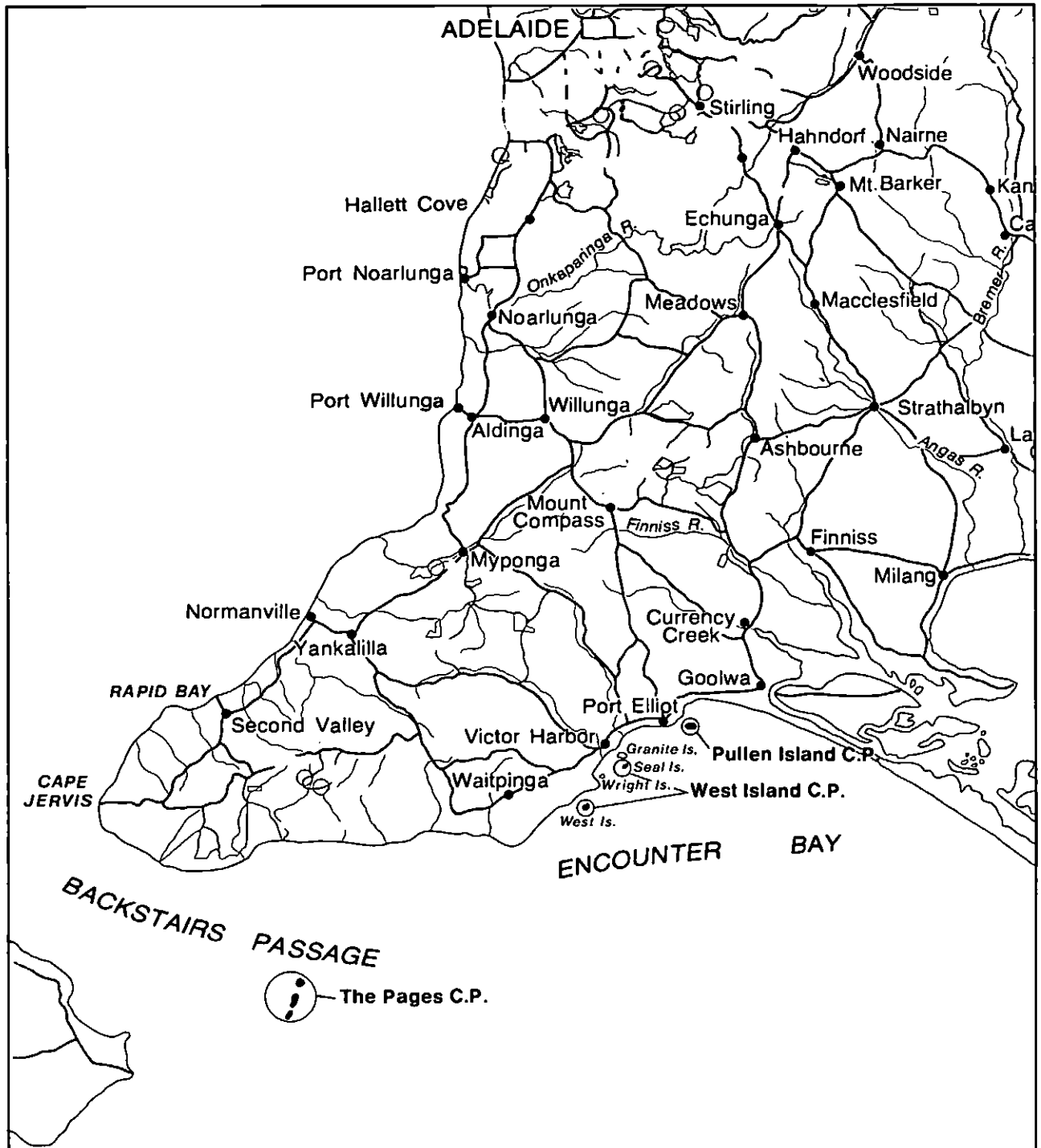
South Australian Department of Lands (undated)—Survey 470 No. 36.

### DOCKET REFERENCES

F & G 50/55	Proclamation under the Animal and Birds Protection Act
FFC 251/65	Proclamation under the Fauna Conservation Act
DEC 3314/75	Coast surveillance by aircraft
CPB 100/22/63	Lighthouses
DEC 1101/75	Navigation aid sites: South Page and Sibsey islands

## REFERENCES

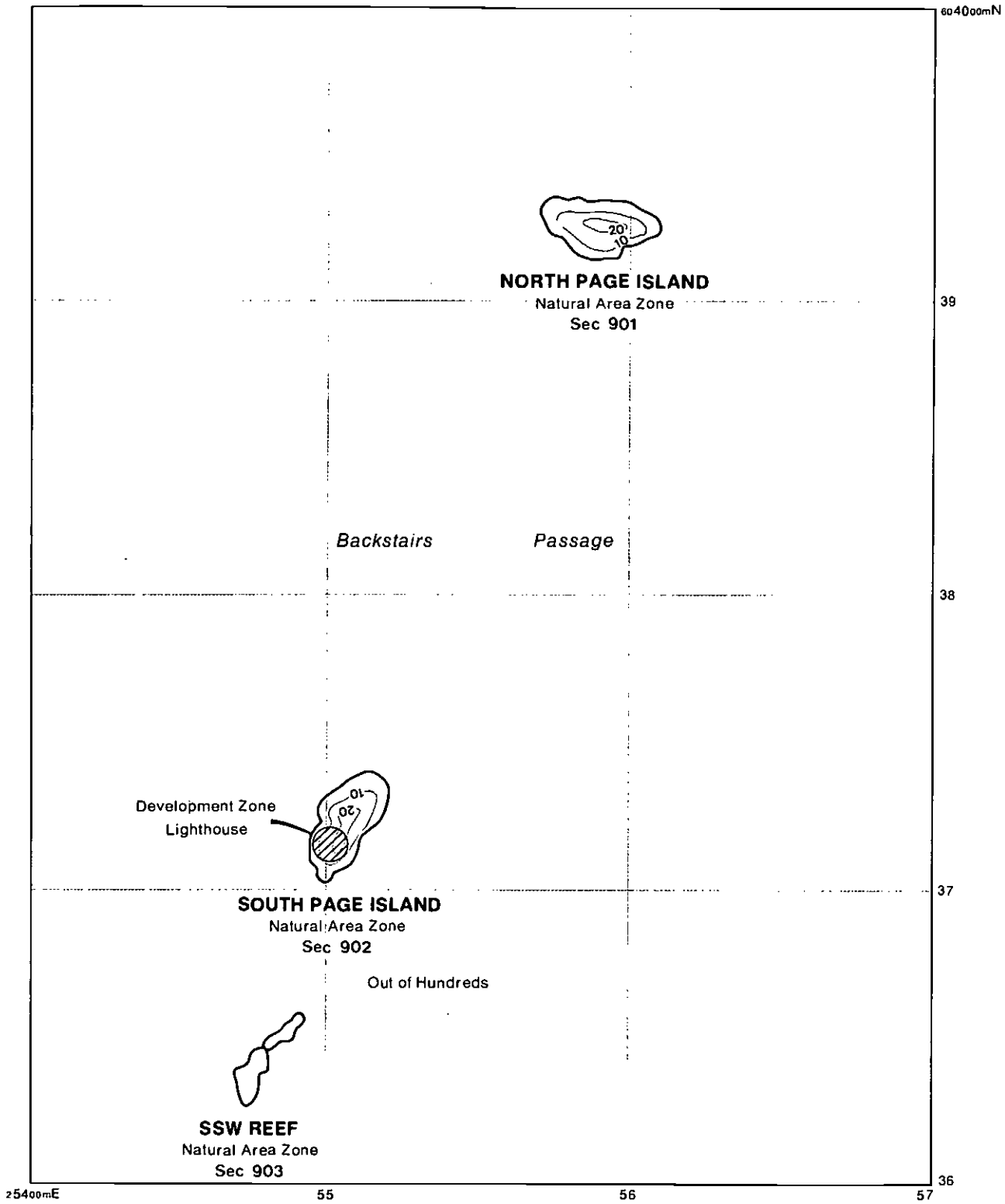
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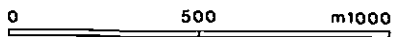
Figure 1

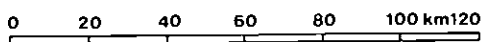
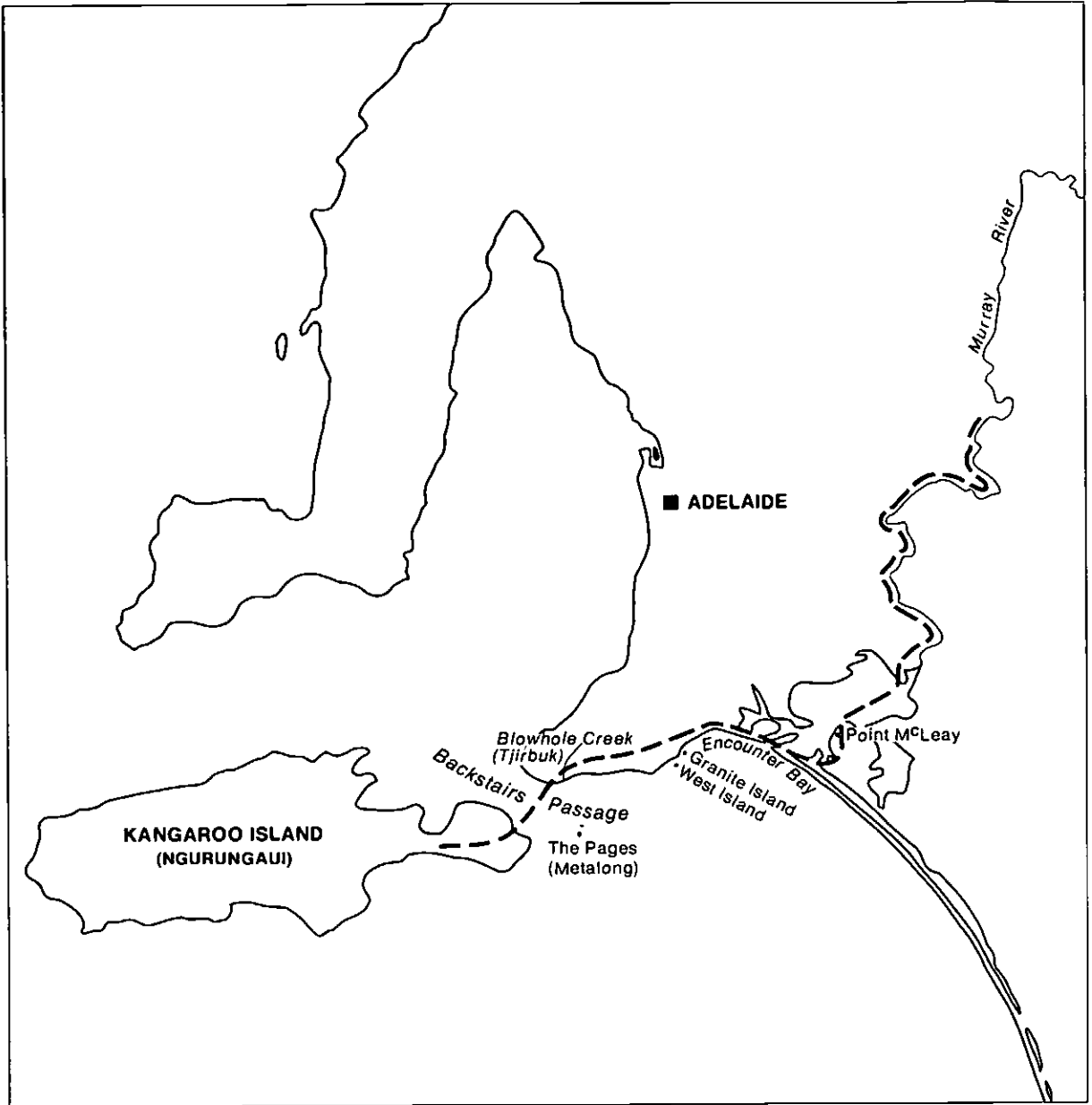
Island Parks of Backstairs Passage and Encounter Bay



**Figure 2**

**Topography, Cadastral  
and Zoning**  
**THE PAGES CONSERVATION PARK**





**Figure 3**

**Mythological Journey: Ngurunderi**

Creation of Backstairs Passage  
and Kangaroo Island

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## **PART 2**

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### **MANAGEMENT OBJECTIVES**

---

#### **INTRODUCTION**

The following objectives for the management of The Pages Conservation Park are designed to serve as a rigorous guide to the uses and developments to be carried out within the park. All park management should be constrained within the limits of these objectives. This part has been formally adopted by the Minister of Environment and Planning under the provisions of Section 38 of the *National Parks and Wildlife Act 1972-1981*.

#### **ZONING**

To zone the various habitats and localities of The Pages Conservation Park to ensure conservation, in perpetuity, of the natural environment of the park.

#### **FACILITIES FOR VISITORS**

To inform visitors to the park of its status as a conservation area.

#### **NAVAID FACILITY**

To provide an unmanned navigational aid on South Page Island with minimal effect on the conservation value of the area.

#### **NATIVE FAUNA**

1. To monitor population trends in the Sea-lion breeding colony.
2. To monitor the distribution and abundance of bird species seen around the islands.

#### **STAFFING**

To ensure that staff levels are adequate to properly maintain the park and ensure proper management of wildlife of The Pages Conservation Park.

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## **PART 3**

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### **IMPLEMENTATION OF MANAGEMENT OBJECTIVES**

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#### **ZONING**

To zone the various habitats and localities of The Pages Conservation Park to ensure conservation, in perpetuity, of the natural environment of the park.

As the major purpose of The Pages Conservation Park is conservation of Sea-lions and sea-birds, the islands and the reef should be zoned as Natural Area. A small area immediately surrounding the navaid facility on South Page, however, should be zoned Development (Figure 2).

#### **FACILITIES FOR VISITORS**

To inform visitors to the park of its status as a conservation area.

While the number of visitors to The Pages Conservation Park is small it is important that those who do land on or sail around these islands are aware of their conservation status. Accordingly, it is proposed to erect routed wood signs indicating the name of the park at prominent points on both North and South Page islands. Due to the rough seas in the area it is considered impractical to signpost the reef.

#### **NAVAID FACILITY**

To provide an unmanned navigational aid on South Page Island with minimal effect on the conservation value of the area.

A review of the total Australian Government marine navaid organisation by the Department of Transport was begun in 1975. As a result a five-year plan was developed entailing the construction of several new marine navaid and the modification and re-furbishing of existing navaid. As part of this plan, a new unmanned automatic gas operation lighthouse has been erected on South Page Island. A small area of approximately 0.1 hectares was selected for this navaid (Figure 4). In addition, a concrete helipad approximately 4 metres in diameter should also be constructed for the servicing of this light. Observations made during the helicopter inspection of South Page in September 1978 indicated that the Sea-lions were not disturbed by the landing of a helicopter. The area including the navaid and the helipad are leased to the Department of Transport for a period of fifty years at a peppercorn rent. The following conditions apply to this licence.

1. Every care must be taken to avoid unnecessary disturbance to the flora and fauna of the islands.
2. Used batteries and their electrolyte solution must be disposed of away from the islands.
3. The landing and reconnaissance craft is to restrict its access to the area provided in the licence.
4. Indemnity against loss and damage sustained as a result of the exercise by the licensee.
5. Right to cancel or vary the terms of the licence if conditions are not complied with.

Construction of this navaid was carried out in 1981-1982.

#### **NATIVE FAUNA**

1. To monitor population trends in the Sea-Lion breeding colony.
2. To monitor the distribution and abundance of bird species seen around the islands.

An advantage of the new navaid on South Page Island is that regular visits for National Parks and Wildlife Service staff can be arranged by co-operation with the Department of Transport. A count of the Sea-lion numbers on the two islands and the reef should be undertaken by field staff whenever a visit by helicopter to the islands can be organised. Trends in the Sea-lion population and numbers of pups produced can thus be monitored.

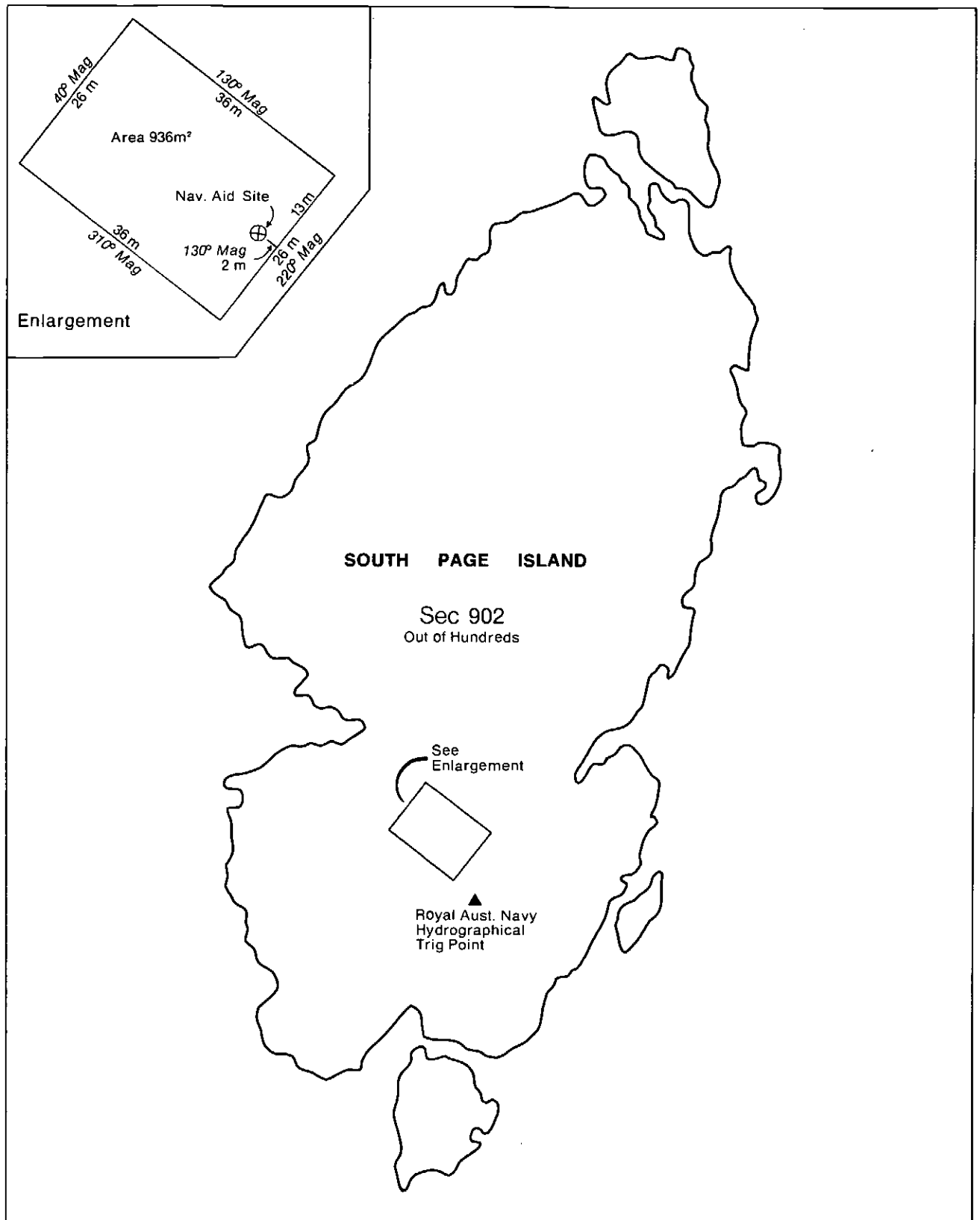
During visits to The Pages, field staff and other naturalists should be encouraged to record bird species seen and note additional observations such as breeding behaviour.

#### **STAFFING**

To ensure that staff levels are adequate to properly maintain the park and ensure proper management of wildlife of The Pages Conservation Parks.

The Pages Conservation Park is one of several parks in the Lower Fleurieu District of the Central Region of the National Parks and Wildlife Service. These parks are managed by the existing staff of the Lower Fleurieu District which currently consists of one ranger and one park-keeper located at the Deep Creek Conservation Park.

For adequate management of the Pages Conservation Park the equivalent of approximately 12 person-days throughout the year is required for routine inspections and patrols. Co-operation with the Fisheries Department helicopter patrol would be of assistance in achieving this objective.



0 100 m200

**Figure 4**

**Site of Marine  
Navigational Aid and Helipad  
SOUTH PAGE ISLAND**



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## **PART 4**

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### **SUMMARY OF MANAGEMENT PROPOSALS**

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As a guide to the orderly application of the provisions of this Management Plan, the foregoing management proposals are summarised and ranked. This ranking indicates the relative priority of projects and whether they are of a short-term or a continuing nature. A distinction has been made between research and monitoring projects and those requiring fundings for works and maintenance.

#### **RESEARCH AND MONITORING**

<b>PROJECT</b>	<b>PRIORITY</b>	<b>DURATION</b>	<b>Page</b>
Sea-lion counts when possible	Moderate	Continuing	8
Monitoring of bird populations	Moderate	Continuing	8

#### **WORKS AND MAINTENANCE**

<b>PROJECT</b>	<b>PRIORITY</b>	<b>DURATION</b>	<b>Page</b>
Signposting	Moderate	Short	8

**BACKGROUND INFORMATION**

---

**DESCRIPTION OF THE AREA**

**LOCATION AND PHYSICAL FEATURES**

West Island Conservation Park comprises West Island, located 1.5 kilometres south-west of Rosetta Head (the Bluff), and Seal Island, located 4 kilometres north-east of the Bluff. West Island covers an area of 10 hectares and comprises Section 360 in the Hundred of Waitpinga. Seal Island covers an area of 1.2 hectares and comprises Section 724 in the Hundred of Encounter Bay. The nearest town is Victor Harbor which is 60 kilometres south of Adelaide by road (Figures 1 and 5).

West Island and Seal Island are outcrops of Victor Harbor granite which was formed about 400 million years ago (Parkin 1969). West Island rises to 40 metres above sea-level. The process of weathering has resulted in the formation of large angular boulders and there is a significant amount of soil on the top of the island. Landing from boats is difficult as there are no beaches on the island. However, a small landing jetty has been reconstructed on the north-western coast adjacent to a hut used by research officers of the Department of Fisheries. Seal Island is essentially a tumbled heap of granite boulders with no soil development. The whole islet would be covered by waves in very rough weather.

**HISTORY**

Both West Island and Seal Island form part of the mythology of the Kurna group of Aborigines and feature in the creative journey of Ngurunderi. This myth is described in detail in the Management Plan for The Pages Conservation Park. Unfortunately, the recorder of this story did not give any details of the exact circumstances surrounding the creation of these islands, and the last of the Kurna people are now long gone. They undoubtedly visited the island to fish and collect sea-birds and eggs but no details are known. The recorded history of these islands therefore must start with the arrival of Europeans. West Island was named because of its location to the west of Rosetta Head (the Bluff). Seal Island was named for the seals that were present on the island in the early days of Victor Harbor.

The granite rock of which West Island is composed proved most suitable for building purposes and, despite the difficulties of getting stone off the island, quarry operations were started in the latter part of the nineteenth century. In 1883 a contract was let for the construction of the first stage of Parliament House and the Architect-in-chief, Edward John Woods, specified marble walls and granite foundations. The contractors, Kapunda Marble and Building Company, utilised Kapunda marble for the walls and West Island granite for the base, a small quarry being established on the northern end of the island to obtain the latter material. In the first stage of construction 12 000 cubic feet (340 cubic metres) of granite were used. Work on the granite basement of Parliament House was in progress in 1885 when a dispute caused work to be suspended. It is recorded that difficulties had been experienced in

obtaining regular supplies of granite during 1883-1884. It is during this period that the small stone hut, the remains of which are still evident, was constructed in a gully on the north-western side of the island. It included a fireplace, although now there is little timber on the island. Goats recorded as having once been on West Island may have been introduced at this time (Reschke 1966).

The first stage of Parliament House was finally opened on 5 June 1889. It is not known whether more granite was taken from the island once work ceased on Parliament House but the Miscellaneous Lease (M246) held over the island for quarrying purposes was cancelled in 1892 for non-payment of the annual rent of £5-5-0.

In 1913, in response to the then current proposal to complete the building of Parliament House, the superintendent of Public Works considered it important that the Government gain control of the granite supplies on West Island to prevent private operators working the quarry. To this end, on 8 May 1913, West Island was proclaimed a Reserve for Government Purposes and reserved from the operation of the Mining Act.

However, Parliament House building additions did not actually get under way until 1936. At this time, a second stone hut was erected near the quarry on the north side of the island. The additions to Parliament House (the Legislative Council Chamber) were finally opened on 5 June 1939, exactly fifty years after the first opening.

West Island remained a Reserve for Government Purposes until the mid-1960s when interest in off-shore islands for their conservation value resulted in many islands being declared Fauna Reserves. For a short period prior to 1964, Adelaide University Regiment used West Island as a target for gunnery practice during field exercises. At this time a sign was erected on the island to warn of the presence of unexploded shells. These shells have now been removed and the fallen sign provides shelter for a Little Penguin.

In 1964 the Underwater Research Group of the South Australian Museum became interested in marine ecology and, seeking a suitable base for research operations, requested permission to re-furbish the hut near the quarry for use as a field station and to construct a landing jetty to facilitate access. However, they realised that the provision of easy access to the island would endanger the sea-birds and wrote to the Department of Fisheries and Fauna Conservation proposing that the island be declared either a Prohibited Area or a Fauna Reserve under the *Fauna Conservation Act* 1964-1965. This move coincided with that Department's proposal to proclaim most of South Australia's off-shore islands (including West Island) as Fauna Reserves and accordingly this was done on 10 November 1966. However, the island was still a Reserve for Government Purposes and not under the control of the Department of Fisheries, consequently the Underwater Research Group (in the names of S. A. Shepherd and G. J. M. Glover) took out an Annual Licence (AL 11520) over the island for underwater research. This group's worst fears were realised when in 1966 vandals broke into the hut and, as well as causing other destruction, smashed hundreds of sea-gull eggs.

Also in 1966, Department of Fisheries personnel planted Drooping She-oaks (*Casuarina stricta*) on the island, the first of a number of tree planting exercises. The Annual Licence was allowed to lapse on 31 October 1969, and the Reserve for Government Purposes was revoked. On 26 March 1970 West Island was declared a Fauna Conservation Reserve under the

Crown Lands Act with control passing to the Minister of Agriculture and thus to the Fisheries and Fauna Conservation Department which was carrying out research on abalone in the surrounding waters.

West Island was signposted in 1967. The population of rabbits on the island (300 in 1969) were poisoned with 1080 and the survivors shot. By the end of 1971 all rabbits were gone. The trees planted previously had not flourished due to the presence of the rabbits, but with those animals gone, further tree planting took place. Between 1964 and 1975, banding studies of Silver Gulls and terns were conducted on the island.

With the passage of the *National Parks and Wildlife Act* 1972, West Island was re-proclaimed as a Conservation Park.

In 1973 six Pearson Island Rock-wallabies (*Petrogale lateralis pearsoni*) were liberated on the island, to be followed by a further release of seven in 1975.

An Aquatic Reserve under the *Fisheries Act* 1971-1976, was proclaimed for 100 metres around West Island in 1971 to help protect the important abalone research sites.

In 1979 Seal Island, the small rocky islet to the north-east of West Island, was added to West Island Conservation Park.

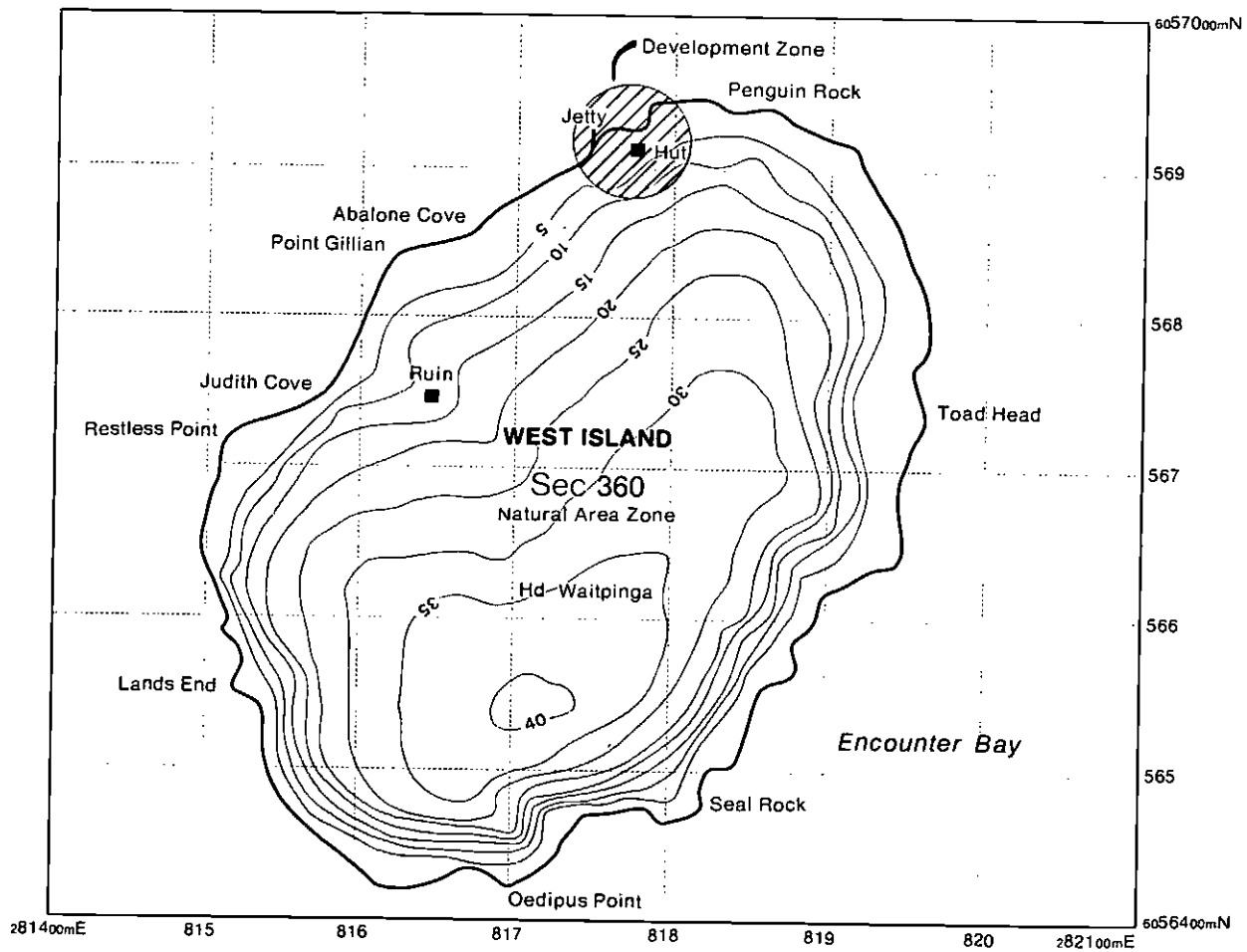
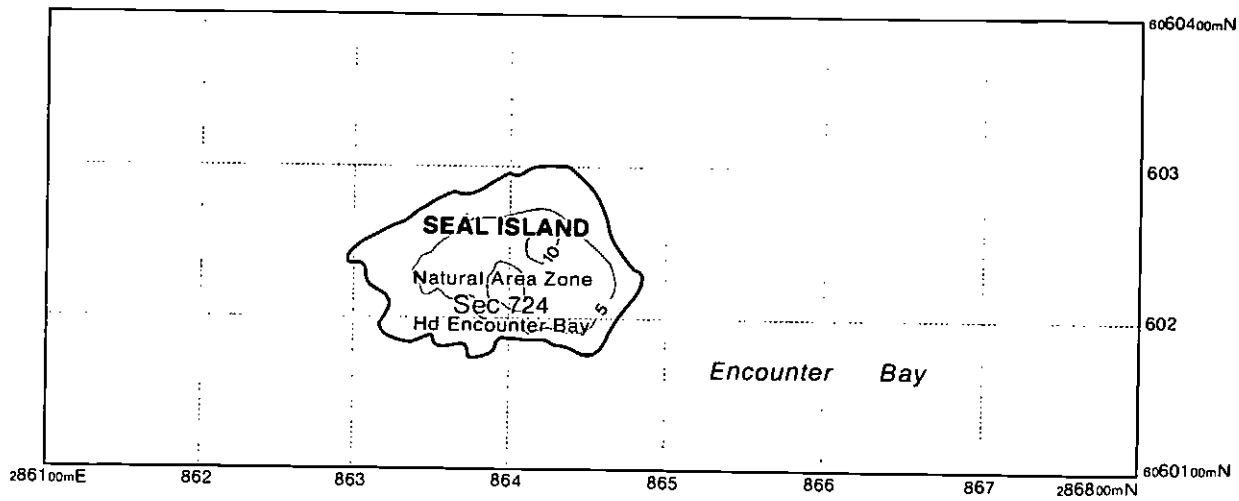
## VISITOR USE

Over the years a significant number of people have visited West Island, especially since the provision of the landing jetty and re-furbished hut in 1965. Most of these people have been interested in natural history and have taken care not to unduly disturb the island's wildlife. Paton and Paton (1977) state that until 1970 fishermen visited West Island to take penguins and rabbits for crayfish bait. This practice, apparently, no longer occurs.

With increases in ownership and use of boats, the numbers visiting West Island might be expected to increase.

## BIOLOGY

West Island is a granite knoll, roughly oval in shape, rising to 40 metres in the south-west corner. There are cliffs on all sides except the northern end, where steep slopes are strewn with granite boulders. The top of the island is relatively flat, with shallow soil and large areas of exposed granite. Several gullies on the north-western side have deeper soil and some protection from the strong winds and salt spray of the Southern Ocean. One of these gullies has a small brackish soak. The exposed south-western portion of the island, which includes the highest point on the island, is clothed in a meadow of Round-leafed Pigface (*Disphyma clavellatum*) and the creeper *Tetragonia amplexicomma*. Here and there, an occasional Milk Thistle (*Silybum marianum*) pokes up through the mat of vegetation. North-eastward, across the top of the island, the salt tolerant vegetation gradually gives way to a grassland of the introduced species including *Bromus diandrus*, *Parapholis incurva*, *Hordeum leporinum* and *Lolium perenne*. There is also a virtually pure stand of Australian Hollyhock (*Lavatera plebeia*). The north-eastern slopes provide the most sheltered environment on the island, particularly in the crevices between boulders where plants of Native Tobacco (*Nicotiana maritima*) and *Muehlenbeckia adpressa* are found. Here too, grows Buckthorn (*Rhamnus alaternus*) and the planted specimens of Drooping She-oak (*Casuarina stricta*), Coastal Tea-tree (*Leptospermum laevigatum*), Native Juniper (*Myoporum insulare*), Pyramid Bush



**Figure 5**

**Topography, Cadastral  
and Zoning**

**WEST ISLAND CONSERVATION PARK**



(*Lagunaria patersonia*) and mallee (*Eucalyptus* sp.). Isolated bushes of African Boxthorn (*Lycium ferocissimum*) occur across the island despite control attempts at various times in the past. A preliminary plant list for the island follows this section.

The major conservation value of West Island lies in its breeding colonies of sea-birds and a valuable summary is contained in Paton and Paton (1977a). These include numerous Little Penguins (*Eudyptula minor*) and Silver Gulls (*Larus novaehollandiae*), Crested Terns (*Sterna bergii*), Caspian Terns (*Hydroprogne caspia*) and 50-200 pairs of Fairy Terns (*Sterna nereis*).

Small flocks of introduced Feral Pigeons (*Columba livia*), Common Starlings (*Sturnus vulgaris*) and Richard's Pipit (*Anthus novaeseelandiae*) are also present. White-bellied Sea-eagles (*Haliaeetus leucogaster*) were seen regularly until 1970 and an Australian Hobby (*Falco longipennis*) has been occasionally sighted on the island (see also the section on birds).

#### PLANTS

The following is a list of plants collected by National Parks and Wildlife Service staff on West Island on 1 December 1978. It is by no means a complete list. Introduced species are prefixed by an asterisk. State of South Australia Herbarium registration numbers for those specimens that were retained are given. Common names are according to Eichler (1965), Black (1963, 1974, 1975, 1978) and Specht (1972).

* <i>Acacia longifolia</i>	Sallow Wattle
<i>Apium prostratum</i>	Sea Celery (AD979004003)
* <i>Arctotheca calendula</i>	Cape Weed
* <i>Bromus diandrus</i>	Great Brome
* <i>Casuarina stricta</i>	Drooping She-oak
* <i>Chenopodium album</i>	White Goosefoot
* <i>Citrullus lanatus</i>	Wild Melon
<i>Disphyma clavellatum</i>	Round-leafed Pigface (AD979050006)
* <i>Echium lycopsis</i>	Salvation Jane
* <i>Ehrharta longiflora</i>	Annual Veld Grass
<i>Enchylaena tomentosa</i>	Ruby Saltbush
* <i>Eucalyptus</i> sp.	(AD 97904008)
* <i>Galenia pubescens</i>	Ice-plant
* <i>Gasoul crystallinum</i>	Barley Grass
* <i>Hordeum leporinum</i>	
<i>Ixiolaena supina</i>	Sharp Rush (AD97904005)
<i>Juncus acutus</i>	Norfolk Island Hibiscus
* <i>Lagunaria patersonia</i>	Australian Hollyhock (AD97904007)
<i>Lavatera plebeia</i>	Coastal Tea-tree
<i>Leptospermum laevigatum</i>	Perennial Rye-grass
* <i>Lolium perenne</i>	African Boxthorn
* <i>Lycium ferocissimum</i>	Swamp Paperbark
* <i>Melaleuca halmaturorum</i>	Native Juniper
* <i>Myoporum insulare</i>	
<i>Nicotiana maritima</i>	Coast Barb-grass
* <i>Parapholis incurva</i>	Buck's-horn Plantain (AD97904002)
* <i>Plantago coronopus</i>	Wild Turnip (AD97904001)
* <i>Rapistrum rugosum</i>	Buckthorn
* <i>Rhamnus alaternus</i>	Variable Groundsel
<i>Senecio laetus</i>	Black Nightshade
* <i>Solanum nigrum</i>	
<i>Spergularia</i> sp.	

#### BIRDS

The following list of birds was compiled from the observations of Mrs Joan Paton in the course of visits to the island between 1968-1976. Some of these records have been published in Paton and Paton (1977). Some additional records were obtained during the National Parks and Wildlife Service visit in 1978. Scientific nomenclature follows that of Condon (1975) and Schodde (1975); vernacular nomenclature follows that of the Royal Australasian Ornithologists Union (1978). Introduced species are marked with an asterisk. *Alauda arvensis*. Skylark.

*Anthus novaeseelandiae*. Richard's Pipit.  
One specimen collected in 1922, not sighted in recent years.  
*Apus pacificus*. Fork-tailed Swift.  
Seen above the island.

- ✓ *Ardea novaehollandiae*. White-faced Heron.
  - ✓ \**Columba livia*. Feral Pigeon.  
Small numbers possibly thirty to fifty breeding, mainly cliffs on south-east side of the island.
  - Daption capense*. Cape Petrel.  
Sighting offshore.
  - Diomedea melanophrys*. Black-browed Albatross.  
Sighting offshore.
  - Egretta sacra*. Eastern Reef Egret.
  - Eudyptula minor*. Little Penguin.  
Abundant breeding on island. Burrows under rocks in all parts of the island. Eggs and chicks present in December and January.
  - ✓ *Falco longipennis*. Australian Hobby.  
Seen flying to and from the island. A feeding site with discarded tern wings found in 1978, may be attributable to this species.
  - Falco subniger*. Black Falcon.
  - ✓ *Haematopus fuliginosus*. Sooty Oystercatcher.  
*Haliaeetus leucogaster*. White-bellied Sea-Eagle.  
Seen fairly regularly over the island until 1970. One seen in 1976.
  - Hydroprogne caspia*. Caspian Tern.  
✓ Breeding site for 50-200 pairs on top of island from October to as late as January.
  - ✓ *Larus novaehollandiae*. Silver Gull.  
Abundant breeding on most parts of the island from about April to October. A banding study carried out from 1964-1975.
  - ✓ *Larus pacificus*. Pacific Gull.
  - ✓ *Leucocarbo fuscescens*. Black-faced Shag.  
*Macronectes giganteus*. Southern Giant-Petrel.  
Sighting offshore.
  - Morus serrator*. Australasian Gannet.  
Sighting offshore.
  - Neophema petrophila*. Rock Parrot.  
One specimen taken in 1932. Does not appear to occur on the island today.
  - Phalacrocorax carbo*. Great Cormorant.  
Two on island in December 1978.
  - Phalacrocorax melanoleucos*. Little Pied Cormorant.  
About fifty roosting on island in December 1978.
  - Puffinus tenuirostris*. Short-tailed Shearwater.  
Beach-washed derelicts found on island.
  - ✓ *Sterna bergii*. Crested Tern.  
A regular breeding site since 1970 for 500-1500 pairs on north-west slopes of the island between December and January.
  - Sterna nereis*. Fairy Tern.
  - ✓ Irregular breeding site for twenty to fifty pairs at a number of points on exposed ground on and around the south-west and south-east sides of the island between December and January.
  - Sterna striata*. White-fronted Tern.  
One beach-washed derelict specimen.
  - \**Sturnus vulgaris*. Common Starling.  
Small flock of twenty to thirty birds present and probably breeding.
  - Vanellus miles*. Masked Lapwing.
  - ✗ A breeding species on the island, one pair present in 1978.  
From 1964 to 1975, terns were banded on West Island and a summary of this work is contained in Paton and Paton (1977). Additional, as yet unpublished, information, from this study is included here to give some idea of the present understanding of the ecology of these birds.
- Numbers of each of the three species of terns nesting on West Island vary considerably from year to year (Table III). Caspian Terns have bred in each year of the study but Fairy Terns are more irregular users of the island, breeding there in 1967, none in 1968, present again in 1970, then no further breeding until 1975. Paton (personal communication) suggests that this variability is connected with changing water levels in the Coorong, which alters the suitability for nesting of Fairy Terns on parts of the Coorong such as Stonywell Island.
- Crested Terns did not nest on West Island from 1964 to 1969, but were present in 1970 and have been present each year since.

**TABLE III: NUMBERS OF NESTS OF TERNS RECORDED ON WEST ISLAND**

Date	Numbers of Nests in Use		
	(Crested Tern)	(Caspian Tern)	(Fairy Tern)
3/1/66	0	37	0
24/11/67	0		30
6/8/68	0	106	0
2/9/68	0	19	0
29/12/68	0	4	0
7/1/70	522	16	74
14/1/70		15	77 ± 8
26/12/70		139	0
5/1/71	520	153	0
28/12/71	500	164	0
5/1/72	440	76	0
27/12/72	1250	20	0
2/1/73	50	16	0
8/10/73		134	0
18/11/73	400	105	0
24/12/73	100	94	0
29/12/73		56	0
3/1/74	few	36	0
14/10/74		59	0
1/12/74	600	55	0
31/12/74	1000 approx.	2	0
15/1/75	400	5	0
26/12/75	850	22	10
17/1/76	few	24	1
29/1/76		25	20
3/2/76			20
11/3/76			

The numbers of terns banded in this study on West Island in recent years is shown in Table IV.

**TABLE IV: NUMBERS OF TERNS BANDED ON WEST ISLAND 1972-1976**

Banding Season	Numbers Banded		
	(Caspian Tern)	(Crested Tern)	(Fairy Tern)
1972-1973	80	1 000	5
1973-1974	123	399	2
1974-1975	68	600	—
1975-1976	19	400	—

Recoveries of banded terns are shown in Table V. The thirty-six recoveries of Crested Terns recorded up until March 1978 revealed movements along the east coast of Australia as far as southern Queensland. In addition, Crested Terns banded at Penguin Island near Beachport, Stonywell Island in the Coorong and Lipson Island on the east coast of Eyre Peninsula have been recovered from West Island.

**TABLE V: RECOVERIES OF BANDED TERNS**

Banding Date	Recovery Date	Recovery Site	Distance and Direction from West Island	Condition
<b>A. CRESTED TERNS</b>				
5/12/64	1/12/74	Stonywell Island, S.A.	90 km WNW	Released
26/12/70	30/6/71	South-east part of Great Australian Blight	480 km WSW	On Deck
5/1/71	9/7/72	Warrnambool, Vic.	460 km NW	Dead
5/1/71	14/10/73	15 kilometres south of Noarlunga, S.A.	34 km NW	Dead
14/1/71	24/2/71	Horseshoe Bay, Port Elliot, S.A.	13 km NE	Dead
14/1/71	9/4/75	Goolwa, S.A.	22 km NE	Dead
14/1/71	17/2/74	Venus Bay, Vic.	700 km ESE	Dead
28/12/71	16/7/72	Brighton Pier, Vic.	620 km WNW	Dead
10/12/72	9/12/73	Stonywell Island, S.A.	90 km ESE	Released
10/12/72	9/12/73	Stonywell Island, S.A.	90 km ESE	Released
10/12/72	9/12/73	Stonywell Island, S.A.	90 km ESE	Released

**TABLE V (cont.)**

Banding Date	Recovery Date	Recovery Site	Distance and Direction from West Island	Condition
10/12/72	26/3/78	Westernport Bay, Somers, Vic.	644 km SE	Dead
27/12/72	3/3/73	Safety Beach Yacht Club, Vic.	640 km ESE	Dead
27/12/72	31/3/73	Lake Tyers, Vic.	860 km ESE	Dead
27/12/72	17/5/73	Stradbroke Island, Qld.	1608 km ENE	Dead
27/12/72	27/12/74	Point Lonsdale, Lighthouse, Vic.	612 km SE	Dead
27/12/72	15/5/73	Stradbroke Island, Qld.	1608 km ENE	Injured
27/12/72	9/4/75	Horseshoe Bay, Port Elliot, S.A.	13 km NE	Dead
27/12/72	28/10/75	Chapman River of Kangaroo Island, S.A.	51 km WSW	Dead
27/12/72	11/5/77	Morton Island, Qld.	1644 km NE	Alive
2/1/73	29/8/73	Comboyure Point, Morton Island, Qld.	1696 km ENE	Alive
2/1/73	20/6/73	Clarence River, NSW	1520 km ENE	Alive
24/12/73	28/4/74	Horseshoe Bay, Port Elliot, S.A.	13 km NE	Dead
27/12/73	Sept. 73	Lake Tyers Beach, Vic.	860 km ESE	Dead
3/1/74	14/2/74	Horseshoe Bay, Port Elliot, S.A.	13 km NE	Dead
3/1/74	15/3/74	Teal Island, Coorong, S.A.	96 km ESE	Dead
3/1/74	25/3/74	Wallis Lake, NSW.	1296 km ENE	Alive
31/1/74	6/5/74	Bribie Island, Qld.	1600 km ENW	Dead
1/12/74	24/4/75	Woodside Beach, Ninety Mile Beach, Vic.	808 km ESE	Dead
1/12/74	8/6/75	Jacks Point, Coorong Game Reserve, S.A.	98 km ESE	Dead
1/12/74	11/2/75	Causeway, Hindmarsh Island, S.A.	26 km ENE	Dead
31/12/74	15/10/75	Princes Pier Port Melbourne, Vic.	629 km ESE	
31/12/74	30/10/75	Lake Tyers Beach, Vic.	890 km ESE	Dead
31/12/74	29/5/75	Port Stanvac, S.A.	62 km N	Dead
20/12/75	12/8/76	Scarborough, Qld	1628 km NW	Dead
<b>B. CASPIAN TERNS</b>				
6/6/68	2/9/68	West Island, S.A.		Dead
6/6/68	2/9/68	West Island, S.A.		Dead
6/6/68	20/12/68	West Island, S.A.		Dead
5/1/71	June 1971	Encounter Bay, S.A.	5 km NNE	Beach-washed
28/12/71	19/6/77	Goolwa, S.A.	21 km NE	Dead
27/12/72	20/1/73	Victor Harbor, S.A.	5 km N	

TABLE V (cont.)

Banding Date	Recovery Date	Recovery Site	Distance and Direction from West Island	Condition
1/12/74	5/1/75	Kings Beach, S.A.	7 km NNE	Dead
16/11/75	12/12/75	Victor Harbor, S.A.	7 km NNE	Dead
16/11/75	12/12/75	Victor Harbor, S.A.	7 km NNE	Dead
<b>C. FAIRY TERNS</b>				
3/1/66	12/5/68	Dog Lake, S.A.	58 km NE	Released

### VERTEBRATE FAUNA

Rabbits (*Oryctolagus cuniculus*), said to have been introduced between 1840 and 1844 (Hodge 1935), were formerly present on the island but were eliminated in 1971, and Goats (*Capra hircus*), allegedly present early this century, have long since gone. Pearson Island Rock-wallabies (*Petrogale lateralis pearsoni*) were introduced in 1973 and 1975. These introductions were an attempt to establish another colony of this species in South Australia to ensure the survival of this species should the population on Pearson Island ever become extinct. In August 1973, six captive Pearson Island Rock-wallabies were transferred from pens at Bool Lagoon to West Island and released into rocks near the hut. These animals consisted of two males and four females. One male and two females were originally captured on Pearson Island in 1969, while the other three animals were bred at Bool Lagoon in 1970. At the same time, netting guards were erected around twenty of the trees planted on the island to protect them from the wallabies.

In December 1975, a further three males and four females from Bool Lagoon were released on to West Island. At this time, fresh faeces in the area indicated at least one animal from the 1973 release was still surviving.

The present number of wallabies still surviving on the island is unknown. In November 1978 wallabies were seen both near the hut and in the valley and it was estimated that approximately four separate individuals were involved. Department of Fisheries officers have reported that at least one wallaby was still alive in May 1980. There is no evidence of breeding on the island and there has been at least one known death. The skull of this animal contained only two molars in both upper and lower tooth rows and was undoubtedly that of an old individual.

### REPTILES

The numerous granite boulders on West Island provide extensive habitat for a large population of Cunningham's Skinks (*Egernia cunninghami*). The smaller skinks *Egernia whitei* and *Hemiernis peronii* have also been collected. The following is a list of reptiles collected from West Island by National Parks and Wildlife Service staff on 1 December 1978. South Australian Museum numbers for the specimens are given. Taxonomy follows Cogger (1979).

*Egernia cunninghami*. Cunningham's Skink.  
Abundant all over the island living in burrows and in crevices in the granite boulders (R16989).

*Egernia whitii*. White's Skink.  
One specimen collected in litter and grass beside a granite rock on the top of the island (R16988).

*Hemiernis peronii*.  
One specimen collected in deep litter beneath grass tussocks on the top of the island (R16987).

### ABALONE

The final aspect of the biology of West Island to be considered briefly here concerns the research carried out by members of the Department of Fisheries, in particular Mr Scoresby Shepherd, in the Aquatic Reserve surrounding the island. This research involves studies of the sub-littoral ecology of the island (Shepherd and Womersley 1970) and studies of a number of abalone species (Shepherd 1973; Shepherd and Laws 1974).

## RESOURCE MATERIAL AND REFERENCES

### MAPS

- 1:50 000 Topographic Encounter 6626 IV (South Australian Department of Lands, 1975)
- 1 inch - 2 miles Cadastral Plan County Hindmarsh (South Australian Department of Lands, 1958)
- 1 inch - 40 chains Cadastral Plan Hundred of Waitpinga (South Australian Department of Lands, undated)

### AERIAL PHOTOGRAPHS

- South Australian Department of Lands 1970—Survey 1267 No. 103. South Australian Department of Lands 1976 1:10 000. Survey 1885 Nos. 31, 36, 37, 38.

### DOCKET REFERENCES

- |      |           |                                                                                                  |
|------|-----------|--------------------------------------------------------------------------------------------------|
| CPW  | 314/13    | Request for the sole right to granite on West Island                                             |
| SGP  | 4296/92   | Cancellation of Miscellaneous Lease 246 held for quarrying purposes (not sighted, believed lost) |
| FFC  | 295/65    | Request to have West Island declared a Fauna Reserve                                             |
| DL   | 4644/65   | Enquiry re-releasing West Island in Encounter Bay                                                |
| DE   | 1073/74   | Pearson Island Conservation Park                                                                 |
| NPWS | 135/72    | West Island; scientific permits                                                                  |
| DE   | 4245/B/78 | West Island Conservation Park, management plan                                                   |
| DE   | 4245/A/78 | West Island Conservation Park, additional land                                                   |

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## **PART 2**

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### **MANAGEMENT OBJECTIVES**

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#### **INTRODUCTION**

The following objectives for the management of West Island Conservation Park are designed to serve as a rigorous guide to the uses and developments to be carried out within the park. All park management should be constrained within the limits of these objectives. This part has been formally adopted by the Minister of Environment and Planning under the provisions of Section 38 of the *National Parks and Wildlife Act 1972-1981*.

#### **ZONING**

To zone the various habitats and localities of West Island Conservation Park to ensure conservation, in perpetuity, of the natural environment of the park.

#### **FACILITIES FOR VISITORS**

To inform visitors to the park of its status as a conservation area.

#### **PLANT AND VERTEBRATE PESTS**

1. To restore and maintain the vegetation of West Island Conservation Park to a condition approximating that which pertained prior to European settlement.
2. To control, where possible, pest plants and any other introduced species of plants and animals.

#### **NATIVE FAUNA**

1. To ensure that human interference with breeding sea-birds is kept to a minimum.
2. To monitor any changes in the population of sea-birds breeding on West Island Conservation Park.

#### **HISTORIC RELICS**

To ensure the preservation of the historic relics and other features associated with the early history of the park.

#### **PARK CLASSIFICATION**

To reconstitute West Island Conservation Park as part of Encounter Bay Islands Conservation Park.

#### **STAFFING**

To ensure that staff levels are adequate to properly maintain the park and ensure proper management of wildlife on West Island Conservation Park.

## **PART 3**

# **IMPLEMENTATION OF MANAGEMENT OBJECTIVES**

### **ZONING**

**To zone the various habitats and localities of West Island Conservation Park to ensure conservation, in perpetuity, of the natural environment of the park.**

As the primary purpose of West Island Conservation Park is the conservation of sea-birds, the majority of West Island should be zoned as Natural Area (Figure 5). The small area surrounding the hut and landing jetty on this island should be zoned Development, but this should not involve changes in the current standard of development in this zone apart from routine maintenance and signposting. The whole of Seal Island should be zoned as Natural Area.

### **FACILITIES FOR VISITORS**

**To inform visitors to the park of its status as a conservation area.**

In the past a sanctuary sign and an information sign were erected for the Aquatic Reserve at West Island. These have both faded beyond recognition. It is important that visitors to this island are aware that it is a Conservation Park and that the surrounding waters are an Aquatic Reserve.

Accordingly, a routed wood plank sign indicating the name of the park should be erected adjacent to the landing jetty. An information sign detailing the conservation significance of West Island and the Department of Fisheries' standard Aquatic Reserve sign should be displayed in a prominent position near the hut.

The hut itself, built by members of the Underwater Research Group within the stone ruins of the quarry men's hut built in the 1930s, provides a weatherproof retreat on the island with minimal facilities. The hut should be maintained and kept locked with keys being available on request from the ranger-in-charge.

The landing jetty has become somewhat rusted and the ladder has recently been replaced by the Department of Fisheries. Future maintenance of this facility should be the responsibility of the National Parks and Wildlife Service.

Seal Island should be signposted with a routed wood plank sign on the sheltered landward side.

### **PLANT AND VERTEBRATE PESTS**

**1. To restore and maintain the vegetation of West Island Conservation Park to a condition approximating that which pertained prior to European settlement.**

**2. To control, where possible, pest plants and any other introduced species of plants and animals.**

As mentioned in Part 1: History, West Island formerly supported a population of rabbits. These were, however, successfully poisoned with 1080 and were completely eradicated by 1971. The only other pest species now present on the island are Feral Pigeons and Common Starlings. Both these species appear to be in comparatively small numbers at present and it is doubtful if they could be totally eradicated due to recolonisation from the nearby mainland. If numbers of either of these species increase to unacceptably high levels, a control programme should be undertaken.

The small population of Pearson Island Rock-wallabies still present should be allowed to remain. However, as no breeding appears to have taken place it is doubtful if this population will survive. The island appears to be unsuitable for this species either due to its small size or some other environmental factor. It is therefore not anticipated that further introductions will be made.

The only pest plant present on the island is African Boxthorn and most of the bushes were cut and poisoned in the early 1970s. There are, however, some small plants becoming established again and these should be eradicated by cutting and painting the stumps with a systemic herbicide. Plants of the Boxthorn should be similarly treated.

Since the mid 1960s, a number of attempts have been made to establish a variety of species of Australian native trees and shrubs on West Island. These were planted in the belief that at the time of European settlement, West Island supported a tree vegetation and that this was destroyed by goats and by firewood collecting by the quarry workers.

The species still surviving include *Myoporum insulare*, *Casuarina stricta*, *Leptospermum laevigatum*, *Lagunaria pattersonia* and *Eucalyptus* sp.

A re-examination of the evidence suggests that perhaps West Island never supported trees or shrubs. For example, early paintings of the Encounter Bay area depicted the Bluff, adjacent to West Island and geologically similar, as devoid of tree vegetation. It appears that those trees currently established are unlikely to survive and reproduce on the island and consequently no further tree planting should take place on West Island.

Introduced herbs and grasses are well established on the island, but it appears that, at least in the south-western section, these are being replaced by more salt tolerant maritime species such as Round-leafed Pigface. On the remainder of the island, however, it has been suggested that the growth of exotic grasses and herbs has increased considerably with the eradication of the rabbits. It is not known if an equilibrium condition has yet been reached between native and exotic species. Not enough is yet known to justify any active management of particular exotic or native plants.

### **NATIVE FAUNA**

**1. To ensure that human interference with breeding sea-birds is kept to a minimum.**

**2. To monitor any changes in the population of sea-birds breeding on West Island Conservation Park.**

The major significance of West Island Conservation Park lies in the important breeding colonies of three species of terns. The breeding season of the Crested, Caspian and Fairy terns varies slightly from year to year but always falls between August and February. As most people visit this island in summer, when boating access is easiest, there is a risk that the nesting birds will be disturbed. Human disturbance of breeding sea-birds has been known in the past, both on West Island (Anon. 1966) and on Wright Island (Paton and Paton 1977b). Rather than prohibiting access to the island during this period, a suitable information sign giving details of the tern breeding season and warning people against disturbing the birds should be erected near the landing jetty. By this means it is hoped that visitors to the island will treat this important conservation park with respect.

Periodic counts of the sea-birds breeding on the islands should be carried out to enable any changes in the population to be monitored.

## **HISTORIC RELICS**

**To ensure the preservation of the historic relics and other features associated with the early history of the park.**

West Island still retains a number of relics from its days as a granite quarry. These include:

1. The foundations and walls of the original quarry workers' hut in the north-eastern gully.
2. The drystone walls of the later quarry workers' hut now incorporated into the present hut.
3. A small stone structure believed to be a magazine used for storage of explosives.
4. The quarry itself and scattered, partly dressed, stones.
5. The remains of the original loading jetty.

All these relics are made from large pieces of local granite and will deteriorate extremely slowly unless vandalised. A brief mention of the history of the granite quarry should be incorporated into the information sign.

On two occasions stone from this island has been used for the construction of Parliament House in Adelaide. Should the need arise in the future for repairs or renovations to be done to Parliament House, it is considered that it would be acceptable to re-open the quarry, provided due recognition was paid to the status of the island as a Conservation Park.

## **PARK CLASSIFICATION**

**To reconstitute West Island Conservation Park as part of Encounter Bay Islands Conservation Park.**

The present system of reserve classification was introduced in 1972 with the passage of the National Parks and Wildlife Act. At this time a number of anomalies were introduced into the classification of offshore island parks. In some cases, where islands were close to mainland national parks, they were dedicated as part of that particular National Park. In other cases where islands were part of recognised island groups, the whole group was considered as a single Conservation Park. Finally, a number of single islands were designated Conservation Parks in their own right. West Island falls into this latter category. With the addition of Seal island in 1979 as part of West island Conservation Park the situation was further complicated.

It is therefore proposed to include West island, Seal Island and Pullen Island in an island group category to be known as Encounter Bay Islands Conservation Park.

## **STAFFING**

**To ensure that staff levels are adequate to properly maintain the park and ensure proper management of wildlife on West Island Conservation Park.**

West Island Conservation Park is one of several parks in the Lower Fleurieu District of the Central Region of the National Parks and Wildlife Service. These parks are managed by the existing staff of the Lower Fleurieu District which currently consists of one ranger and one park-keeper located at the Deep Creek Conservation Park.

For adequate management of West Island Conservation Park the equivalent of approximately 12 person-days throughout the year is required for routine inspections and monitoring of sea bird populations. Co-operation with the Fisheries Department helicopter patrol would be of assistance in achieving this objective.

Efforts to control regrowth of African Boxthorn and to control and monitor feral populations of birds as recommended in this plan, would require the addition of a further 8 person-weeks per year. There may be potential for the use of volunteer labour for some of this work.

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## **PART 4**

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### **SUMMARY OF MANAGEMENT PROPOSALS**

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#### **INTRODUCTION**

As a guide to the orderly application of the provisions of this Management Plan, the foregoing management proposals are summarised and ranked. This ranking indicates the relative priority of projects and whether they are of a short-term or a continuing nature. A distinction has been made between research and monitoring projects and those requiring funding for works and maintenance.

#### **RESEARCH AND MONITORING**

<b>PROJECT</b>	<b>PRIORITY</b>	<b>DURATION</b>	<b>Page</b>
Research on sea-bird populations by ranger staff and others	Moderate	Long	19
Encouragement of underwater research by Department of Fisheries	Moderate	Long	19
Monitoring of pigeons and starlings by ranger	Moderate	Continuing	19

#### **WORKS AND MAINTENANCE**

<b>PROJECT</b>	<b>PRIORITY</b>	<b>DURATION</b>	<b>Page</b>
Signposting	High	Short	19
Eradicate African Boxthorns	High	Short	19
Control other alien plants	Moderate	Continuing	19
Repair landing jetty	High	Short	19
Maintain hut	Moderate	Continuing	19

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**BACKGROUND INFORMATION**

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**DESCRIPTION OF THE AREA**

**LOCATION AND PHYSICAL FEATURES**

Pullen Island Conservation Park is located 0.5 kilometres offshore from the town of Port Elliot. It covers an area of 1 hectare and comprises Section 339 in the Hundred of Goolwa. Port Elliot is 66 kilometres south of Adelaide and is 94 kilometres from Adelaide by road (Figures 1 and 6).

Pullen Island is an outcrop of Victor Harbor granite which was formed about 400 million years ago (Parkin 1969). The granite has been weathered into large, angular boulders. Boulder heaps at the eastern and western ends of the island are continuously washed by the sea but there is a small area of soil at the high point in the centre of the island. There is also a boulder-strewn sand patch on the north-central coast which provides a landing place for small boats in calm weather.

**HISTORY**

Pullen Island forms part of the mythology of the Kaurna group of Aborigines and was concerned with the creative journey of Ngurunderi. This myth is described in detail in the Management Plan for The Pages Conservation Park. Unfortunately, the recorder of this story did not give any details of the exact circumstances surrounding the creation of Pullen Island and the last member of the Kaurna tribe is now long gone. The Aboriginal population who lived on the south coast must have visited Pullen Island regularly to collect sea-birds and their eggs. It is readily accessible from the shore and may well have been a quite important source of food in the summer months.

The recorded history of Pullen Island, however, starts with the arrival of the Europeans in the area. Pullen Island was originally named Lipson Island after Captain T. Lipson, one of the original settlers in South Australia and the colony's first harbour master. In 1839, when the Colonial Marine Surveyor W. J. S. Pullen surveyed the south coast, he renamed it after himself (Praithe and Tolley 1970). On 2 September 1948 Pullen Island was declared a closed area for birds under the *Animals and Birds Protection Act 1919-1946*. However, the island remained as vacant Crown Land for many years until, in the late 1960s, the value of offshore islands for conservation was officially acknowledged and on 16 March 1967, the then Department of Fisheries and Fauna Conservation proclaimed it a Fauna Conservation Reserve. With the passage of the National Parks and Wildlife Act in 1972, it was re-dedicated Pullen Island Conservation Park.

Despite its close proximity to Port Elliot, Pullen Island appears to have been little disturbed by man.

**VISITOR USE**

Little is known about the level of visitation of this park. During the holiday season it is undoubtedly visited on calm days by people in small boats. In addition, as the

island is a haven for large numbers of Feral Pigeons, local residents have occasionally visited the island to hunt these birds.

## BIOLOGY

The whole of Pullen Island is exposed to the strong winds and salt spray of the Southern Ocean. The bare granite boulders that make up the bulk of the island therefore support no vegetation. In the small pockets of soil that do occur on the high part of the island a few hardy plants have managed to find a foothold. Native Juniper (*Myoporum insulare*) is the only native plant. The introduced African Boxthorn (*Lycium ferocissimum*), however, is the dominant plant on the island. Two other exotic plants do occur, Tree Mallow (*Lavatera arborea*) and Buckthorn (*Rhamnus alaternus*), an escaped hedge plant.

As mentioned previously, Pullen Island has long been recognised as a sanctuary for sea-birds. Silver Gulls (*Larus novaehollandiae*) and Little Penguins (*Eudyptula minor*) both breed on the island. A National Parks and Wildlife Service examination of the island in November 1978 revealed that there were approximately 4000 Silver Gulls and a large, but unknown, number of Little Penguins. Observations by people who have known the area for many years suggest that fewer sea-birds frequent the island now than in the past.

One possible reason for this is the presence on this island of 3000-5000 Feral Pigeons (*Columba livia*). These birds also breed and roost on the island, flying to the mainland to feed on seed crops during the day. They nest under the boulders and in the African Boxthorn bushes and thus are in direct competition for breeding sites with the gulls and penguins. Another introduced bird that roosts and breeds on the island is the Common Starling (*Sturnus vulgaris*). In 1978 a small flock of approximately 100 birds was present. Other species of sea-birds currently known to roost on the island include approximately fifty Crested Terns (*Sterna bergii*), twenty to thirty Little Pied Cormorants (*Phalacrocorax melanoleucos*) and a few Great Cormorants (*Phalacrocorax carbo*).

## RESOURCE MATERIAL AND REFERENCES

### MAPS

- 1:50 000 Topographic Encounter 6626 IV (South Australian Department of Lands 1975)
- 1 inch-2 miles Cadastral Plan County Hindmarsh (South Australian Department of Lands, 1958)
- 1 inch-40 chains Cadastral Plan Hundred Goolwa (South Australian Department of Lands, 1961)

### AERIAL PHOTOGRAPHS

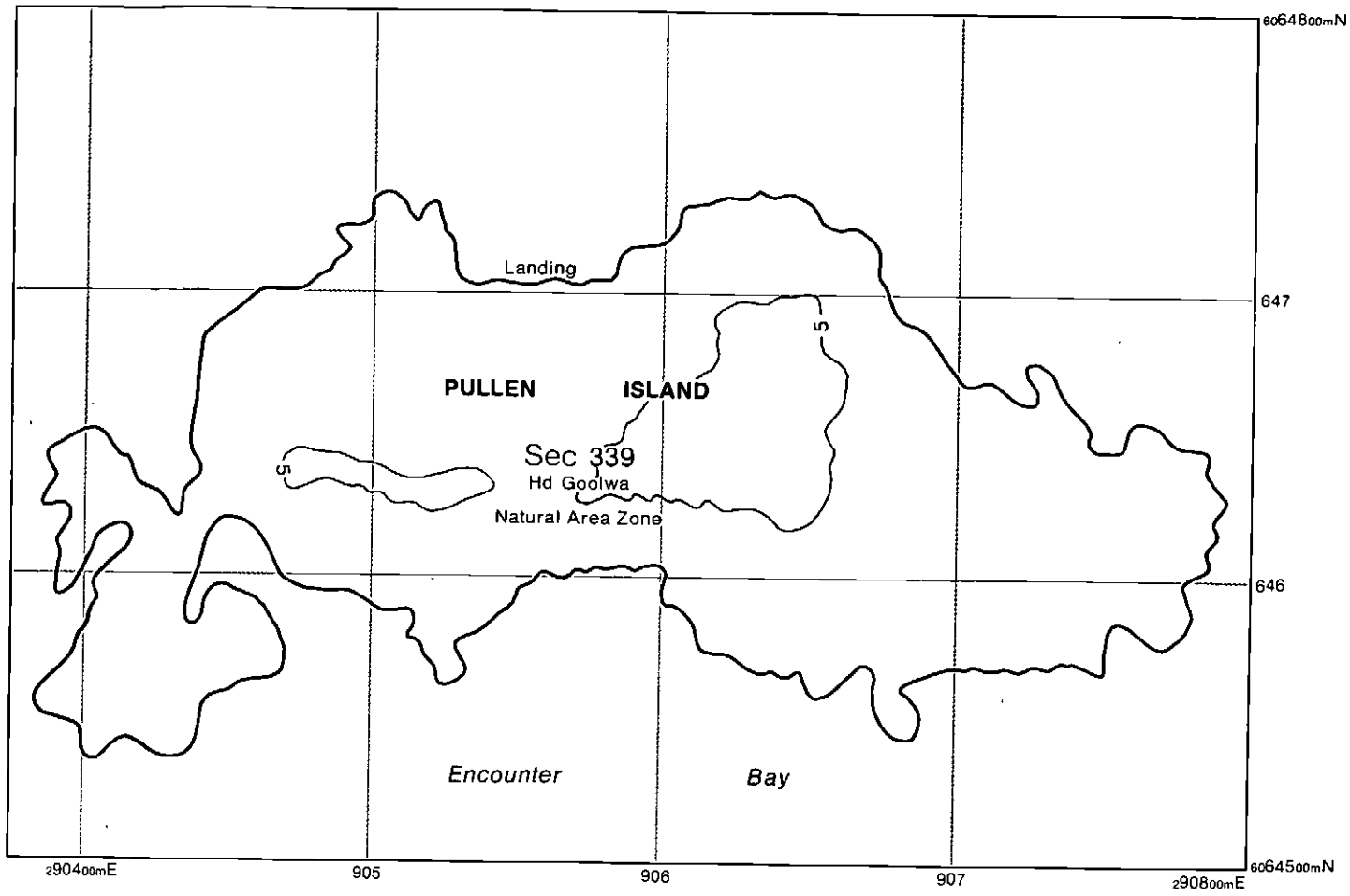
- South Australian Department of Lands, Victor Harbor (1972) 1:16 500 Survey 1371 No. 013.
- South Australian Department of Lands, Victor Harbor (1976) 1:10 000 Survey 1885 Nos. 65, 66.

### DOCKET REFERENCES

- F&G 38/48 Proclamation under Animal and Birds Protection Act
- DE 4210/78 Pullen Island Conservation Park
- DE 4210/A/78 Pullen Island Conservation Park, Management Plan

## REFERENCES

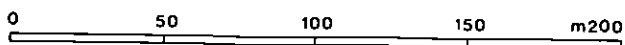
- Parkin, L. W. (Ed.) (1969).—"Handbook of South Australian Geology. Geological Survey of South Australia." (Government Printer: Adelaide.)
- Praite, R., and Tolley, J. C. (1970).—"Place Names of South Australia." (Rigby: Adelaide.)



**Figure 6**

**Topography, Cadastral  
and Zoning**

**PULLEN ISLAND CONSERVATION PARK**



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## **PART 2**

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### **MANAGEMENT OBJECTIVES**

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#### **INTRODUCTION**

The following objectives for the management of Pullen Island Conservation Park are designed to serve as a rigorous guide to the uses and developments to be carried out within the park. All park management should be constrained within the limits of these objectives. This part has been formally adopted by the Minister of Environment and Planning under the provisions of Section 38 of the *National Parks and Wildlife Act 1972-1981*.

#### **ZONING**

To zone the various habitats and localities of Pullen Island Conservation Park to ensure conservation, in perpetuity, of the natural environment of the park.

#### **FACILITIES FOR VISITORS**

To inform visitors to the park of its status as a conservation area.

#### **PLANT AND VERTEBRATE PESTS**

- 1.To remove all introduced perennial vegetation from Pullen Island Conservation Park.
- 2.To control, where possible, populations of introduced species of plants and animals.

#### **NATIVE FAUNA**

- 1.To ensure that human interference with breeding sea-birds is kept to a minimum.
- 2.To monitor any changes in the population of sea-birds breeding on Pullen Island Conservation Park.

#### **PARK CLASSIFICATION**

To reconstitute Pullen Island Conservation Park as part of Encounter Bay Islands Conservation Park.

#### **STAFFING**

To ensure that staff levels are adequate to properly maintain the park and ensure proper management of wildlife on Pullen Island Conservation Park.



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## **PART 3**

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### **IMPLEMENTATION OF MANAGEMENT OBJECTIVES**

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#### **ZONING**

To zone the various habitats and localities of Pullen Island Conservation Park to ensure conservation, in perpetuity, of the natural environment of the park.

As the primary purpose of Pullen Island Conservation Park is the conservation of sea-birds, the whole island should be zoned as Natural Area (Figure 6). Public access to the island is not inconsistent with these conservation aims but adequate signposting is necessary to ensure that visitors are aware of the island's status as a conservation park.

#### **FACILITIES FOR VISITORS**

To inform visitors to the park of its status as a conservation area.

In the past a sanctuary sign was erected on the island but this is now faded beyond recognition. As mentioned previously, it is important that visitors are aware that this island is a conservation park.

Accordingly, a routed wood plank sign indicating the name of the park should be erected at the top of the "beach" and the standard information sign for conservation parks should be placed in a prominent position on the high ground of the island.

#### **PLANT AND VERTEBRATE PESTS**

1. To remove all introduced perennial vegetation from Pullen Island Conservation Park.

2. To control, where possible, populations of introduced species of plants and animals.

The 3000-5000 Feral Pigeons that inhabit the island constitute an agricultural pest because they eat farm crops, particularly peas. Equally importantly, the presence of these birds on a sea-bird breeding island is inconsistent with the conservation status of the area. There is circumstantial evidence to suggest that sea-bird numbers on Pullen Island have decreased over the past decade, possibly due to competition with pigeons.

In addition to occasional casual shooting, not long after the island was proclaimed a Fauna Conservation Reserve, the Department of Fisheries and Fauna Conservation organised a pigeon hunt using local shooters. No details of this operation are available but it is known that several hundred birds were removed. In the last decade, however, pigeon numbers have increased to the present level which is considered to be quite unacceptable. There are five possible control methods available:

1. Netting.
2. Live trapping.
3. Poisoning.
4. Shooting with rifles.
5. Shooting with shotguns.

All these techniques are equally applicable to roosting and feeding sites on the mainland as well as on the island.

A pilot trial in November 1978, using netting and rifle shooting, was carried out, and although approximately 300 birds were removed, neither of these methods

proved practicable considering the number of birds involved. Live trapping and poisoning may have potential but both would involve a disproportionate amount of staff time and effort.

The final option of an intensive destruction programme using shotguns was therefore proposed. This was carried out and again, although approximately 500 birds were destroyed, it was not really successful in substantially reducing the population.

It is now considered that a control programme around the Port Elliot sewerage treatment ponds may be the most efficient method for reducing pigeon numbers. Implementation of a control programme should be particularly effective during summer when the birds come to this area to drink. Following a significant reduction of the pigeon population in this area, control on the Pullen Island roosting and breeding sites should be more effective.

Consequently, shooting programmes should be undertaken on Pullen Island at intervals by staff of the National Parks and Wildlife Service whenever pigeon numbers increase to unacceptable levels. The local ranger should carry out regular inspections of the island to monitor the pigeon population.

The small flock of Common Starlings currently using the island should be eliminated in conjunction with the pigeon control programme.

Undesirable introduced perennial plants present on the island include African Boxthorn, Tree Mallow and Buckthorn. All plants of these three species should be eradicated by cutting and painting the stumps with systemic herbicides. The plant remains should be heaped and burnt on the island.

#### **NATIVE FAUNA**

1. To ensure that human interference with breeding sea-birds is kept to a minimum.

2. To monitor any changes in the population of sea-birds breeding on Pullen Island Conservation Park.

The pigeon control programme discussed previously is the major initiative concerned with the management of the sea-birds on Pullen Island. To assess the effectiveness of this programme, ranger staff should make periodic counts of the numbers of gulls and penguins living and breeding on the island.

#### **PARK CLASSIFICATION**

To reconstitute Pullen Island Conservation Park as part of Encounter Bay Islands Conservation Park.

The present system of reserve classification was introduced in 1972 with the passage of the National Parks and Wildlife Act. At this time a number of anomalies were introduced into the classification of offshore island parks. In some cases, where islands were close to mainland National Parks, they were dedicated as part of that National Park. In other cases where islands were part of recognised island groups, the whole group was considered as a single Conservation Park. Finally, a number of single islands were designated as Conservation Parks in their own right. Pullen Island fell into this latter category.

To rationalise park nomenclature in the Encounter Bay area, it is proposed to include Pullen Island, West Island and Seal Island in a single island group category to be known as Encounter Bay Islands Conservation Park.

## **STAFFING**

**To ensure that staff levels are adequate to properly maintain the park and ensure proper management of wildlife on Pullen Island Conservation Park.**

Pullen Island Conservation Park is one of several parks in the Lower Fleurieu District of the Central Region of the National Parks and Wildlife Service. These parks are managed by the existing staff of the Lower Fleurieu District which currently consists of one ranger and one park-keeper located at the Deep Creek Conservation Park.

For adequate management of Pullen Island Conservation Park, the equivalent of approximately 12 person-days throughout the year is required for routine inspections and patrols. Co-operation with the Fisheries Department helicopter patrol would be of assistance in achieving this objective.

Concentrated efforts to eradicate introduced perennial plants such as African Boxthorn, and undertake shooting programmes to control feral birds would require the addition of a further 8 person-weeks per year.

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## **PART 4**

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### **SUMMARY OF MANAGEMENT PROPOSALS**

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As a guide to the orderly application of the provisions of this Management Plan, the foregoing management proposals are summarised and ranked. This ranking indicates the relative priority of projects and whether they are of a short-term or continuing nature. A distinction has been made between research and monitoring projects and those requiring funding for works and maintenance.

#### **RESEARCH AND MONITORING**

<b>PROJECT</b>	<b>PRIORITY</b>	<b>DURATION</b>	<b>Page</b>
Counts of pigeon population by ranger	Moderate	Continuing	27
Counts of gull and penguin populations by ranger	Moderate	Continuing	27

#### **WORKS AND MAINTENANCE**

<b>PROJECT</b>	<b>PRIORITY</b>	<b>DURATION</b>	<b>Page</b>
Signposting	High	Short	27
Initiate pigeon control programme	High	Continuing	27
Eradicate perennial alien plants	High	Short	27