

INTERIM MANAGEMENT GUIDELINES

FOR

TORNDIRRUP NATIONAL PARK

2nd Edition 1996-2000
(1st Edition 1989-1994)

INTERIM MANAGEMENT GUIDELINES

TORNDIRRUP NATIONAL PARK

(2nd Edition 1996-2000)

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DATE: 15.3.96.

PREFACE

These interim management guidelines set out the policy for managing this area until a formal area management plan is prepared.

Operations required for protection or preservation of persons, property, land flora and fauna within the Torndirrup National Park, are proposed.

The duration of approval for these guidelines is five years from the date on the frontispiece or until they are superseded by the area management plan.

The interim guidelines also provide managers with a basis for the annual works programme and job prescriptions for fire and environmental protection in and around the Park. During the preparation of the annual works programme the proposed operations are to be appraised for their likely impact on the environment, or the likelihood that they will pre-empt the future area management plan. They are not to be carried out until approved at the level of approval shown in Table 1. For each proposed operation, an environmental appraisal must be recorded using the standard checklist. Whoever approves the operation must sign and sign the checklist.

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PART 1

1.0 DESCRIPTION

1.1 Location and Tenure

Torndirrup National Park is located 14 km south of Albany on the South Coast in the Shire of Albany.

It consists of A Class Reserve 24258, of approximately 3918 ha and C Class Reserve 5255, of approximately 55 ha. The initial vesting occurred in 1968. The park extends to the high water mark.

Excluded from the Park are the road reserves servicing Gap/Natural Bridge, Blowholes, Salmon Holes, Frenchmans Bay, and Vancouver Road and Reserve 32478, Plantagenet Loc 7234 (area of 3,600m) for purpose of lighthouse located near Cave Point.

A grid of underground bores extends across the western and central portions of the park and adjacent areas. The borefield is serviced by the Water Corporation (Albany) using all weather tracks (ref to map 5).

1.2 Topography, Soils, Climate

The Park comprises extensive areas of sand dunes in various stages of consolidation and numerous granite outcrops. Granite headlands occur along the southern coastline, including the Gap/Natural Bridge.

A mantle of coastal limestone overlies much of the granite and is especially prominent as Limestone Head. There are no known caves but spectacular collapse landslides and other karst features are common.

Torndirrup National Park experiences warm summers and cool winters. Temperature data for Albany indicate that the mean max. ranges from 14.4c in February to 7.2c in August. Temperatures occasionally rise above 37 c between November and April.

Rain occurs over all months with most falls between April and October. The mean annual rainfall is 822mm.

1.3 Flora and Fauna

Beard (1979) described the vegetation of Torndirrup National Park as falling within the Torndirrup Vegetation System of the Darling Botanical District. Most of the vegetation is developed on a mantle of poorly consolidated sand which is weathered and of low nutritional status. Significant areas of bare rock and drift sand are devoid of vegetation.

Central areas are covered mostly in heath and scrub heath. Peppermint (*Agonis flexuosa*) woodland is the climax vegetation but this is mainly seen in gullies and sheltered areas away from the coast on older soils. In broader swales *Banksia ilicifolia* is found in this association.

Heath is found on high ground exposed to the wind.

Granite outcrops occur in numerous places with an associated distinctive flora.

Small patches of Karri (*Eucalyptus diversicolor*) occur in deep gullies on the inland side of the dune systems and associated with some granite outcrops together with *E. cornuta*.

The fauna of Torndirrup National Park is poorly described and has not been surveyed in detail. The Western Grey Kangaroo is relatively common and Southern Brown Bandicoots have been seen. A survey by Vic Smith in 1986 revealed Yellow-footed Antechinus, common Dunnart and the Honey Possum. Dibbler were trapped in the Park in December 1987 and June 1988. The Noisy Scrub Bird has been introduced into the park as part of the implementation of the Noisy Scrub Bird Recovery Plan.

There is some evidence to suggest that quokkas may be present in the Park.

A research program focusing on the Dibbler commenced in 1994 and a trapping programme is ongoing. The avifauna are diverse and include several members of the albatross family which are common around rocky headlands.

A more detailed description of fauna can be found in 'Portrait of a Peninsula. The Wildlife of Torndirrup' (V. Smith 1991).

1.4 Past History

There are no known archaeological sites within the park, although it was undoubtedly used by aboriginal people.

Adjacent to the park at Frenchman Bay is the Cheyne Beach Whaling Station which ceased operation in 1978. The site is now a tourist museum.

The National Park was established in 1955 and placed under the control of the then National Parks Board in 1968. There was an existing arterial road system in use which is essentially that which remains today. A network of management tracks was established in the mid to late 1970's. A Ranger In Charge was appointed in 1973 and staffing increased to two with the appointment of an assistant in 1984. The Park had been utilised extensively prior to any management presence.

1.5 Existing Use

Because of its location and diverse range of natural features, there is a considerable amount of public use throughout the year.

Activities engaged in are walking, fishing, sightseeing, rock climbing, photography, and hang gliding.

There are a number of well known attractions within the Park, such as the Gap/Natural Bridge, Jimmy Newhills Harbour and the Blowholes.

There are no developed camping facilities provided within the Park as there is a caravan park and tearooms located at Frenchman Bay and another caravan park 1.5km west of the Albany entrance of the Park.

Rock climbers visit the Gap/Natural Bridge and Peak Head which has high quality climbs of up to 150 metres.

King Waves and high swells occur regularly along the coast. These are extremely dangerous and several deaths have occurred involving both experienced fishermen and visitors.

Year round use is made of footpaths to the following areas:

- The Gap/Natural Bridge
- Blowholes
- Stony Hill
- Jimmy Newhill Harbour Lookout
- Sharp Point
- Isthmus Hill/Flinders Peninsula
- Salmon Holes
- Peak Head

Sections of firelines are used by hikers, wildflower enthusiasts, ornithologists and for limited equestrian use.

A section of the Bibbulmun Track is being constructed through the Park and this is due to be completed by 1997.

Annual visitation exceeds 250,000 people (estimate 1987), making Torndirrup one of the most highly visited parks in WA.

The Park has been managed to date under Interim Management Guidelines (1989 - 1994) and in accordance with the South Coast Region Management Plan (1992-2002).

PART 2

2.0 GENERAL MANAGEMENT OBJECTIVES

- Protect and conserve native plants, animals and their habitats.
- Protect and conserve physical, cultural and scenic resources.
- Regulate use to be consistent with the maintenance and protection of natural resource values and to minimise conflict between users.
- Promote visitor safety, awareness and appreciation of natural processes and the scientific and cultural attributes of Park resources.
- Provide information and promote education and interpretive programmes.

PART 3

3.0 FIRE PROTECTION

3.1. Introduction

Records since 1979 show that some of the area has been burnt by wildfires. These are the result of escapes from burns on private property, escapes from park user fires and deliberate lightings. One large fire of approximately 688 ha burnt most of the western portion of the Park in 1981. In 1982 a fire burnt 270 ha south of Frenchman Bay Road between the Gap and the Blowholes roads. In 1988 a deliberate lighting in the Humphries Road area resulted in a wildfire which ran to the coast burning approximately 200 ha. More recently in 1994 another deliberate lighting in the western section of the park adjacent to the Sand Patch Road resulted in the burning of 165 ha of Park and adjoining shire reserve.

A growing trend in the last seven years has been the large increase in deliberately lit fires in or adjacent to the park, with many of these being multiple ignitions.

A large proportion of the Park, particularly in the eastern area, contains fuels that are in excess of 15-20 years old. These areas have the potential for rapid fire escalation following ignition.

The existing narrow buffers are burnt to maintain low fuels. This method has had varying success. In some areas it has been difficult to undertake burning without risk of escape due to the steep terrain, variation in vegetation types, and limited manpower available.

It is considered that fuels of less than six years old are effective in slowing wildfires under all but severe conditions.

3.2. Fire Protection Objectives

- To protect human lives (visitors, neighbours and firefighters) from wildfire entering or burning within the Park.
- To protect community and environmental values in and around the park from damage or destruction from wildfire.
- To use fire as a management tool
- To prevent all of a particular ecosystem being burnt in any one single fire event.
- To reduce the risk and frequency of wildfires starting in or near the park from human activities.

3.3. Fire Protection Strategies

Seven fire management strategies have been developed, as follows:

- Maintenance of perimeter and internal low fuel buffers.
- Prescribed burning operations.
- Fire suppression actions.
- Liaison with local community.
- Visitor protection and safety measures.
- Maintenance of water supplies.
- Fire research.

3.4. Fire Protection Strategies

The fire prevention and suppression actions required to meet the objectives are given below and shown on Map 2 of the Appendix.

3.4.1. Maintenance of low fuel buffers

Actions required are:

- The existing system of firebreaks north and west of the park boundary and both north and south of Frenchman Bay Road will be retained. Essential firebreaks will be maintained by slashing. Non essential firebreaks will be rehabilitated.
- The buffers between these fire breaks will be burnt as required.

- The burn rotation will depend upon the rate of scrub regeneration. This may range from 5-7 years depending on scrub type and the rate of fuel accumulation.
- Where possible the Park buffer system is to be linked with the Albany Shire's burning programme. This is particularly essential in the Frenchmans Bay area.
- Where possible low fuel buffers will be linked to natural low fuel areas such as rock outcrops.
- High value and high risk sites such as the Ranger's residence and other park facilities will be protected by maintenance of low fuel buffers. This work will be done, taking into consideration the environmental and aesthetic values of these sites.
- Power lines, poles, fuses, etc, will be cleared around annually or as necessary in conjunction with Western Power.

3.4.2. Prescribed Burning Operations

Actions required are:

- All burns must comply with a written prescription approved by the CALMfire Co-ordinator. These must include the Departmental Pre-burn Checklist (CLM 32) to take into consideration the environmental impacts of burning, and the requirements of notifications.
- Those areas from which planned burning is to be excluded for the duration of these Interim Guidelines are indicated on Map 2 in the Appendix.
- Where there are known declared rare flora within proposed burn areas, consideration will be given to relocating, modifying or deferring the burn. Where it is considered essential to burn, a Ministerial permit to take rare flora will be sought.
- Where proposed burning may impact on declared threatened fauna populations, the proposal will be evaluated to consider relocating, modifying or deferring the burn.

3.4.3. Fire Suppression

Actions required are:

- Wildfires in or threatening the park will be contained to the smallest possible area, either by direct attack or by backburning from established buffers or firebreaks taking into consideration the likely threats to life and property and the impact of the suppression activity on the environmental management objectives of the park.

- Procedures and arrangements for actions in case of wildfires are listed in the Albany District Fire Control Working Plan. This includes an inventory of fire-fighting resources available in the district.
- Irrespective of fire weather forecasts, whenever park vegetation will burn and whenever burns on adjoining lands are imminent, a high level of fire preparedness will be maintained by park and district staff.
- The construction of new firelines will be kept to a minimum commensurate with fire behaviour, the values at risk, the location of the buffers and tracks, the impact on the environment, and the safety of firefighters. Any new firelines not required for subsequent management access will be closed and rehabilitated.

3.4.4. Visitor Protection and Safety

Actions required are:

- Signposting of public roads under the control of the Department will be maintained where necessary to enable safe evacuation in case of wildfire emergency.
- Public education and awareness of fire risk and use of fire will be promoted through pamphlets, information signs and personal contact by district staff.
- Public facilities will be protected by narrow low fuel buffers where practical.

3.4.5. Liaison

District staff will maintain close liaison with the Shire of Albany and local Bushfire Brigades and park neighbours to encourage mutual aid in fire protection, detection and suppression activities in or near the park. In particular the police will be notified of any fires which occur.

3.4.6. Water Supplies

Existing water supplies are considered to be adequate. Upgrading of existing standpipes and hydrant points outside the park is being pursued with the local authority through the local bush brigade structure. This will improve access and flow rates and provide continuous supplies.

3.4.7. Fire Research

Any research trails established to study impacts of burning and fuel modification treatments on flora, fauna and other natural values must be written up as a Research Working Plan by the Science and Information Division, following consultation with the Regional Manager. Such work may include prescribed burning to protect or regenerate habitat for particular species.

PART 4

4.0 PLANT DISEASE

4.1 Introduction

A current dieback occurrence map for the Park has been prepared (Map 3). Dieback Hazard is shown on Map 4.

Phytophthora cinnamomi is widely distributed, associated with the track system.

Armillaria Luteobubalina is also known in the Park.

Plant death associated with the canker species *Cryptodiaporthe* is also present across the Park.

4.2 Management Objectives

To prevent the introduction or spread of *Phytophthora* sp. to uninfested areas of the Park.

4.3 Policies and Strategies

Policies and strategies for dieback and other plant disease protection on the South Coast are contained in "A Plan for the Protection of South Coast Vegetation from Dieback. 3. (1994-98)"

4.4 Actions For Protection

- Implement the strategies outlined in the current version of the above plan.
- The Dieback Occurrence Map will be regularly updated.
- Staff training requirements will be regularly reviewed particularly with change over staff.
- All operations within the Park will conform to the Dieback Hygiene Manual.

PART 5

5.0 NOXIOUS WEEDS/FERAL ANIMALS

5.1 Introduction

Victoria Tea Tree and *Taylorina sp.* are present in the Park, particularly in disturbed areas. Considerable effort has already been directed to eradicating these weed species.

Cats, foxes and rabbits are present throughout the park. Cat trapping is undertaken opportunistically and some small scale fox baiting has been undertaken.

5.2 Management Objectives

To prevent the introduction of and control the abundance and spread of noxious weeds and feral animals.

5.3 Policies and Strategies

Relevant Policies are:

Policy Number 14 "Weeds on CALM Lands" and the CALM Fox Control Manual (1995)

5.4 Action for control

- Noxious and environmental weed infestations will be mapped and a control programme initiated if considered necessary and practical.
- Institute a fox control programme. The Fox Control Programme will conform with the Fox Control Manual for approvals and operational activities.

PART 6

6.0 Threatened and Priority Flora

6.1 Introduction

Four species of gazetted Rare flora are currently known from the Park. These are: *Banksia verticillata*, *Adenanthos cunninghamii*, *Isopogon uncinatus*, and *Asplenium obtusatum*.

The DRF list is reviewed annually.

The Albany District Rare Flora Management Plan (1995) sets out actions for the protection of target species of rare flora in the Albany District. This is a working document which will be continuously under review through the Albany District Rare Flora Recovery Team.

6.2 Management Objectives

To protect threatened flora populations.

6.3 Policy and Strategies

Relevant policy is presented in Policy Statement No 9: conservation of threatened flora in the wild. 1992 (revised).

Strategies will be determined through the Albany District Rare Flora Recovery Team.

6.4 Action for Protection for Threatened Species.

- Implement Actions recommended by Albany District Rare Flora Recovery Team.
- Ranger in Charge will maintain a herbarium of rare flora species and a copy of maps of locations of rare flora and research sites for management purposes.
- When disturbance of rare flora is unavoidable an application for a Ministerial permit to "take" the flora will be required.

PART 7

7.0 THREATENED AND SPECIALLY PROTECTED FAUNA

7.1 Introduction

The Dibbler (*Parantechinus apicalis*) was trapped in the Park in December 1987 and June 1988 and is currently the target of a research programme along the South Coast to determine the distribution and abundance of the species (1995-1997). Trapping will be ongoing in the Park.

In accordance with the Noisy Scrub Bird Recovery Plan (1995), the Noisy Scrub Bird (*Atrichornis clamosus*) has been introduced into the Park in the Stony Hill area. Future management will depend on viability of this population as set out in the Recovery Plan. It is possible the quokka (*Setonix brachyuris*) may be present in the Park. The Southern Brown Bandicoot is known from the Park.

7.2 Policies and Strategies

Relevant documents are:

Policy No 33 "Conservation of Endangered and Specially Protected Fauna in the Wild (Revised) Dec 1991"
Noisy Scrub Bird Recovery Plan.

7.3 Actions For Protection of Threatened Fauna

- Implement the necessary provisions of any relevant Recovery Plans or Interim Wildlife Management Guidelines
- The Ranger in Charge will hold maps showing the known habitat locations of any Threatened Fauna species for management purposes.
- Maps showing research areas will be maintained at the Albany Office and a copy held by the Ranger In Charge.

PART 8

8.0 MAN MADE DISTURBANCES

8.1 Introduction

Continuing rehabilitation of gravel pits, disused roads, footpaths and tracks is an ongoing commitment. Similarly, upgrading and arresting erosion on firebreaks is continuing. Dune blow outs at the Salmon Holes require ongoing stabilisation.

8.2 Management Objectives

To rehabilitate sites that have been disturbed by human activities and erosion.

8.3 Policies and Strategies

Relevant policies are:

Policy No 10 "Rehabilitation of Disturbed Land"

Policy No "Basic Raw Materials"

8.4 Actions for Protection

Areas denuded by soil disturbance are to be monitored and rehabilitated with indigenous plant species in accordance with departmental policy.

As far as possible, all land uses and activities with the Park must be carried out in ways that complement rather than detract from the visual and aesthetic qualities of the park environment.

Any proposals for mining or exploration will be dealt with according to current Government Policy and approved referral processes.

PART 9

9.0 ARCHAEOLOGICAL AND HISTORIC SITES

9.1 Introduction

There are no known archaeological sites with the Park, although it was undoubtedly used by Aboriginal people.

9.2 Management Objectives

To protect sites in accordance with the requirements of the WA Heritage Act 1972-1980.

9.3 Policies and Strategies

9.4 Action for Protection

- Consult with the Department of Aboriginal Affairs prior to implementation of any major development proposals to ensure Aboriginal sites are protected.
- Seek to conduct ethnographic/archaeological surveys in any area of the Park which will be disturbed by new development proposals.

PART 10

10. MANAGEMENT OF ACCESS AND FACILITIES

10.1 Introduction

The Park is serviced by a system of sealed public roads and some minor gravel roads providing access to coastal lookouts and fishing spots. Sealed carparks are located at each of the major tourist sites.

Managed footpaths are located at Sharp Point, Blowholes, Gap, Stony Hill (Heritage Trail), Peak Head and Bald Head. Other facilities such as information shelters, plaques/signs, lookouts and beach access stairs are provided in the Park.

A section of the Bibbulmun Track is being constructed in the Park and is due to be completed by 1997.

Some unauthorised horse riding does still occur. A designated bridle trail has been made available for horse riding until the issue is addressed in an area management plan. (Map 5)

The safety of visitors to coastal areas is a major issue in this Park. Many people have been washed from rocks while fishing or sightseeing along the Albany coastline.

10.2 Objectives

To maintain existing access and facilities in the Park to a standard that achieves the safe and effective management of visitors, fire and dieback and other environmental protection matters.

10.3 Policies and Strategies

Access within the Park will be in accordance with:

“A Plan for the Protection of South Coast Vegetation for Dieback (1994-98)”
Policy No 18 “Departmental Recreation Policy”

10.4 Action Required (refer to Map 3)

- Well formed, hard surfaced roads will be maintained to visitor facilities.
- The existing network of strategic fire control and management access is to be maintained in a safe and where possible, dry condition.
- Management-only access roads will be closed to public vehicles.

- Non-essential roads and firebreaks will be permanently closed and rehabilitated.
- Visitor facilities including footpaths will be maintained as necessary. Non-essential or environmentally unsuitable tracks will be closed and rehabilitated.
- The visitor safety programme developed as an interagency agreement in association with Police and State Emergency Service in 1988 will continue to be reviewed annually.
- The existing bridle trail will continue to be available for recreational horse riding.
- Bibbulmun Track and facilities will be maintained as necessary and any new alignments will be in accordance with 10.3.

ANNUAL WORKS PROGRAMME 1996/97 FOR NECESSARY OPERATIONS IN THE TORNDIRRUP NATIONAL PARK

1. Essential firebreaks will be maintained/relocated/rehabilitated
Interim Guidelines 3.4.1 - Map 5
2. Narrow perimeter buffers will be prescribed burnt.
3. Internal buffers will be prescribed burnt.
Interim Guidelines 3.4.1 - Map 2
4. The area adjoining the Rangers house will be fuel reduced
Interim Guidelines 3.4.1
5. Signposting of tourist roads and visitor facilities will be maintained in accordance with the Departments Sign Manual.
Interim Guidelines 3.4.4
6. Safety Hazard Signs are to be maintained to a high standard.
7. Footpaths will be inspected for dieback
Interim Guidelines 4.4
8. Footpaths will be regularly maintained for safe use by the visitors and with minimal environmental impact.
9. Dieback distribution and predicted impact maps will be upgraded.
Interim Guidelines 4.4
10. Selected sites will be monitored for dieback spread.
Interim Guidelines 4.4
11. Rehabilitation of gravel pits and other disturbed sites will be undertaken.
Interim Guidelines 7.4
12. The roading network will be maintained.
Interim Guidelines 9.4
13. The visitor safety programme will be reviewed annually.
Interim Guidelines 9.4
14. Existing recreation sites to be maintained, eg Salmon Holes.
Interim Guidelines 9.4

APPENDIX II

**LEVELS OF APPROVAL FOR NECESSARY OPERATIONS IN
NATIONAL PARKS, NATURE RESERVES AND CONSERVATION
PARKS**

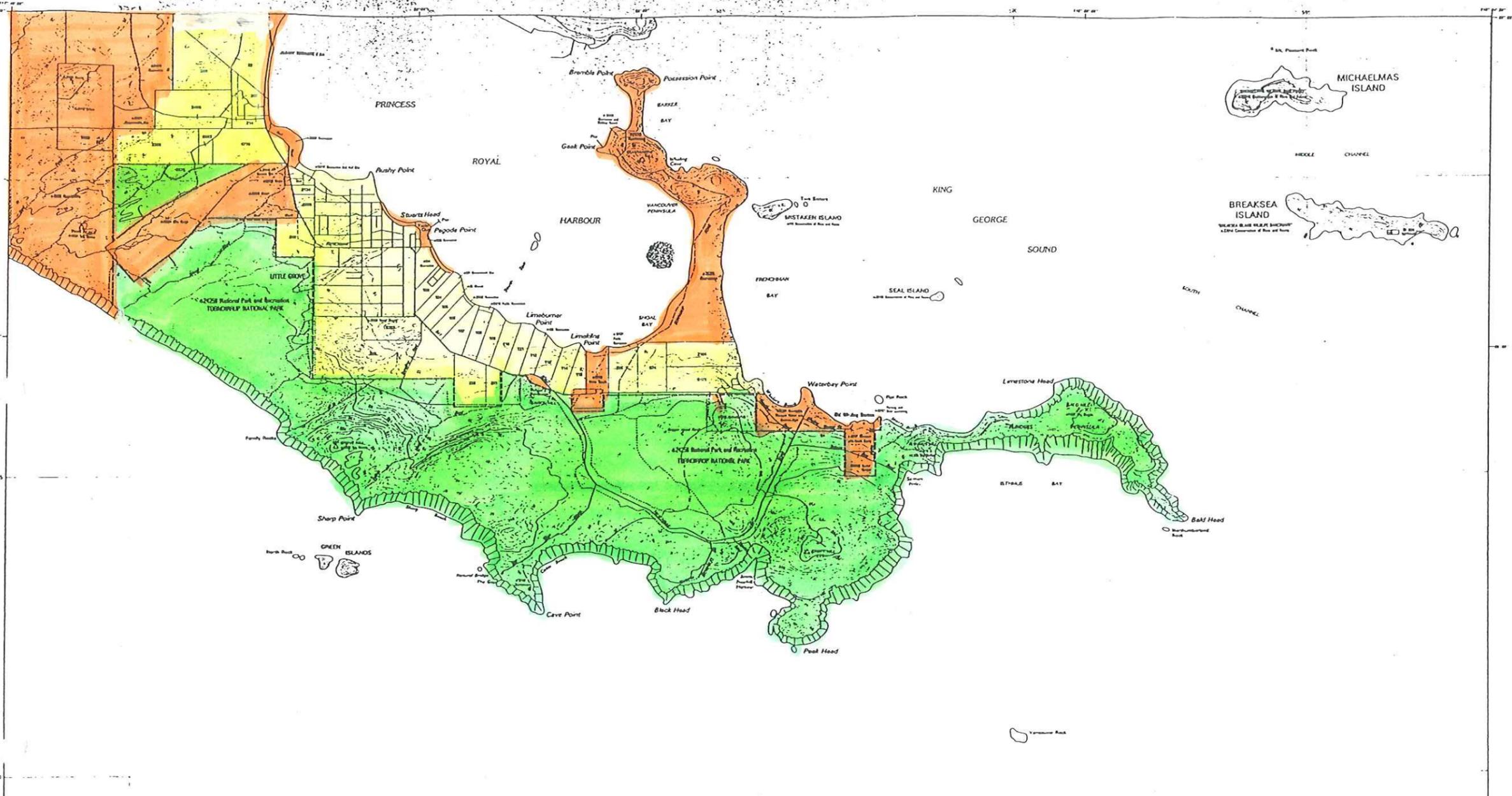
ACTIVITIES	PERSON TO APPROVE
SEARCH AND RESCUE	RLO/RLRT
FIRE PROTECTION	
Firebreak maintenance	RLO
Firebreak construction - internal	DRS
Burning buffers- external	RLO
Area prescribed burns	DRS
Fire suppression	RLO
DISEASE PROTECTION	
Existing programmes	RLNC
New programmes	RLNC
CONTROL OF NOXIOUS WEEDS	
Existing programmes	RLNC
New programmes	RLNC
PROTECTION OF KNOWN RARE SPECIES, CULTURAL	
Archaeological and historic sites	RLNC
New occurrences/sites	RM
RECREATION	
Existing facilities	RLRT
New facilities	DRS
ACCESS	
Maintenance	RLRT
Closure	RLRT
New construction	DRS
CONTROL OF SOIL EROSION/REHABILITATION	RM
MINING AND EXPLORATION	Hon Minister
WESTERN POWER, TELSTRA, WAWA	
Maintenance	RLO
New work	DRS

Regional Manager
Director Regional Services
Hon Minister for CALM
Regional Leader Nature Conservation
Regional Leader Operations
Regional Leader Recreation and Tourism

RM
DRS
HON MINISTER
RLNC
RLO
RLRT

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Maps and Explanatory Text:
Scale 1:500,000
Prepared for the National Parks Authority
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Number 3, 1994-1998.
- CHURCHWOOD HM
MCARTHUR WM
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BARTLE GA (1988) Land forms and soils of the South Coast and Hinterland. Northcliffe to Many Peaks, WA.
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The Wildlife of Torndirrup.
- DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT South Coast Region
Regional Management Plan 1992 - 2002



SOUTHERN OCEAN

MAP 1

TORNDIRRUP NATIONAL PARK

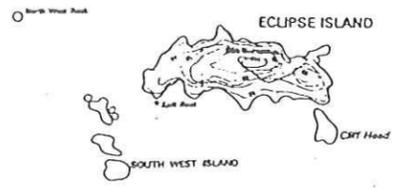
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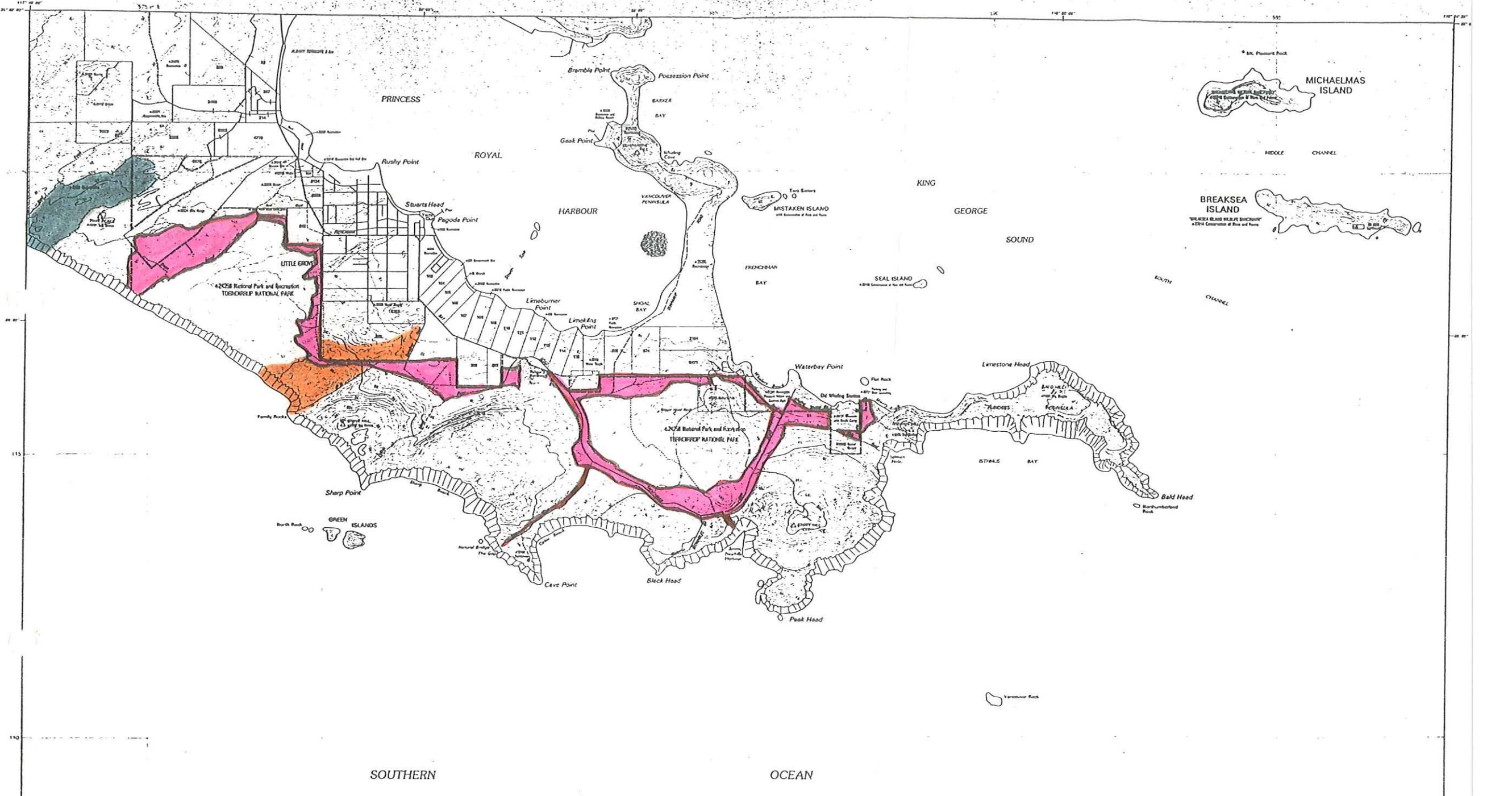


LEGEND

- PARK BOUNDARY
- MAJOR SEALED ROAD
- MINOR SEALED ROAD
- UNSEALED ROAD
- TRAIL
- TIDAL FLATS
- CLIFF

- NATIONAL PARK
- OTHER CROWN LAND
- PRIVATE PROPERTY





- Existing Buffer System
- 5 to 7yr rotation
- W-Fire 1988
- W-Fire 1994

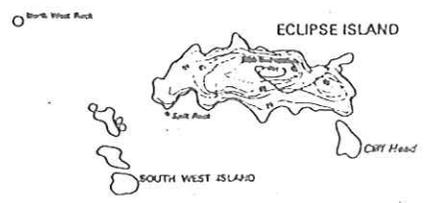
MAP 2

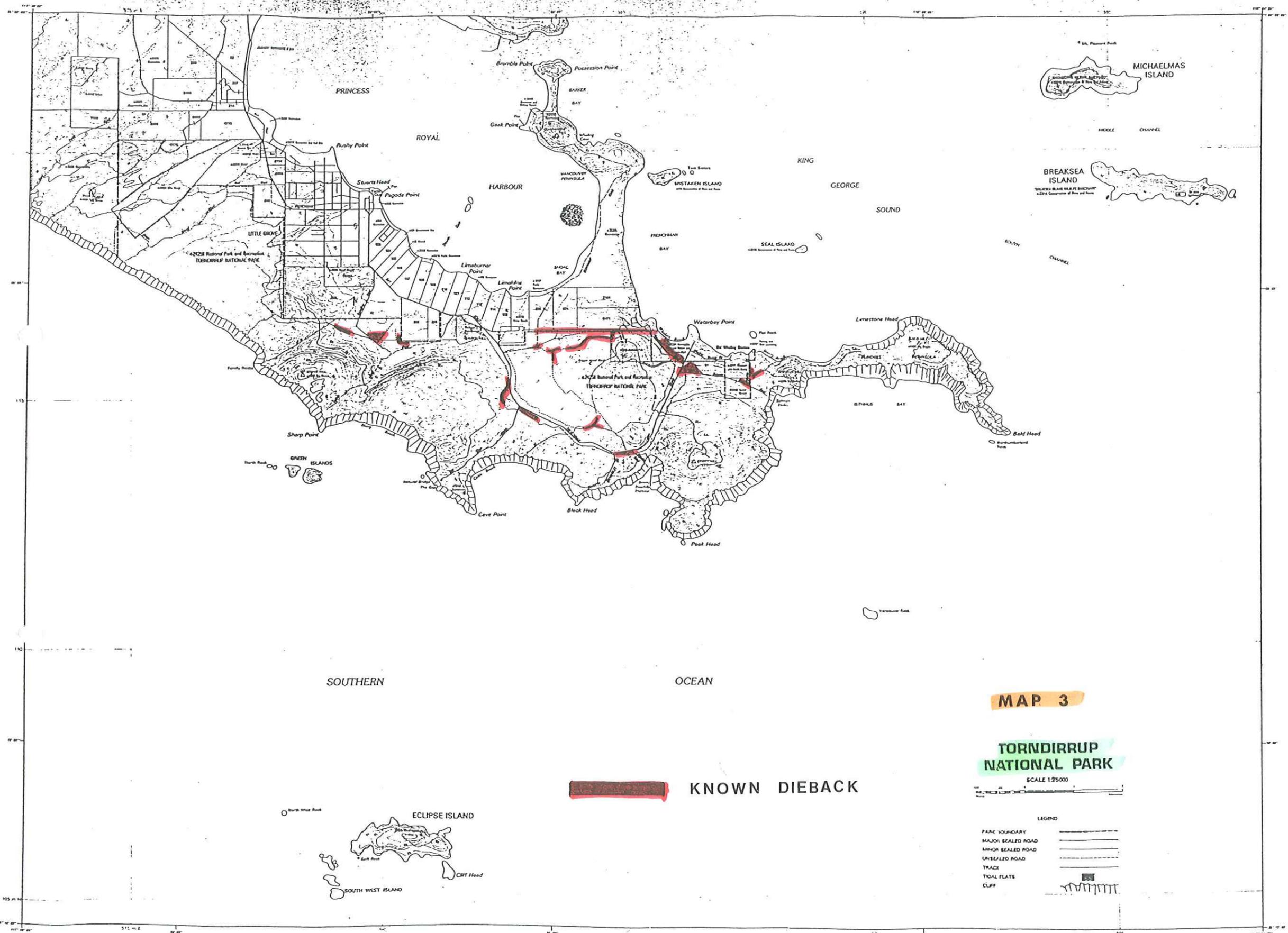
TORNDIRRUP NATIONAL PARK
SCALE 1:25000



LEGEND

- PARK BOUNDARY
- MAJOR SEALED ROAD
- MINOR SEALED ROAD
- UNSEALED ROAD
- TRACK
- TIDAL FLATS
- CLIFF





PRINCESS

ROYAL

HARBOUR

KING

GEORGE

SOUND

MICHAELMAS ISLAND

BREAKSEA ISLAND

ANZAC National Park and Recreation
TORNDIRRUP NATIONAL PARK

ANZAC National Park and Recreation
TORNDIRRUP NATIONAL PARK

**TORNDIRRUP
NATIONAL PARK**

SCALE 1:25000



LEGEND

- PAK BOUNDARY
- MAJOR SEALED ROAD
- MINOR SEALED ROAD
- UNSEALED ROAD
- TRAIL
- TRAIL FLATS
- CLIFF

SOUTHERN

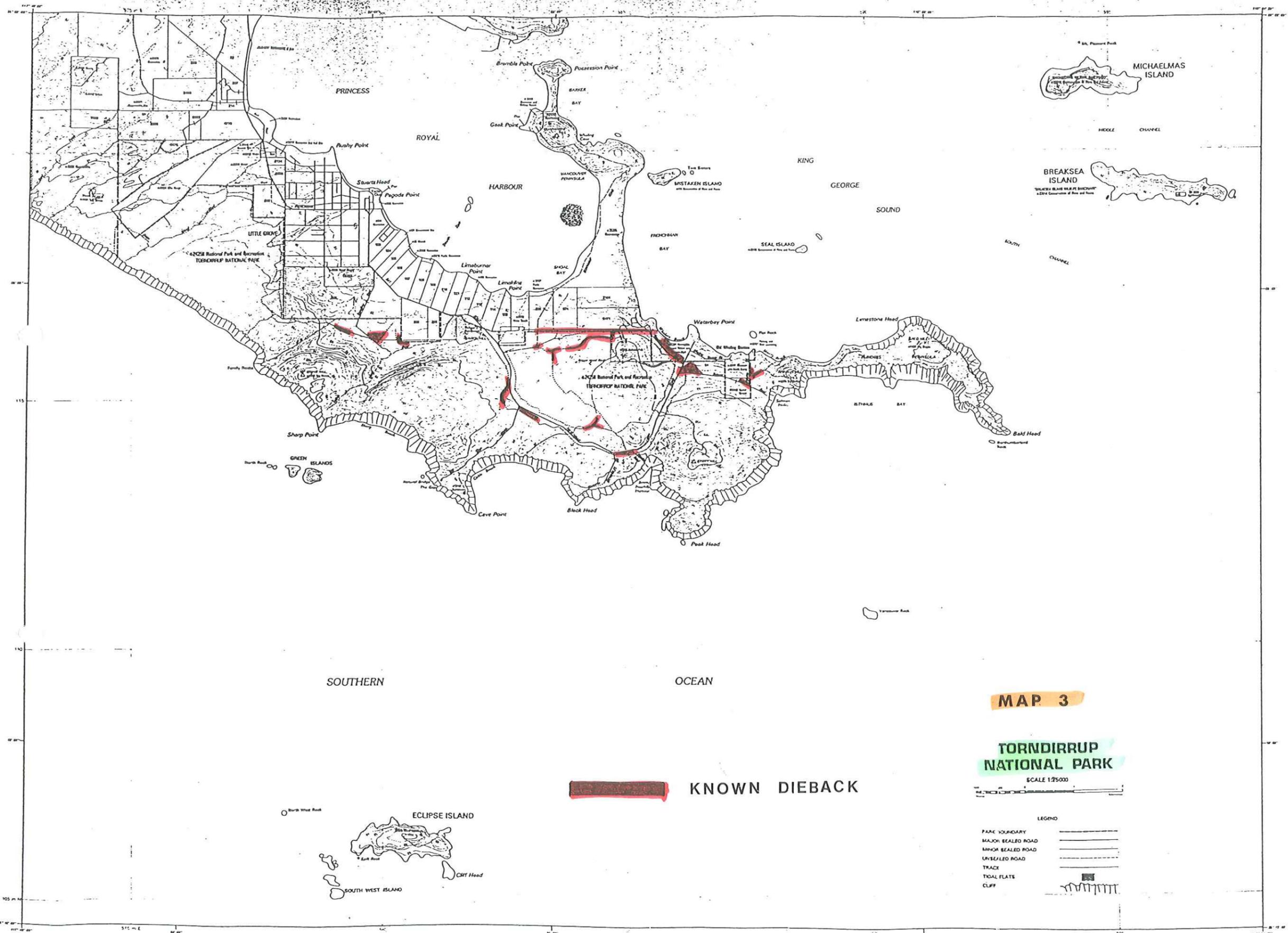
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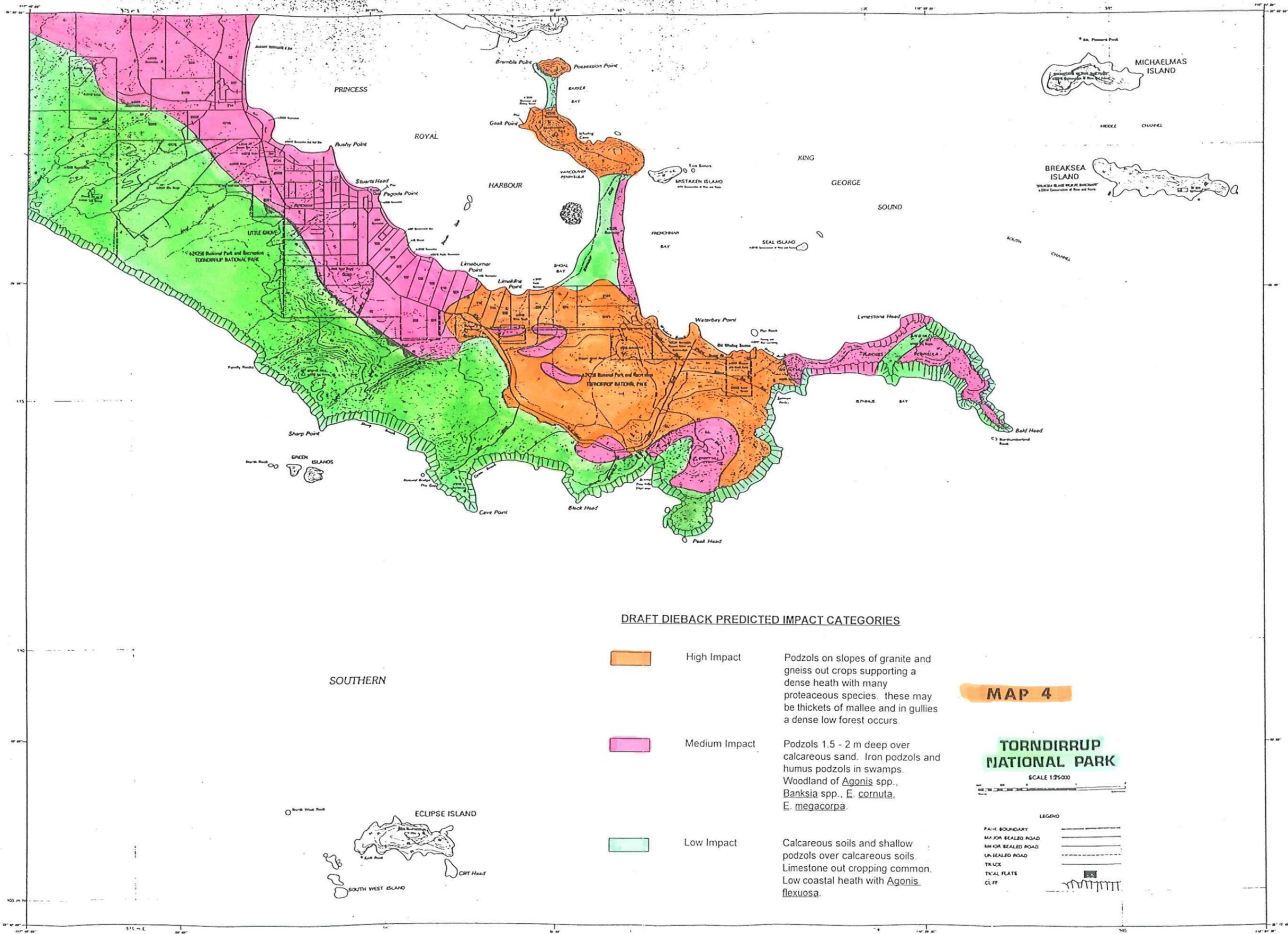
MAP 3

KNOWN DIEBACK

ECLIPSE ISLAND

SOUTH WEST ISLAND





DRAFT DIEBACK PREDICTED IMPACT CATEGORIES

- High Impact** Podzols on slopes of granite and gneiss out crops supporting a dense heath with many proteaceous species. these may be thickets of mallee and in gullies a dense low forest occurs.
- Medium Impact** Podzols 1.5 - 2 m deep over calcareous sand. Iron podzols and humus podzols in swamps. Woodland of *Agonis* spp., *Banksia* spp., *E. cornuta*, *E. megacarpa*.
- Low Impact** Calcareous soils and shallow podzols over calcareous soils. Limestone out cropping common. Low coastal heath with *Agonis flexuosa*.

MAP 4

TORNDIRRUPT NATIONAL PARK

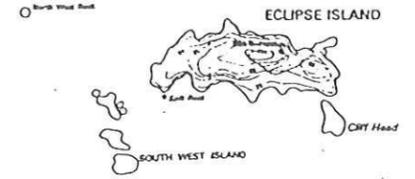
SCALE 1:25000

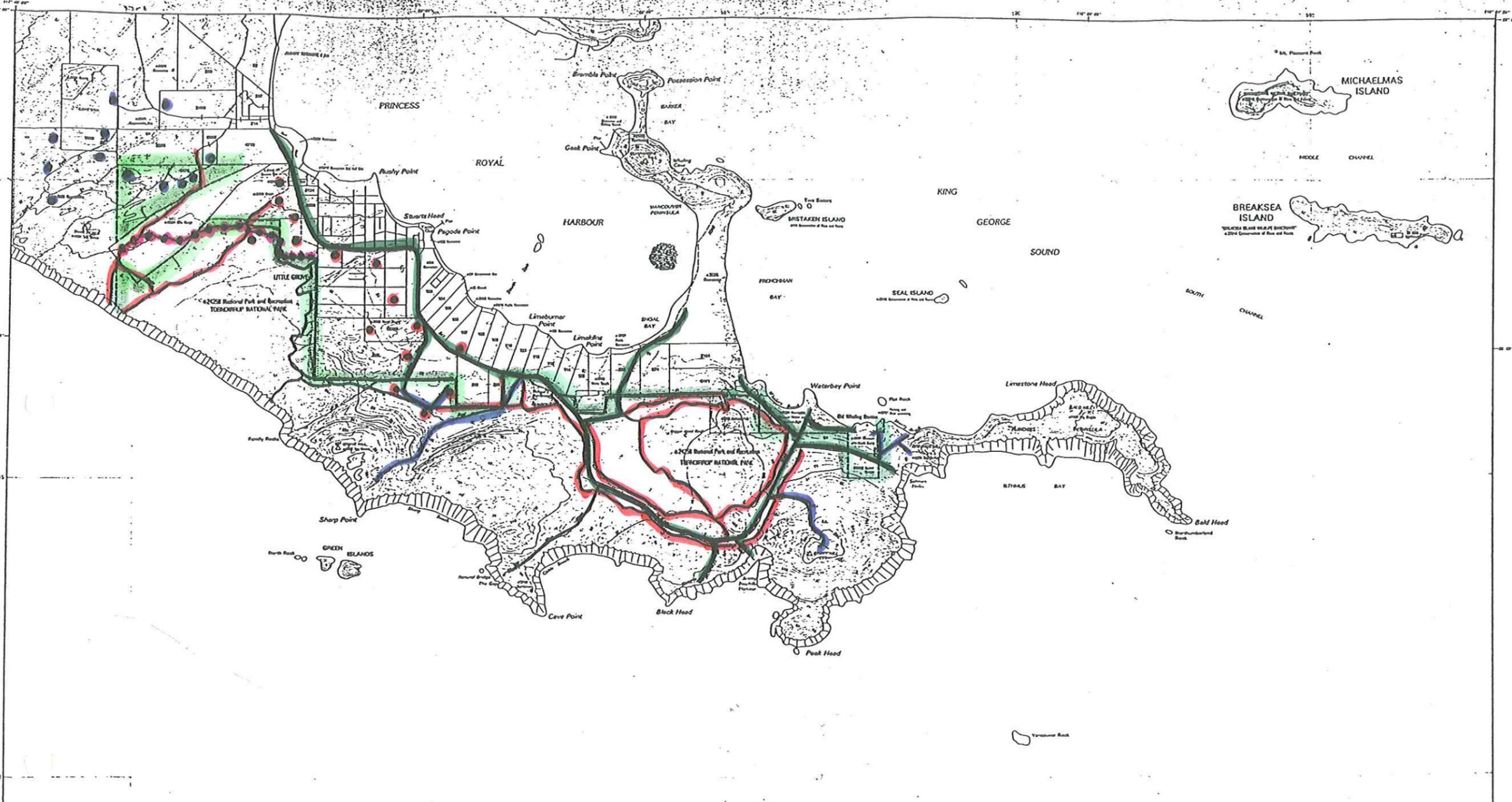


LEGEND

- PARK BOUNDARY
- MAJOR SEALED ROAD
- MINOR SEALED ROAD
- UNSEALED ROAD
- TRUCK
- TYPICAL FLATS
- CLIFF

SOUTHERN





MAP 5

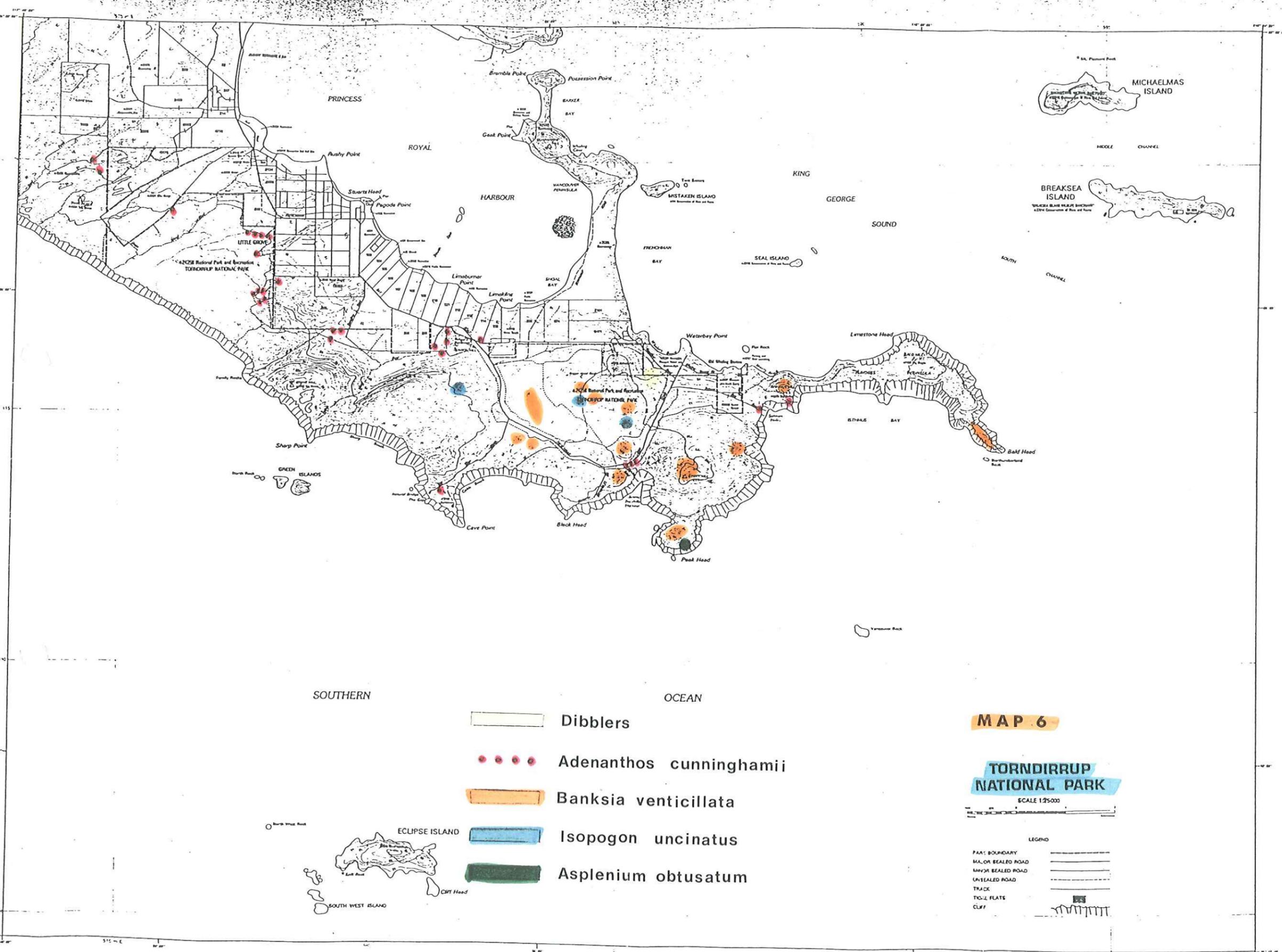
TORNDIRRUP NATIONAL PARK

SCALE 1:25000

ROADS		BORE FIELDS	
	SHIRE		used
	CALM;		not in production
	2 wd		
	4 wd		
	Bridle trail		

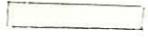
LEGEND

PARK BOUNDARY	
MAJOR SEALED ROAD	
MINOR SEALED ROAD	
UNSEALED ROAD	
TRUCK	
TIDAL FLATS	
CLIFF	



SOUTHERN

OCEAN

-  Dibblers
-  *Adenanthos cunninghamii*
-  *Banksia venticillata*
-  *Isopogon uncinatus*
-  *Asplenium obtusatum*

MAP 6

TORNDIRRUP NATIONAL PARK

SCALE 1:25000



LEGEND

- PAK. BOUNDARY 
- MAJOR BEALED ROAD 
- MINOR BEALED ROAD 
- UNBEALED ROAD 
- TRACK 
- TROLL FLATS 
- CLIFF 

