

Albany Parks Performance Assessment



Conservation Commission of Western Australia
Conservation Reserve Management Plan Performance Assessment
CRMPPA 01/10



Commission Function

Conservation Commission performance assessments are undertaken primarily to fulfil the functions described in S 19(g) of the Conservation and Land Management Act 1984. That is to “assess and audit the performance of the Department and the Forest Products Commission in carrying out and complying with the management plans”. They will also help inform its policy development function and its responsibility to advise the Minister on conservation and management of biodiversity components throughout the State.

The use of Department of Environment and Conservation (DEC) data for the production of maps in this report is acknowledged.

Approved at Conservation Commission meeting 9th August 2010

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Executive Summary

The Albany coast and hinterland contains iconic landscapes with diverse values. This assessment report details the internationally and nationally significant biodiversity, social and landscape values of the conservation reserves in the area, the threats to these values and an evaluation of the management response.

The scope of the assessment varies from previous Conservation Commission assessments primarily due to the shift in management planning from individual reserve planning to planning for multiple reserves.

Initially, a general qualitative analysis of the area was undertaken through a self-assessment questionnaire which was returned by the DEC Albany district staff. The questionnaire included an overall judgement of the reserve management standard for the conservation of the principal values with the respondents indicating that:-

- For the larger reserves on the coast the overall qualitative judgement was a 'good' management standard with threatening processes identified and values effectively managed.
- The exception to this was Gull Rock National Park which was listed as having a 'poor' management standard with an inheritance of management issues prior to its vesting in the Conservation Commission.
- For the scattered hinterland reserves the judgement provided was 'fair' and it was considered that the size, shape and location of these scattered hinterland reserves make them 'open to a raft of threatening processes'.

The overall questionnaire responses were evaluated and two general themes were derived:

- Threatened Species - Two Peoples Bay Nature Reserve
- Visitor access - West Cape Howe National Park

These themes provided the basis for the case studies which were assessed against existing area management plans and provided extra detail and verification of the qualitative analysis. Overall the case-studies revealed there had been achievements in:-

- the maintenance of a breeding parent population of Noisy Scrub-birds and Gilbert's Potoroos in the Reserve; and the completion of an interpretive facility as per the Two Peoples Bay Nature Reserve Management Plan.
- A major redevelopment of the Shelley Beach lookout and access to the lookout completed in 2002 and a range of facilities provided to recreational users in keeping with the level of development which is stipulated in the West Cape Howe National Park Management Plan.

Case studies also revealed that:-

- The species recovery requirements in Two People's Bay Nature Reserve are intrinsically linked with habitat management and fire both on the reserve and at a landscape scale. The move to regionally based management planning should assist in this regard, by ensuring a documented, coordinated and landscape approach to achieving outcomes.
- Managing visitor access is an evolving and resource-intensive management task which has been implemented over the majority of the term of the West Cape Howe National Park management plan with reasonable success. Recent resourcing constraints are impacting upon on-ground presence which is jeopardizing past achievements in this area.

Findings from the case studies relate to specific objectives or strategies taken from the management plans. They are as follows:-

Case Study 1 - Threatened Species - Two Peoples Bay Nature Reserve

Finding 1

There has been limited success in securing appropriate additional areas of land and water (where these areas would enhance the reserves values) into the Two Peoples Bay Nature Reserve.

Finding 2

Records of monitoring to determine whether the condition of the habitat in the Mt Gardner area is becoming unfavourable for the Noisy Scrub-bird and other threatened, specially protected and priority species were not available.

Finding 3

It is not possible to directly assess the achievement of the objectives in relation to the introduction of dieback into disease free areas over the life of the plan as recent dieback monitoring records or hygiene plans are not available.

Finding 4

The action to gazette the special conservation zone within Two Peoples Bay Nature Reserve (which was the proposed legislative mechanism for appropriate use) has not been enacted.

Case study 2 – Visitor access - West Cape Howe National Park

Finding 5

Current resourcing constraints are impacting upon reserve management presence, leading to higher incidences of uncontrolled access.

Finding 6

There is no evidence of maintaining a weed inventory in the park and control of a declared weed (Arum lily) is not occurring.

Finding 7

There are no records of seasonal access restrictions being implemented within the park.

Finding 8

It is not possible to determine whether the objectives in relation to plant disease have been achieved for the park, as no dieback monitoring or mapping has been undertaken in the park area since 1990.

A lack of availability of records to demonstrate management effectiveness has been reported upon in this assessment and in previous assessments undertaken by the Conservation Commission. DEC has committed to ensuring improved monitoring and record management into the future. For its part, it is recommended that the Conservation Commission provide DEC with a clear indication of the types of evidence/records which it considers demonstrate effectiveness in the implementation of management plans. This will be communicated through a Conservation Commission position statement.

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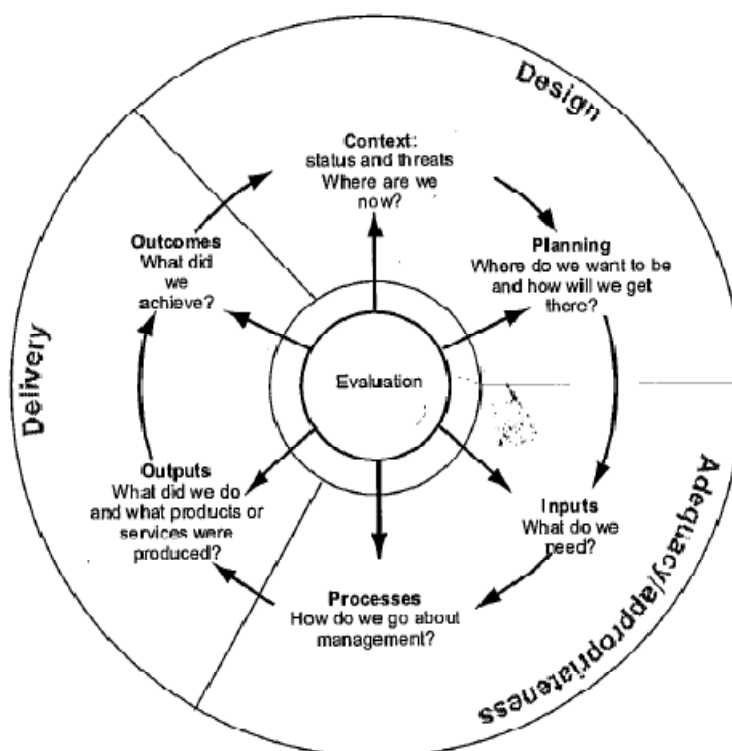
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Introduction

Reporting on the management of protected areas

Conservation Commission performance assessment reports are based on the IUCN (International Union for Conservation of Nature and Natural Resources (now the World Conservation Union)) framework for reporting on the management of protected areas. The IUCN framework is presented in Figure 1 below. This report details where each finding fits into this management cycle in Appendix 1: Summary of Findings.

DIAGRAM 1. MANAGEMENT CYCLE FOR PROTECTED AREAS (HOCKINGS ET AL. 2000)



Parks of the Albany Parks - Pilot Study

The scope of this pilot study assessment varies from previous Conservation Commission assessments primarily due to the shift in management planning from individual reserve planning to planning for multiple reserves. The methodology for the Albany Parks Pilot Study involved a three stage process. Firstly, a self-assessment questionnaire was developed by Conservation Commission audit staff through consultation with DEC regional staff. The self-assessment was designed to return broad information on the management of reserves across the Albany parks management region and provide the Conservation Commission with areas to focus more detailed case studies. The focus of the questionnaire was on identifying reserve values, threats to those values and trends.

The second stage of the pilot study involved an analysis of the trends and results from the self-assessment questionnaire. Results from the qualitative analysis questionnaire were tabulated for trend analysis using a Geographic Information System to allow spatial representation of the information gathered. Through this process case studies were identified as: (1) Threatened species - Two Peoples Bay Nature Reserve and; (2) Visitor access - West Cape Howe National Park.

The third stage of the pilot study process involved interviews with DEC regional staff, records checking and site visits to the parks to allow for evidence based reporting against strategies and actions of the relevant management plans. A general discussion of the process undertaken through this pilot study is provided as an attachment to this report (*Attachment 1- Pilot study process and results*). This attachment also includes the results tables from the questionnaire, plus associated maps which depict the questionnaire responses. A copy of the questionnaire form is also included.

The main report presents the general values of (and threats to) the Albany Parks reserves, with a more detailed analysis of selected themes through the case studies. Details and results of management implementation are included where these were available with an emphasis on evidence-based reporting. Where a response from the managing agency is required, a finding has been included in the relevant section of the report.

Results of self-assessment questionnaire

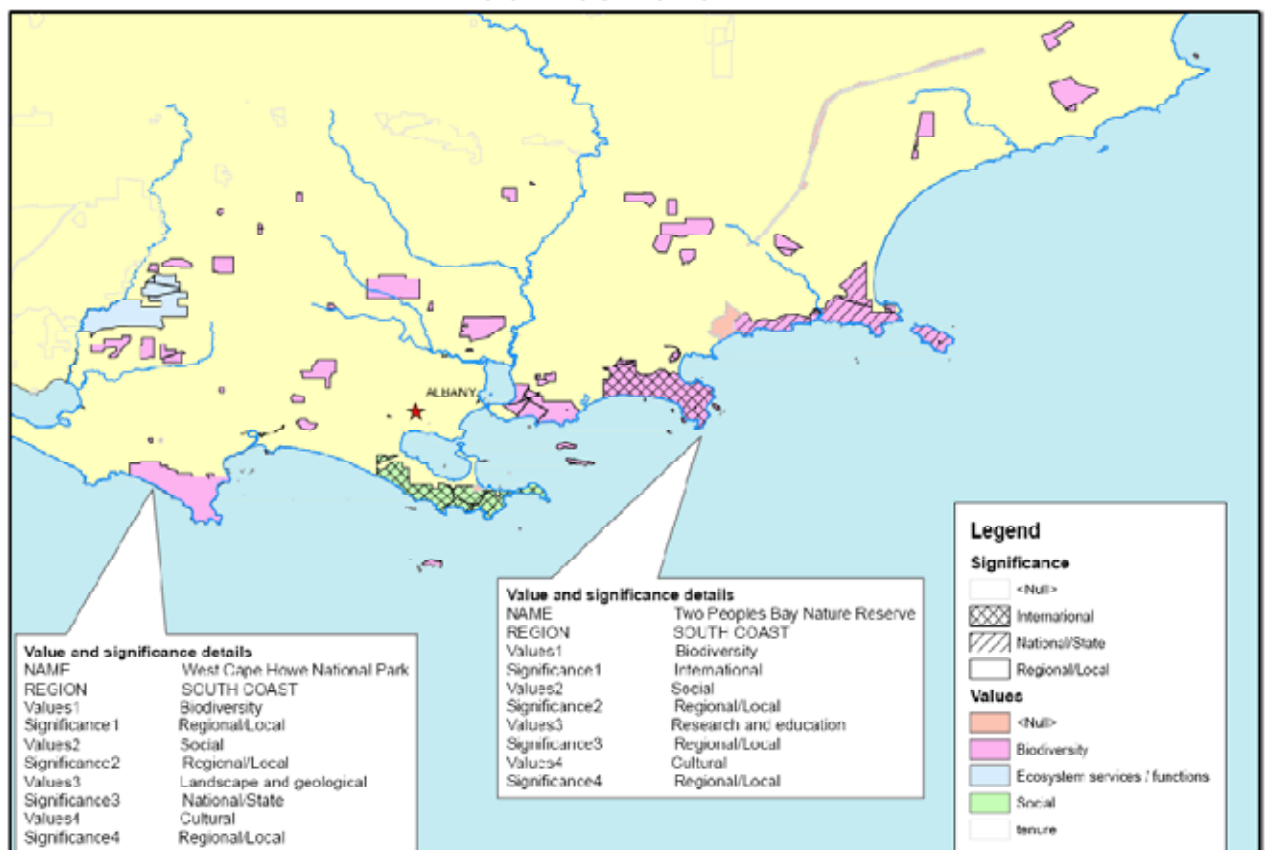
Albany Parks

The largest and most visited reserves are situated on the coast and include Torndirrup National Park, Two Peoples Bay Nature Reserve, West Cape Howe National Park, Waychinicup National Park and Mount Manypeaks Nature Reserve. Key fauna species of interest include the Noisy Scrub-bird and the Gilbert's Potoroo. Of these reserves Two Peoples Bay Nature Reserve and West Cape Howe National Park have existing area management plans. Other management documents such as interim management guidelines and threatened species recovery plans also apply to these coastal reserves. A number of smaller hinterland nature reserves have limited visitation and do not have specific management plans.

Values and significance of Albany parks

Responses from the self-assessment questionnaire highlighted the following in relation to values and their significance (*see Appendix 2 Table (c) for 'significance' definitions*):

MAP 1: VALUES AND SIGNIFICANCE MAP



In summary, the questionnaire highlighted the following in relation to values:-

- Internationally significant biodiversity values of Two Peoples Bay Nature Reserve;
- Internationally significant social values of Torndirrup National Park;
- National/state level landscape and geological values of West Cape Howe National Park;
- National/state level biodiversity values of Mount Manypeaks Nature Reserve, Waychinicup National Park and Bald Island Nature Reserve.

Threatening processes

Threats of 'high impact' and/or 'widespread extent' where negative impacts are increasing for selected parks (from survey questionnaire) are presented in Table 1 below (see Appendix 2 table (a) for 'impact' definitions and table (b) for 'extent' definitions).

TABLE 1: THREATS FOR ALBANY RESERVES WHERE NEGATIVE IMPACTS ARE INCREASING

RESERVE	<u>Gull Rock</u>	<u>Torndirrup</u>	<u>Two Peoples Bay</u>	<u>Waychinicup</u>	<u>Island reserves</u>	<u>Inland reserves</u>	<u>West Cape Howe</u>
THREAT	Visitor impacts	Visitor impacts		Visitor impacts	Visitor impacts	Visitor impacts	
	Uncontrolled access		Uncontrolled access	Uncontrolled access	Uncontrolled access	Uncontrolled access	
	Erosion	Erosion	Erosion	Erosion			
	Disease		Disease			Disease	
	Weeds	Weeds				Weeds	Weeds
		Animal pests					
	Reserve size /shape /locality	Reserve size /shape /locality				Reserve size /shape /locality	
		Off reserve activities				Off reserve activities	
		Changed hydrology					

The numerous smaller inland reserves and the islands were grouped together by the questionnaire respondents (see results tables in the attached discussion paper for further discussion on this approach). The intrinsic values of these reserves and an

analysis of the threats (e.g. the number of reserves with increasing negative impacts of erosion and uncontrolled access or recorded as 'high impact' and/or 'widespread extent') prompted the selection of themes for the case studies undertaken in West Cape Howe National Park and Two Peoples Bay Nature Reserve.

Overall management standards

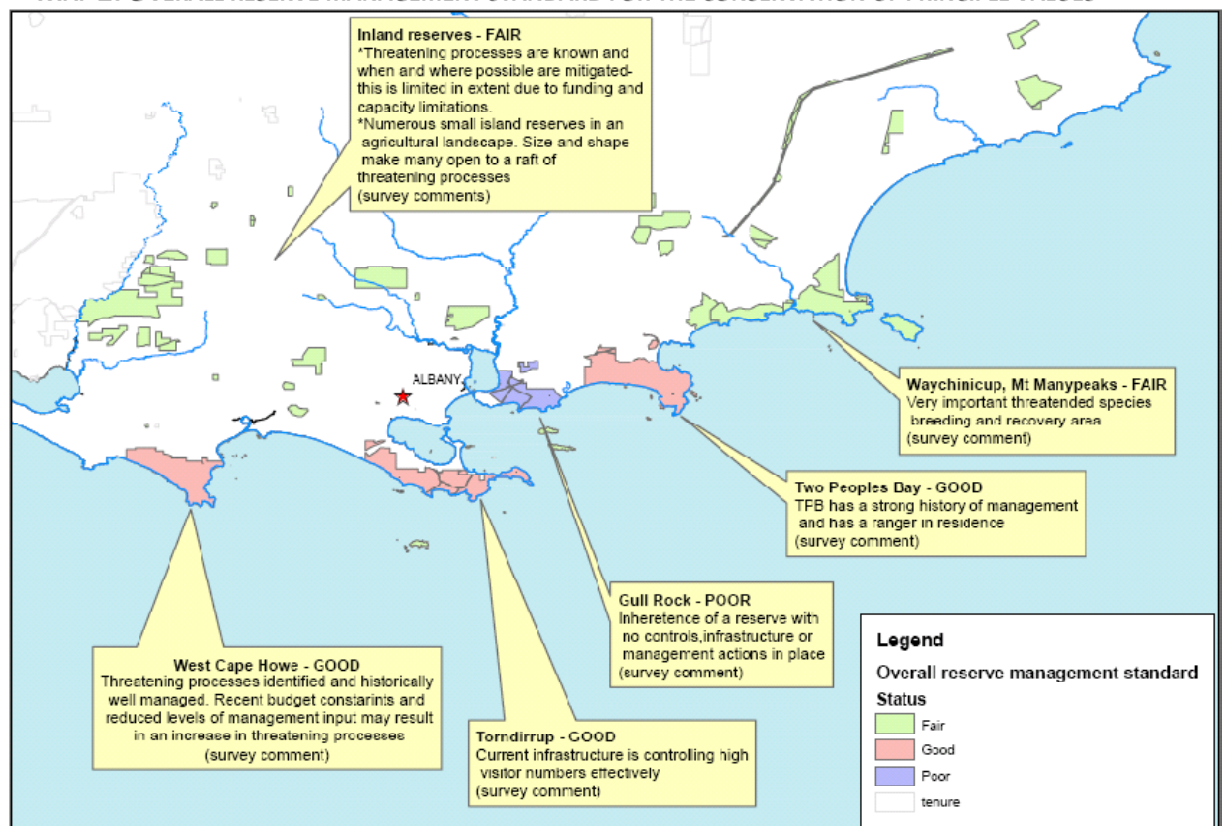
The self-assessment questionnaire also included an overall judgement on the reserve management standard for the conservation of the principal values, with the following options:-

TABLE 2: OVERALL MANAGEMENT STANDARDS (FROM QUESTIONNAIRE)

<i>Poor</i>	E.g. threatening processes that are not managed are leading to permanent resource degradation.
<i>Fair</i>	E.g. threatening processes are poorly identified; resource degradation is occurring but retrievable.
<i>Good</i>	E.g. threatening processes identified and values effectively managed.
<i>Very Good</i>	E.g. plans for managing identified threats in place; monitoring programs in place and key issues are being addressed.
<i>Comments</i> – e.g. as provided by respondents	

The results of this survey have been represented graphically in Map 2 below.

MAP 2: OVERALL RESERVE MANAGEMENT STANDARD FOR THE CONSERVATION OF PRINCIPLE VALUES



For the larger reserves on the coast the overall judgement was a 'good' management standard with threatening processes identified and values effectively managed. The exception to this was Gull Rock National Park which was listed as having a 'poor' management standard associated with the inheritance of management issues prior to its vesting in the Conservation Commission.

For the scattered hinterland reserves it was considered that the size, shape and location of these scattered reserves make them '*open to a raft of threatening processes*'. The survey response details that '*threatening processes are known and when and where possible are mitigated – this is limited in extent due to funding and capacity limitations.*' As with the coastal reserves it was noted during the assessment that there are significant biodiversity values associated with the hinterland reserves. With endemic, declared rare flora (e.g. Banksia species) under particular threat from the 'high impact' and 'widespread' dieback. Uncontrolled access and visitor pressure were also reported as increasing for the hinterland reserves although it is not possible to comment in detail on particular reserves due to the manner in which the inland reserves were grouped in the questionnaire response. This is discussed further below.

General comments on the self-assessment responses

The questionnaire aimed to collect information on different levels. Broad questions relating to individual reserve values, their relative priority and their significance are asked in Part A of the questionnaire (see the full questionnaire in the discussion paper attachment to this report). Part B of the questionnaire aims to gather information on the threats to the values of the reserves. Part C provides the opportunity for the respondent to give an overall reserve management standard for the conservation of principal values.

One of the proposed benefits of this approach was to derive and benchmark details and on a number of reserves for analysis. Unfortunately, the numerous smaller inland reserves and the islands were grouped together respectively (see results tables in the attached discussion paper). By grouping these reserves together the level of analysis which was achievable for the grouped reserves has been severely restricted.

However, it is clear from the general response that the inland reserves are under significant pressure from a range of threats and there is limited capacity for mitigation. Threats such as dieback cause permanent resource degradation and the negative impacts of disease on reserve values were listed as increasing.

A discussion on the self-assessment process is included as an attachment to this report. The attachment includes tables with the raw information from the self-assessment, example maps and a copy of the questionnaire. The attachment also includes recommendations relating the application of this assessment process in the future.

Case Study 1: Threatened Species - Two Peoples Bay Nature Reserve

Introduction

Two Peoples Bay Nature Reserve comprises a section of about 4510 ha containing a variety of features, including: Gardner Lake, Moates Lake, Mt Gardner, mobile dunes, sandy beaches and steep rocky cliffs. The Reserve also includes a smaller section (89 ha) comprising the northern portion of Angove Lake, part of Angove River and four islands—Coffin Island, Rock Dunder, Black Rock and Inner Island—ranging in size from 3 to 28 ha.

The area was declared an 'A' Class Nature Reserve (A27956) in 1967. The Reserve has an area of 4744.7 ha that extends to low water mark, and its values are recognised by its listing on the Register of the National Estate. It is internationally recognised for its very high conservation values, particularly due to the presence of the Noisy Scrub-bird, other rare birds and the Gilbert's Potoroo.

Major Achievements

Major achievements through the life of the management plan include the exclusion of fire from the fire exclusion zone on Mount Gardner, maintenance of a breeding parent population of Noisy Scrub-birds and Gilbert's Potoroos on Mount Gardner and the completion of an interpretive facility as per the management plan.

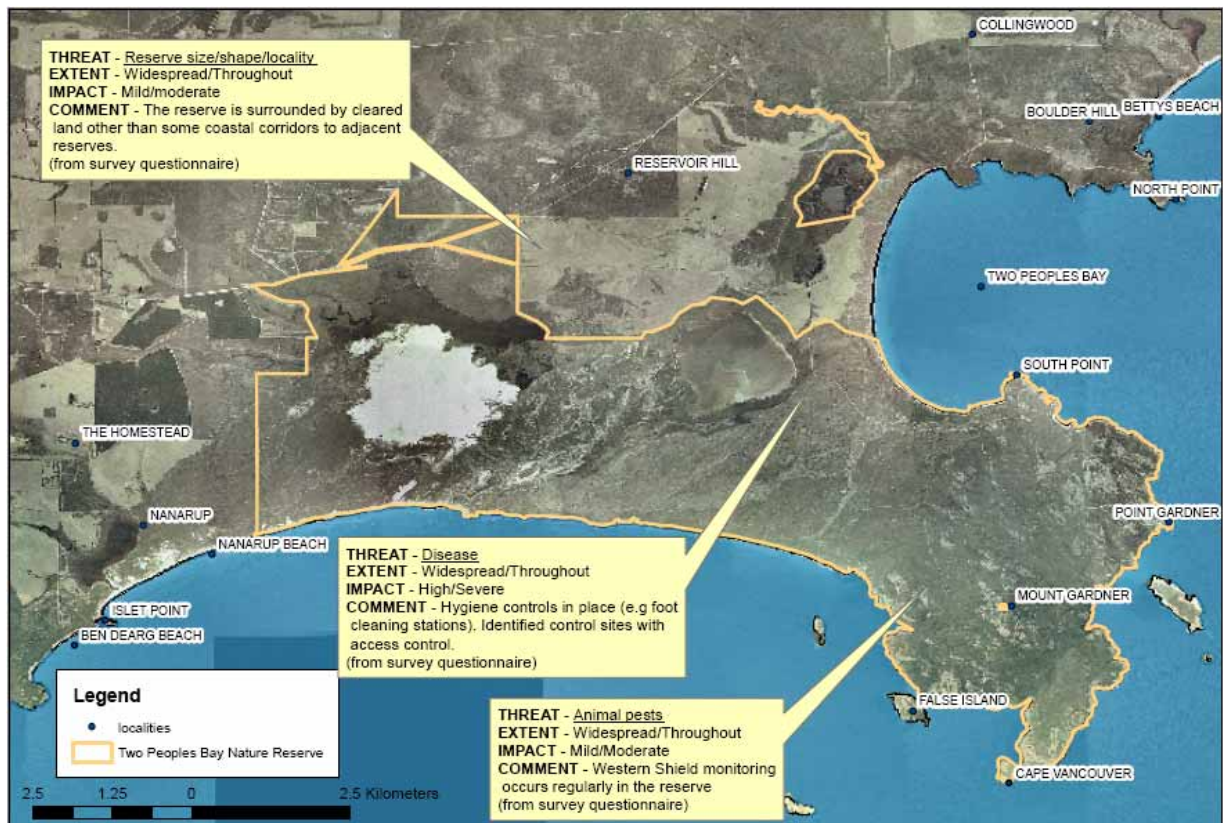


IMAGE 1. MT GARDNER HEADLAND — FIRE HAS BEEN EXCLUDED FROM THIS HEADLAND OVER THE LIFE OF THE PLAN

Analysis

The self-assessment questionnaire highlighted principal threats to the Reserve. These are included along with comments in the call out boxes in Map 3 below.

MAP 3: PRINCIPLE THREATS TO THE RESERVE AS IDENTIFIED BY DEC STAFF THROUGH THE SELF-ASSESSMENT PROCESS.



Threat – ‘Reserve size, shape and locality’

<i>Extent</i>	Widespread/Throughout
<i>Impact</i>	Mild/Moderate
<i>Comment</i>	<i>“The Reserve is surrounded by cleared land other than some coastal corridors to adjacent reserves” (From self-assessment questionnaire)</i>

Protecting the potential habitat linkages between the Mount Gardner headland to habitat near Mount Manypeaks (in particular) to the north is the key driver for proposed additions to the reserve system. The plan outlines the following in relation to an objective for additions to the Reserve:-

“The objective is to seek to incorporate appropriate additional areas of land and water into the Reserve.”

The proposed additions listed in the plan include the following plan strategies:-

Seek addition of, or management arrangements for, appropriate private property near the Reserve.

Include:

- *part of Location 3777 between the north-west edge of Gardner Lake and Two Peoples Bay Road;*
- *the strip of uncleared land along the edge of Location 3777 where it abuts the eastern edge of Moates Lake;*
- *the corridor of vegetation between Two Peoples Bay Reserve and Boulder Hill, particularly land associated with Lake Angove; and*
- *part of Location 416 between Two Peoples Bay Reserve and Gull Rock Reserve.*

2 . Continue to liaise with the WAWA concerning the vesting of the Goodga River Reserve in the NPNCA.

3 . Seek to add Road Reserve 15654 to Goodga River Reserve and ungazetted Road Reserve west of Moates Lake to the Two Peoples Bay Reserve.

Finding 1

There has been limited success in securing appropriate additional areas of land and water (where these areas would enhance the reserves values) into the Two Peoples Bay Nature Reserve

The protection of values in the Two Peoples Bay Nature Reserve cannot be treated in isolation, particularly in relation to species recovery plans which incorporate locating alternative sites for translocation and establishment. Fire history plays a significant role for identifying possible translocation sites as described in the Noisy Scrub-bird Recovery Plan (Danks et al., 1995) – *“Noisy Scrub-birds require vegetation which has not been burnt for relatively long periods”*. As such, some general observations on fire have been included in the following section.

Threat – ‘Inappropriate Fire’

Extent	localized/scattered
Impact	mild/moderate
Comment	<i>“Fire is well resourced and effectively managed. Planning and management in initial stages subsequent to recent gazetting”</i> (From self-assessment questionnaire)

The management plan for Two Peoples Bay Nature Reserve aims to limit the scale and frequency of wildfires. The main pre-suppression strategy for achieving this has been to use planned burning and/or some mechanical fuel modification (see aerial image of fuel-reduced buffer in Map 4 below and photo of ground view – Image 2) to create narrow fuel reduced buffers and excluding fire from areas designated as key habitat.

Exclusion of fire from the mountain range is also a major strategy in the Interim Management Guidelines for the nearby Waychinicup National Park, Mt Manypeaks & Arpenteur Nature Reserves.

MAP 4 AERIAL IMAGE OF FUEL REDUCTION BUFFER PROTECTING FIRE EXCLUSION AREA (MOUNT GARDNER)

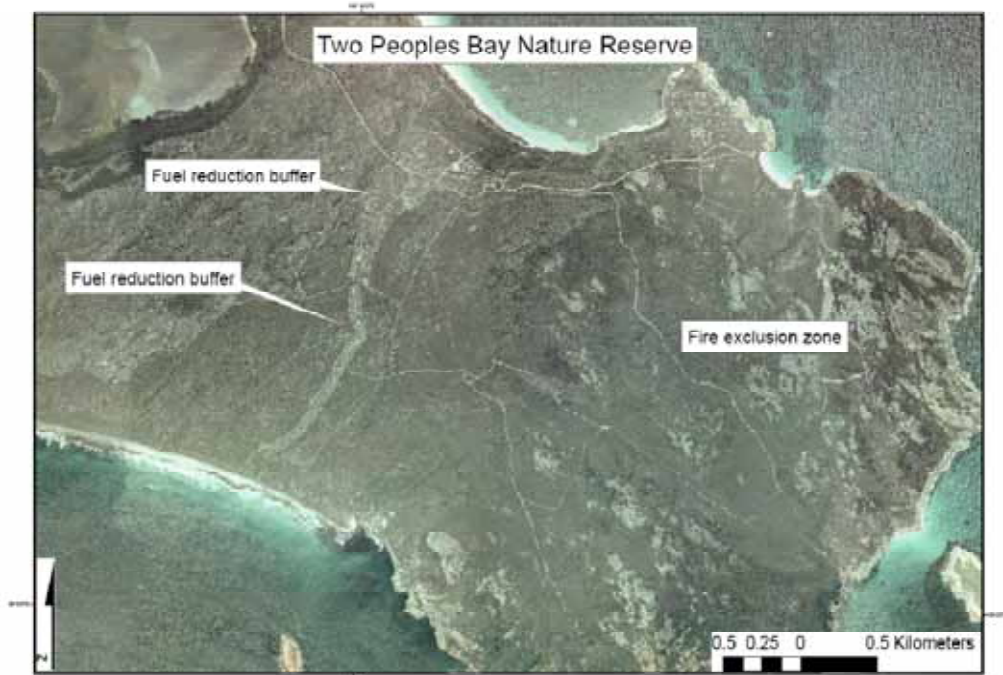


IMAGE 2. SLASH AND BURN FUEL REDUCTION BUFFER ACROSS ISTHMUS WITH MOUNT GARDNER IN THE BACKGROUND

The Conservation Commission has published audit findings in relation to fire exclusion areas in previous assessments. In one instance, the prescribed burn of a buffer area continued burning into the adjacent long-unburnt, no plan burn area in Nuyts Wilderness area (Walpole - Nornalup National Park). In another instance findings on buffer burning in the Conservation Commission's audit report for the Lesueur National Park and Coomallo Nature Reserve Management Plan also led to development of the interim fire management plan for Lesueur National Park - Coomallo Nature Reserve which states the following:-

“While the buffer system has proven to be effective in reducing the scale of unplanned fires, an undesirable consequence has been pyric homogenization, or a reduction in the diversity of seral stages in the landscape, hence a reduction in habitat diversity. Over the life of the management plan (1995-2005), much of the vegetation over relatively large areas is long unburnt, or is in a late seral stage. This is undesirable for a number of reasons. Firstly, the heavy fuel loads associated with late seral stages can result in very intense fire behavior and a reduced likelihood of containment and suppression. The narrow buffer system is likely to fail as fuel loads increase over larger areas of the Park.”

It was indicated through the interview process that there was an intention to introduce fire into the 'Habitat Management Regime' (fire exclusion area) of Two Peoples Bay in the vicinity of the ridge-tops to reduce the risk of a catastrophic fire event such as that experienced at Mt Manypeaks in 2004 (more than half of the known population of Noisy Scrub-birds was wiped out by the Mt Manypeaks wildfire). This planned introduction of fire is seemingly based upon a risk-management appraisal rather than the management plan requirements in relation to vegetation condition monitoring where the management plan calls for fire exclusion from the 'Habitat Management Regime' as follows:-

“Prescribed fire will be excluded from these areas for the life of this plan unless the continuing research and monitoring program into the effect of changes in the vegetation on the Noisy Scrub-bird, other threatened, specially protected and priority species indicates that the habitat is becoming unfavourable.

If habitat is becoming unfavourable as a result of fire exclusion a carefully considered and managed prescribed burning program for specific areas may be initiated for habitat management purposes if recommended by the Noisy Scrub-bird or other Recovery Teams.”

“Strategy 6. Monitor flora and vegetation of special conservation interest, especially in relation to disturbance (for example, fire) to determine time to reproductive maturity.”

While it was indicated during interviews that there is an intimate local understanding of the condition of the vegetation of the 'Habitat Management Regime' area, no records were available to demonstrate a formal condition monitoring process. Under the current management plan this vegetation monitoring information is required to determine whether the habitat is becoming unfavourable, prior to any decision on introducing prescribed fire.

Finding 2

Records of monitoring to determine whether the condition of the habitat in the Mt Gardner area is becoming unfavourable for the Noisy Scrub-bird and other threatened, specially protected and priority species were not available.

The management plan and recovery plan strategies need to consider the ecology of the rare species of birds found on and around the Reserve, the rare mammals, and to strike a balance between their habitat requirements. This is a complex task. For instance fire is listed as a key threat for the Gilbert's Potoroo as follows (from the recovery plan);

"The only known wild population of Gilbert's Potoroo exists in dense, long unburnt vegetation that is potentially highly vulnerable to wildfire. Fire exclusion is thus an extremely high priority in the protection of the wild population. The captive colony was established at least partly to provide insurance against the loss of the single known population through a catastrophic fire event".

On the other hand as noted in Burbidge A, Comer S, Danks A (2005). *Threatened birds and wildfire in south-west Western Australia. Wingspan. Supplement 15(3), pp. 18–20* while discussing in particular the Mt Manypeaks fire in 2004;

"Western Bristlebirds colonized the Manypeaks ridge after the 1979 fire, but as the vegetation increased in height, they disappeared from the area. Following the recent fire, they will be early colonizers and will do well again for a period of time. After every fire there are both positive and negative impacts."

Also, the relationship between dieback and fire appears to be poorly understood. A recent study demonstrated that fire in *P. cinnamomi* infested communities on the south coast has the potential to increase both the severity and extent of disease in native plant communities, and impinge on the regeneration capabilities of susceptible species (*Identification and Conservation of Fire Sensitive Ecosystems and Species of the South Coast Natural Resource Management Region* Barrett. S, Comer. S, McQuoid. N, Porter. M. & Utber. D. (2009)). Further discussion on dieback is provided under the 'Dieback' heading later in the report.

The implementation of fire management strategies in the Reserve includes maintaining low fuel buffers, water tanks, track slashing and maintenance. Track maintenance is an ongoing access issue for fire suppression where tracks need to be trafficable to access

water tanks on Mt Gardner. The combination of steep terrain and high rainfall events has resulted in moderate to severe track erosion as shown in Image 3 below.



IMAGE 3. ACCESS TRACK EROSION FOLLOWING HEAVY RAINFALL ON MT GARDNER (DEC PHOTO)

It was indicated through the interview process that there have been extended periods where track conditions have deteriorated to the extent that access for fire suppression and other activities could be impeded. At the time of the interview it was indicated that works on access tracks to water tanks had been recently maintained as shown below in Image 4. Resourcing for these works is an ongoing management issue for the Reserve.



IMAGE 4 –MAINTENANCE OF ACCESS TRACKS TO WATER POINTS ON MT GARDNER (DEC PHOTO)

Fire management strategies have to date proved effective in stopping fire from crossing the isthmus between the Lakes and the Mt Gardner headland. However a wildfire in December 2000 did burn through the proposed special conservation zone area between Gardner and Moates Lakes (also a proposed fire exclusion area under the plan).

This fire burnt approximately 6300 hectares, most containing habitat for a number of threatened species. The draft *Annual Report for the South Coast Threatened Birds Recovery Team (2008)* reported that the habitat in this area did not appear to have returned to a suitable condition to sustain scrub-birds after the wildfire.



IMAGE 5 – VEGETATION RECOVERY AFTER WILDFIRE (2000) ADJACENT TO MOATES LAKE

The condition of the habitat in this area also has relevance for the other rare birds of the area such as the Australasian Bittern. In the management plan it states:

“Australasian Bitterns are commonly heard in the Lake Gardner and Moates area of the Reserve and these wetlands may be an important refuge”

At the time the management plan was written Bitterns were heard calling from 15 locations within the Reserve’s wetlands. It is not clear what the current local status of this species is however anecdotal evidence from surveys conducted through Birds Australia indicates the number and distribution of Bitterns in the south west has reduced dramatically over the last decade, where south coast wetlands are one of the last remaining refuges in the state.

Threat – ‘Animal Pests’

Extent	Widespread/Throughout
Impact	Mild/Moderate
Comment	<i>“Western Shield monitoring occurs regularly in the Reserve”</i> (From self-assessment questionnaire)

The management plan objective is to:

“Minimise the impacts of pests and their control on indigenous species”.

Through the following strategies:-

“-Train staff to undertake control programs using 1080 or recommended control agents.

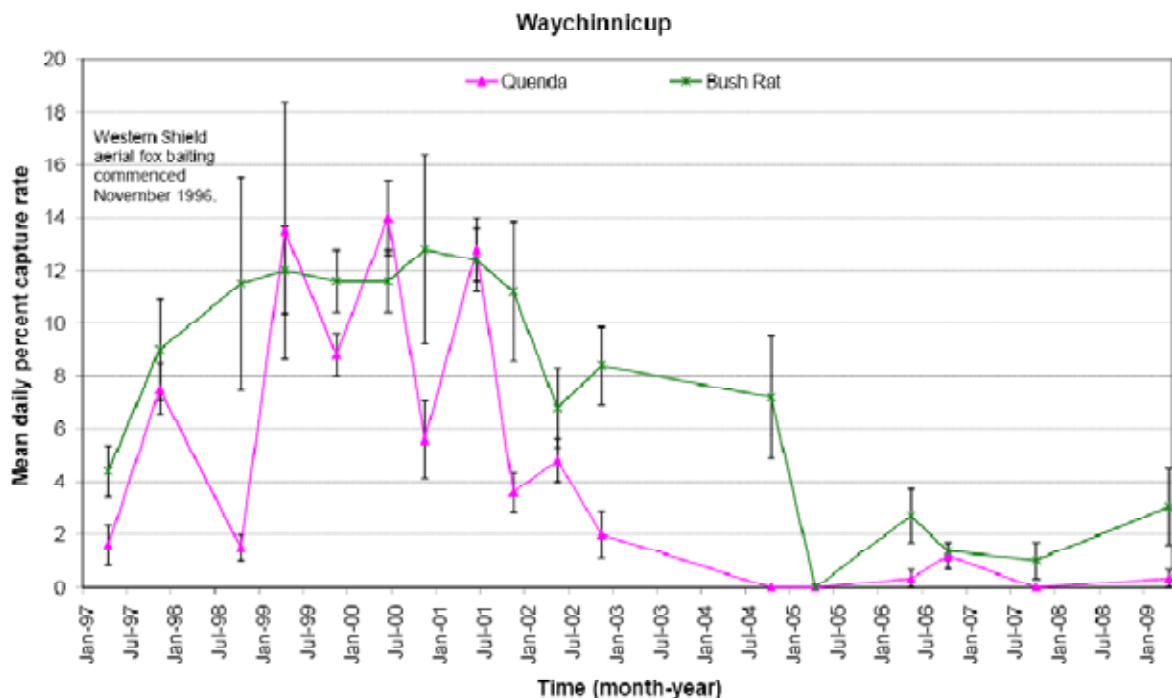
-Assess the efficiency of control on target species and any effects on non-target species, and make changes to procedures if required.”

The Gilbert’s Potoroo Recovery Plan lists feral predators as a key threat as follows:

“Gilbert's Potoroo is within the Critical Weight Range (35g to 5kg) of mammals thought to be most susceptible to decline. It is in the prey size range of both Foxes and Cats, both of which are known to occur in the Two Peoples Bay area. Dietary analysis of the gut contents and faeces of a feral Cat trapped at Mt Gardner in 2001 revealed that it had consumed both Quenda (Bandicoot) and Noisy Scrub-bird. Control of feral Cats would thus also be beneficial to other threatened mammals and birds in the area.”

No Western Shield monitoring data is collected for Two Peoples Bay Nature Reserve. The nearest monitoring site is Waychinnicup National Park. The graph below shows the data for the only critical weight range (CWR) mammal (the Quenda) for which Western Shield data is collected at that site. The graph also includes data for the Bush rat which is smaller than the CWR lower limit.

GRAPH 1. WESTERN SHIELD MONITORING DATA FOR WAYCHINICUP 1997-2009



A request was made to DEC in relation to an analysis of the decline shown on the graph above, with the following response:-

“A fire occurred in the area of the Waychinicup transect in 2004 and burnt out most of the transect. This resulted in a change to more open habitat that is less favourable to quenda as it leaves them more vulnerable to predation, especially by foxes and feral cats. Cats persist in the area despite 1080 baiting for foxes but we have no data on abundance. There is also dieback in this area that has caused changes in the vegetation leading to more open habitat.

The initial decline before 2004 is more difficult to explain but maybe associated with summer rainfall events and the spread of dieback and resultant effects on the vegetation.

Other trapping for another project - Project Phoenix - has been undertaken in the Waychinicup area from 2005 to 2008. One site on Waychinicup Road shows low capture rates of quenda around 0-3% with a slight upwards trend by 2008. The other site at Normans Beach shows quenda capture rates rising from 0.4% to 9% and dropping back to 6%. All of this area is subject to 1080 fox baiting by the Western Shield program.”

Threat – ‘Dieback’

<i>Extent</i>	Widespread/Throughout
<i>Impact</i>	High/Severe
<i>Comment</i>	<i>Hygiene controls in place (e.g. foot cleaning station). Identified control sites with access control. (From self-assessment questionnaire)</i>

Section 13 (Disease) outlines the following objectives:-

Minimise the spread and intensification of dieback disease.

Prevent, as far as practicable, the introduction of dieback fungus and other plant diseases into disease free areas.

The relevant strategies for the achievement of these objectives includes the following:-

Monitor populations of threatened species which are susceptible to dieback disease in accordance with the District Rare Flora management plan.

Monitor dieback disease development in the apparently uninfected areas.

Dieback disease is listed as a key threat to Gilbert's Potoroo in the recovery plan. It states;

“Potoroos are believed to be present only in areas of the Reserve that are free of Dieback infection which can cause considerable changes to the floristic structure of the habitat. Gilbert's Potoroo feeds primarily on hypogaeal fungi, many of which are mycorrhizal. Plant dieback disease is considered to be a major threat to the continued survival of the potoroo by altering vegetation structure or eliminating species that are hosts to the mycorrhizal fungi on which they feed.”

The Gilbert's Potoroo recovery plan further states under Action 5.1.4 that:-

“A new dieback hygiene and control plan will be developed by the DCLM Albany before December 2004.”

The management plan states that a comprehensive dieback survey was undertaken between 1987 and 1989 and *Phytophthora cinnamomi* was found to be present in most of the Reserve. The most recent dieback occurrence map which was available for this assessment is a map dating from 1997. It indicates that the level of dieback infestation on the Mt Gardner isthmus was largely unchanged since the previous mapping in 1989. More recent mapping records are not available.

As discussed earlier in the document, the relationship between dieback and fire appears to be poorly understood and a recent study demonstrated that fire in *P. cinnamomi* infested communities on the south coast has the potential to increase both the severity and extent of disease in native plant communities. This potential has been duly recognized in the South coast Regional Fire Management Plan (2009-2014), which also infers the need for dieback monitoring:-

“Extensive areas of Phytophthora cinnamomi (PC) occur in this FMA, fire may exacerbate Phytophthora impact in these areas. Vehicle and or machine access may introduce and or spread disease, vegetation removal or changes in vegetation structure by fire may result in changes to soil temperatures and water tables which both provide increased potential for disease development and impact. Areas that are PC free should not be put at risk from fire management activity.”

Finding 3

It is not possible to directly assess the achievement of the objectives in relation to the introduction of dieback into disease free areas over the life of the plan as recent dieback monitoring records and hygiene plans are not available.

Zoning in relation to threats

The overall zoning strategy objective is as follows:-

“Section 9. Zoning – The objective is to introduce a zoning scheme that protects the Reserve's conservation values, particularly the Noisy Scrub-bird, the Gilbert's Potoroo and other threatened species, and provides for appropriate use.”

A key strategy to achieving this objective is as follows:-

“Section 9 (Strategy 1) Cancel the existing limited and prohibited access areas and gazette the zoning scheme.”

This is a foundation plan strategy upon which a number of other zoning and access strategies rely. The intention of the plan was to allow public access in the conservation zone by permit only, with fire and dieback risk being a major factor in determining approval.



IMAGE 6 AND 7. SIGNAGE OF ENTRY REQUIREMENTS FOR ACCESS TO MT GARDNER

Finding 4

The action to gazette the special conservation zone within Two Peoples Bay Nature Reserve (which was the proposed legislative mechanism for appropriate use) has not been enacted.

General results of threatened species recovery

The management plan lists the following strategies in relation to fauna:

(iv) Implement the Department's Recovery Plans for the Noisy Scrub-bird and other species for which they are prepared as they apply to the Two Peoples Bay Nature Reserve

Noisy Scrub-bird

A more recent recovery plan (The South Coast Threatened Birds Recovery Plan – 2009) has replaced the Noisy Scrub-bird Recovery Plan (Danks et al., 1995). However as the life

of the Noisy Scrub-bird Recovery Plan (Danks et al., 1995) is similar in term to that of the Two Peoples Bay Nature Reserve Management Plan some discussion of the achievement of the 1995 objectives will be undertaken. The long term objectives of the Noisy Scrub-bird Recovery Plan (Danks et al., 1995) are:

- a) total effective population N_e more than 500 (or total N more than 2500);*
- b) population fragmented with at least 5 subpopulations with N_e greater than 100 (N greater than 500) with immigration rates greater than 1 per generation;*
- c) population not subject to catastrophic crashes (in the Noisy Scrub-bird this would primarily be due to wildfire).*

The objectives over the life of the Noisy Scrub-bird Recovery Plan (Danks et al., 1995) are:

- 1. In the Albany Management Zone to achieve and maintain a population size indicated by more than 300 singing males, and*
- 2. To commence the establishment of populations in a western management zone.*

Population indices for the Noisy Scrub-bird have been provided by the recovery team below:-

TABLE 3. ALBANY MANAGEMENT ZONE NOISY SCRUB-BIRD SUB-POPULATION INDICES 2001 – 2008.

Sub-population	2001	2005	2006	2007	2008	2009
Angove-Normans	79	37	40	24*	22*	-
Bald Island	37	65	77	95	-	91
Lakes	4	4	1	0	1	-
Mermaid	22	26	29	25	21	20
Mount Gardner	163	126	132	132	121	119
Mount Manypeaks	427	32	60	49*	129*	-
Mt Martin	2	0	0	0	0	-
Mt Taylor	0	0	0	0	1	-
Nanarup	1	1	1	1	1	-
Porongurup	-	-	-	2	1	-
Waychinicup	37	53	29	11	12	13
Total	771	343	368	*	*	-
*Partial survey completed						

As indicated by the population indices in the table above, and despite significant setbacks from the Mount Manypeaks wildfire (2004), a population size indicated by more than 300 singing males had been maintained in the Albany Management Zone up

to 2008. The establishment of populations in a western management zone has commenced but apparently met with limited success thus far. The proposed transfer of female scrub-birds to Porongorup National Park was not completed due to wildfire burning the entire park in February 2007. It was decided not to continue with translocation of females to a site at Gull Rock National Park after only one of the five male scrub-birds released in Gull Rock National Park in July 2007 was able to be located during April – June 2008. In 2008 the Mount Manypeaks sub-population was once again the largest in the management zone in just four years of recovering after the wildfire. As noted by the recovery team however, in the draft Project Phoenix 2008 Annual Report;

“- the total population index is still very low, and the loss of anyone of the major remaining populations (i.e. Mt Gardner, Bald Island or the re-establishing Manypeaks) would have a catastrophic impact on this species.”

Western Whipbird and Western Bristlebird

Monitoring results for the Western Whipbird and Western Bristlebird show a decline over the period 2001 to 2008. The draft Project Phoenix 2008 Annual Report states the following in relation to this:-

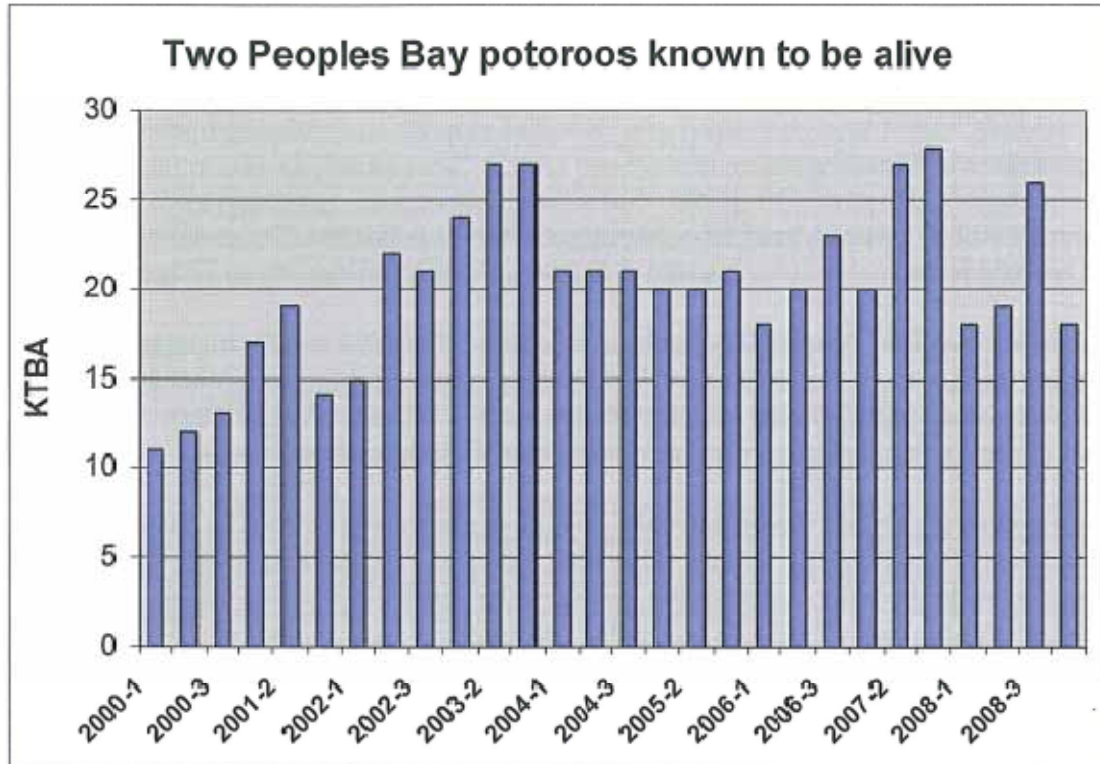
“Although fire throughout approximately 50% of their AMZ distribution over the past 5 years has undoubtedly had a marked effect on both species population index, it cannot be held solely accountable for the decrease, in particular with the Western Bristlebirds. Assessment of Western Whipbirds post fire estimated that over 30% of the 2001 population was lost in the Manypeaks fire. It may be that this figure was an underestimate, or as pointed out by Comer and McNee (2001) it is possible that the largely opportunistic nature of this survey did not establish an accurate index for this species.

Lack of knowledge about the social arrangements and movements of Bristlebirds and Whipbirds, the consequent difficulty in determining territory ‘boundaries’ for census records and irregular calling patterns are some of the difficulties encountered completing surveys for these taxa in 2001, 2005, 2006 and 2008. Improving our knowledge of these factors is a key to estimating accurate population indices.”

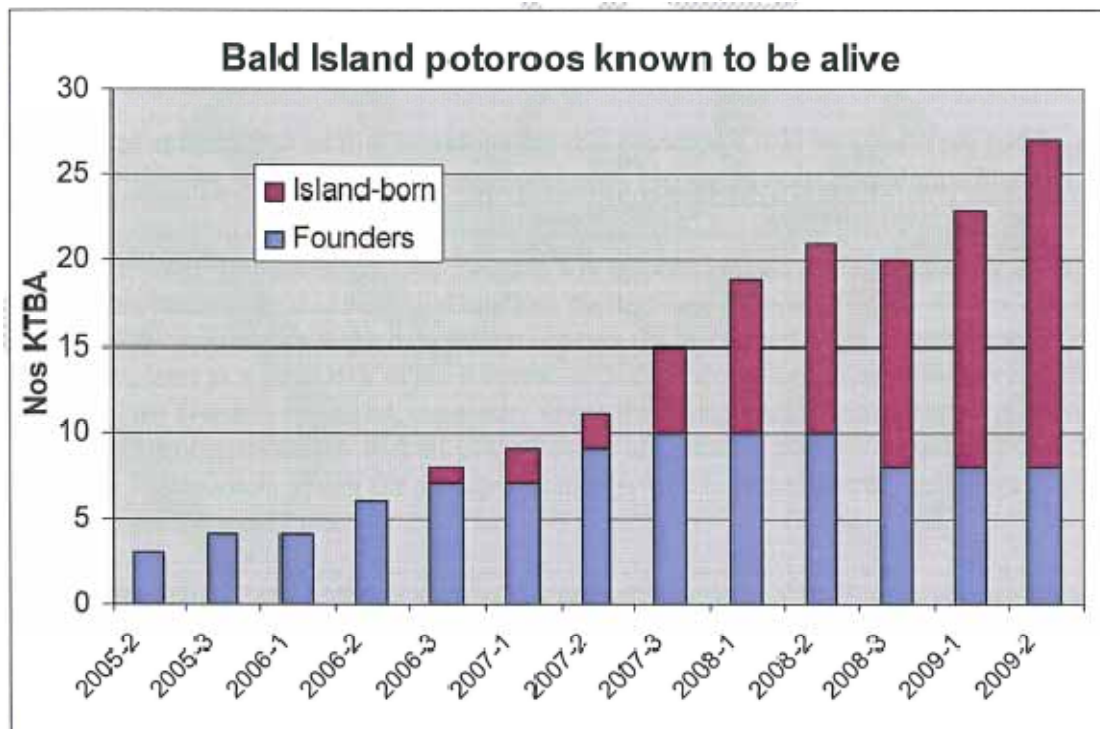
Gilbert’s Potoroo

The key strategies of the recovery plan are to establish a second potoroo colony on Bald Island off the WA coast and a captive breeding facility on the mainland. Both of these strategies have been implemented. In March 2010 a colony of Gilbert's Potoroo was to be released into an enclosure at the Waychinicup National Park. Ongoing monitoring of potoroo numbers have been provided by the recovery team in graphs 2 and 3 below:-

GRAPH 2: NUMBER OF POTOROOS KNOWN TO BE ALIVE (KTBA) ON MOUNT GARDNER.



GRAPH 3: NUMBER OF POTOROOS KNOWN TO BE ALIVE (KTBA) ON BALD ISLAND.



Case Study 2: Visitor access West Cape Howe National Park

Introduction

West Cape Howe National Park comprises a single reserve with an area of 3517 ha. In acknowledgement of its scenic grandeur the park is registered as part of the National Estate. The park encompasses the most southerly section of the Western Australian coastline, incorporating the southernmost point Torbay Head as well as West Cape Howe itself. Three fresh water lakes are located towards the northern edges of the park and there are a number of small perennial water courses. The park contains a wide variety of coastal landforms including granitic headlands, steep limestone cliffs and sandy beaches. It is a popular destination for camping rock climbing and hang gliding.

Major Achievements

A range of facilities has been provided to recreational users over the life of the plan in keeping with the level of development which is stipulated in the management plan. A major redevelopment of the Shelley Beach lookout and access to the lookout was completed in 2002.



IMAGE 8. REDEVELOPMENT OF SHELLEY BEACH LOOKOUT ADJACENT TO HANG GLIDING LAUNCHING RAMPS

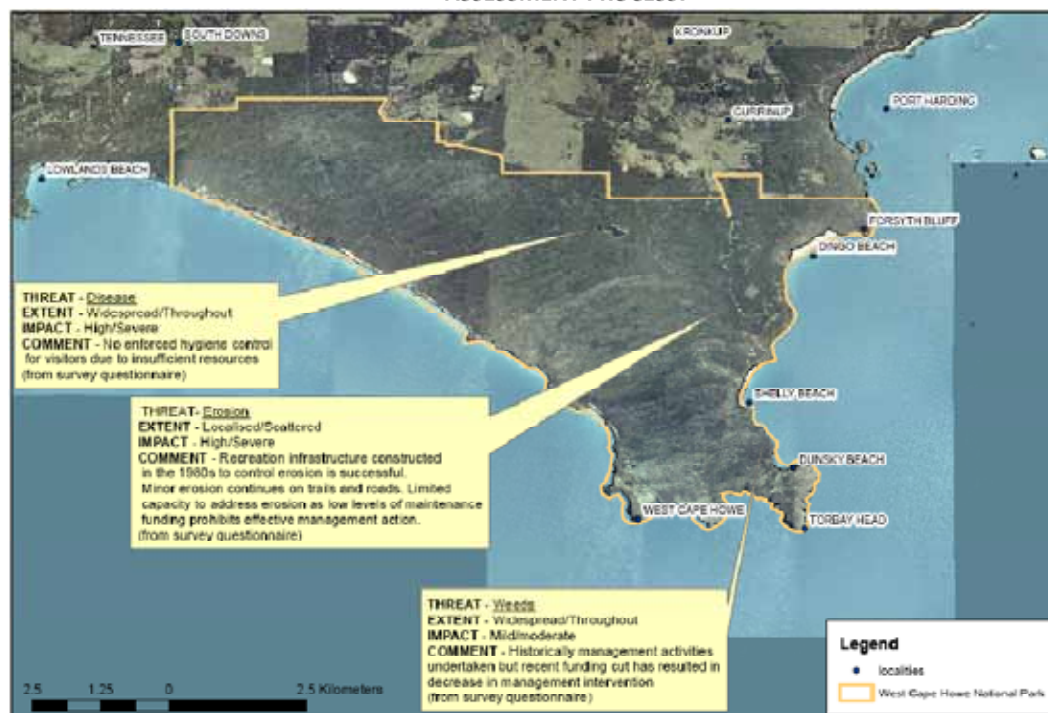


IMAGE 9. FACILITIES AT SHELLEY BEACH CAMPGROUND

Analysis

The self-assessment questionnaire highlighted principal threats to the Reserve. These are included along with comments in the call out boxes in Map 4 below.

MAP 4: PRINCIPLE THREATS TO THE RESERVE AS IDENTIFIED BY DEC STAFF THROUGH THE SELF-ASSESSMENT PROCESS.



Threat – ‘Erosion’

<i>Extent</i>	Localised/Scattered
<i>Impact</i>	High/Severe
<i>Comment</i>	<i>“Recreation infrastructure constructed in the 1980s to control erosion is successful. Minor erosion continues on trails and roads. Limited capacity to address erosion as low levels of maintenance funding prohibits effective management action”. (From self-assessment questionnaire)</i>

The overall access strategy objective is as follows:-

“Section 23. Access – The objective is to provide and maintain a structured access system to a variety of coastal and inland features within the Park, while ensuring that Park values and Park users are not adversely affected”.

Overall the development and maintenance of facilities appears in keeping with the zoning scheme outlined in the management plan where the level of provision of recreational facilities decreases from east to west. Access to a large proportion of the park is by four-wheel drive only. Evidence of uncontrolled access to West Cape Howe National Park was readily visible from the site inspection and is reportedly increasing. Possible contributing factors to this was a lack of on-ground presence due to resourcing constraints impacting upon staffing levels and vehicle running costs.

Finding 5

Current resourcing constraints are impacting upon reserve management presence, leading to higher incidences of uncontrolled access.

The track-matting in use in WCHNP and other coastal areas is re-cycled conveyor belting which is pegged into the track as an erosion prevention measure (see image below). This provides a tractable running surface for recreational and management vehicles.

Overall, re-using materials is an effective means of waste avoidance and reduces the energy required to make a new product. However, DEC staff described a change in recreational use over the life of the plan with an increasing trend in ‘soft-roader’ vehicle use. Visitors with low-clearance vehicles attempting to traverse the tracks lift the belting, indirectly causing erosion of the track. This leads to motorists creating new tracks around these eroded areas.



IMAGE 10. TRACK MATTING IN ROLLS PRIOR TO INSTALLATION WEST CAPE HOWE NATIONAL PARK



IMAGE 11. ORIGINAL ERODED TRACK TO THE LEFT AND RECENTLY OPENED PUSH THROUGH TRACK TO THE RIGHT

Currently worn out and destroyed matting material is stored on site in the national park. A management plan for the disposal and storage of this material may be required as it is not clear whether the rubber in the belting poses a possible fire/contamination risk within the park.



FIGURE 12. STORAGE AREA FOR DISCARDED MATTING WITHIN WEST CAPE HOWE NATIONAL PARK

Threat – ‘Weeds’

<i>Extent</i>	Widespread/Throughout
<i>Impact</i>	Mild/moderate
<i>Comment</i>	<i>“Historically management activities undertaken but recent funding cut has resulted in decrease in management intervention” (From self-assessment questionnaire).</i>

Action 1 (i) under section 17 of the plan states the following:-

“Maintain an inventory of weeds in the park”

The management plan states that weeds are not a major problem in the park but refers to the presence of gorse, blackberries and an infestation of arum lilies at Shelley Beach. As declared species in Western Australia these species must be controlled. At interview it was indicated that there was no recorded inventory of weeds in the park however gorse was possibly eradicated. The presence of arum lily had not been addressed due to budget constraints.

On the day of the field inspection arum lilies were noted adjacent to Dunsby Beach in an area which was being used for unregulated camping. This may indicate that this weed has either spread south from elsewhere in the park or been introduced from some other source and established in a clearing made by park visitors.

Finding 6

There is no evidence of maintaining a weed inventory in the park and control of a declared weed (Arum lily) is not occurring.

Threat – ‘Dieback’

<i>Extent</i>	Widespread/Throughout
<i>Impact</i>	High/Severe
<i>Comment</i>	<i>“No enforced hygiene control for visitors due to insufficient resources”</i> (From self-assessment questionnaire).

The management plan lists the following objectives in relation to plant disease (section 16):-

“The objectives are:

- To control the spread and intensification of dieback disease where it is already present.*
- To control the spread of existing occurrences of other plant diseases.*
- To prevent the introduction of *Phytophthora dieback* and other plant diseases into disease-free areas”*

The management plan states the following in relation to *Phytophthora cinnamomi* :-

“The disease appears to have been introduced into the Park during road construction and vehicle use with the most extensive infections occurring downslope of infected roads. All infections located are well established and seem to have been present for a considerable period of time”.

It was not possible to directly measure the achievement of the objectives relating to plant disease and there has been no dieback disease occurrence mapping in West Cape Howe National Park since August 1990. Two actions (Section 16 under Action 1) from the plan do not appear to have been fully implemented:-

- (vi) Undertake dieback disease mapping and assist with *Phytophthora dieback* research.*
- (vii) Monitor the spread of known infections and where possible develop and implement action steps to limit their spread.*

There is considerable on-ground evidence of efforts by the Department to restrict access to the moderate to high dieback hazard areas to the west of Shelly Beach Road in

the vicinity of Lake William. This includes closing off numerous old tracks and consolidating access routes. However, at the time of the site inspection it was apparent that vehicles were pushing around areas of closed off track and accessing high dieback hazard areas in the vicinity of Lake William.



IMAGE 13. UNCONTROLLED ACCESS LEADING TO LAKE WILLIAM TO THE LEFT OF EXISTING BOLLARDS

Access along Shepherds Lagoon Road has reportedly been maintained to a 4 wheel-drive standard. This access route also traverses an area of the northern boundary of the park which is designated as high to very-high dieback hazard however there is no seasonal access restriction as per the management plan action:-

“Implement seasonal access restrictions in the Park where necessary in moist conditions under which dieback disease is most likely to spread.”

Finding 7

There are no records of seasonal access restrictions being implemented within the park.

The Shelley Beach lookout area redevelopment (2000-2001) was the largest capital project undertaken in the management plan area over the life of the plan. The implementation has taken place according to the broad physical specifications of the management plan however no records of a dieback mapping or a hygiene management

plan were available for the project. As indicated, there has been no dieback disease occurrence mapping so it is not clear whether the following action under Section 33 has been achieved:-

“Ensure that facilities are developed and maintained in ways which minimise both the risk of dieback disease spread and of other potentially detrimental impacts on flora and fauna.”

Finding 8

It is not possible to determine whether the objectives in relation to plant disease have been achieved for the park, as no dieback monitoring or mapping has been undertaken in the park area since 1990.

Conclusion

The self-assessment questionnaire included an overall judgement on the reserve management standard for the conservation of the principal values:-

- For the larger reserves on the coast the overall qualitative judgement was a 'good' management standard with threatening processes identified and values effectively managed.
- The exception to this was Gull Rock National Park which was listed as having a 'poor' management standard with an inheritance of management issues prior to its vesting in the Conservation Commission.
- For the scattered hinterland reserves the judgement provided was 'fair' and it was considered that the size, shape and location of these scattered hinterland reserves make them 'open to a raft of threatening processes'.

For the case studies a lack of available records has made it difficult to directly measure management effectiveness, for example in relation to managing the spread of dieback and monitoring the condition of habitat in the Mt Gardner area of the Two Peoples Bay Nature Reserve. As reported elsewhere by the Conservation Commission, resourcing is a major impediment to the implementation of management plans. In West Cape Howe National Park for instance resourcing constraints are limiting the availability of on-ground staff, leading to higher incidences of uncontrolled access.

The key strategies for Two Peoples Bay Nature Reserve relating to the Gilbert's Potoroo recovery program have been successfully implemented during the term of the plan. The Noisy Scrub-bird recovery program, despite the significant setbacks from the Mount Manypeaks wildfire, had maintained a population size indicated by more than 300 singing males in the Albany Management Zone up to 2008. The establishment of populations in a western management zone has commenced but apparently met with limited success thus far. The strategy of excluding fire from the Mount Gardner isthmus has been implemented however a wildfire in December 2000 did burn through the proposed special conservation zone area between Gardner and Moates Lakes.

Overall the case-studies indicate that:-

- The species recovery requirements in Two People's Bay Nature Reserve are intrinsically linked with habitat management and fire both on the Reserve and at a landscape scale. The move to regionally based management planning should assist in this regard, by ensuring a documented, co-ordinated and landscape approach to achieving outcomes.
- Managing visitor access is an evolving and resource-intensive management task which has been implemented over the majority of the term of the West Cape Howe National Park management plan with reasonable success. Recent resourcing constraints are impacting upon on-ground presence which is jeopardizing past achievements in this area.

Department of Environment and Conservation response to Findings

DEC is the managing agency for the parks and reserves subject to this assessment. DEC was provided with a draft of the report and requested to formally respond, particularly in relation to the findings. The response from DEC resulted in some minor corrections to the wording of the report. The full response received from DEC has been included as Appendix 3 to this report.

As stated in the previous section, and particularly in relation to the case studies, a lack of available records has made it difficult to directly measure management effectiveness. In its response to findings 2, 3, 7 and 8, DEC has indicated that 'the department will ensure improved monitoring and record management into the future'. The Conservation Commission will undertake a twelve month review of this performance assessment at which time an update will be sought on this commitment and other details provided in the DEC response.

Evidence-based reporting

The Conservation Commission seeks to provide outcome-based reporting through the evaluation of evidence from a variety of sources. The assessments aim to support departmental management learning and adaptation which will hopefully lead to improved long-term conservation outcomes.

A lack of availability of records to demonstrate management effectiveness has been reported upon in this assessment and in previous assessments undertaken by the Conservation Commission. DEC has committed to ensuring improved monitoring and record management into the future. For its part, it is recommended that the Conservation Commission provide DEC with a clear indication of the types of evidence/records which it considers demonstrate effectiveness in the implementation of management plans. This will be communicated through a Conservation Commission position statement.

Appendix 1 Summary of Findings

Management Element	Findings – Two Peoples Bay NR	Findings – West Cape Howe NP	Criteria Assessed
Context	No findings	No findings	-
Planning	<p>Finding 1 There has been limited success in securing appropriate additional areas of land and water (where these areas would enhance the reserves values) into the Two Peoples Bay Nature Reserve</p> <p>Finding 3 It is not possible to directly assess the achievement of the objectives in relation to the introduction of dieback into disease free areas over the life of the plan as recent dieback monitoring records or hygiene plans are not available.</p>		<p>Finding 1. <i>“The objective is to seek to incorporate appropriate additional areas of land and water into the Reserve.”</i></p> <p>Finding 3 <i>“Minimise the spread and intensification of dieback disease”.</i> and <i>“Prevent, as far as practicable, the introduction of dieback fungus and other plant diseases into disease free areas.”</i></p>
Inputs		<p>Finding 5 Current resourcing constraints are impacting upon reserve management presence, leading to higher incidences of uncontrolled access.</p>	<p>Finding 5. <i>“Section 23. Access – The objective is to provide and maintain a structured access system to a variety of coastal and inland features within the Park, while ensuring that Park values and Park users are not adversely affected”.</i></p>
Management Systems		<p>Finding 7 There are no records of seasonal access restrictions being implemented within the park.</p>	<p>Finding 7. <i>“Implement seasonal access restrictions in the Park where necessary in moist conditions under which dieback disease is most likely to spread.”</i></p>

Outputs	<p>Finding 2</p> <p>Records of monitoring to determine whether the condition of the habitat in the Mt Gardner area is becoming unfavourable for the Noisy Scrub-bird and other threatened, specially protected and priority species were not available.</p>	<p>Finding 6</p> <p>There is no evidence of maintaining a weed inventory in the park and control of a declared weed (Arum lily) is not occurring.</p>	<p>Finding 2. <i>If habitat is becoming unfavourable as a result of fire exclusion a carefully considered and managed prescribed burning program for specific areas may be initiated for habitat management purposes if recommended by the Noisy Scrub-bird or other Recovery Teams.</i>"</p> <p>and</p> <p><i>"Monitor flora and vegetation of special conservation interest, especially in relation to disturbance (for example, fire) to determine time to reproductive maturity."</i></p> <p>Finding 6. <i>"Maintain an inventory of weeds in the park"</i></p>
Outcomes	<p>Finding 4</p> <p>The action to gazette the special conservation zone within Two Peoples Bay Nature Reserve (which was the proposed legislative mechanism for appropriate use) has not been enacted.</p>	<p>Finding 8</p> <p>It is not possible to determine whether the objectives in relation to plant disease have been achieved for the park, as no dieback monitoring or mapping has been undertaken in the park area since 1990.</p>	<p>Finding 4. <i>"Section 9. Zoning – The objective is to introduce a zoning scheme that protects the Reserve's conservation values, particularly the Noisy Scrub-bird, the Gilbert's Potoroo and other threatened species, and provides for appropriate use."</i> and</p> <p><i>"Section 9 (Strategy 1) Cancel the existing limited and prohibited access areas and gazette the zoning scheme."</i></p> <p>Finding 8. <i>"Ensure that facilities are developed and maintained in ways which minimise both the risk of dieback disease spread and of other potentially detrimental impacts on flora and fauna."</i></p>

Appendix 2 Assessment guide for threats and significance

Guide to assessing impact and extent of threats and the significance of reserve values (as provided in questionnaire)

Table (a): Description of the level of impact categories

Impact of the threat	Description of category
Severe	The threat will lead to loss of reserve value(s) in the foreseeable future if it continues to operate at current levels
High	The threat will lead to a significant reduction of reserve values(s) if it continues to operate at current levels.
Moderate	The threat is having a detectable impact on reserve values(s) but damage is not considered significant.
Mild	The threat is having minor or barely detectable impact on reserve value(s).

Table (b): Description of the extent categories

Extent of the threat	Description of category
Throughout	The impact is occurring in 50% or more of reserve area/cultural place/site/object.
Widespread	The impact is occurring in more than 15% but less than 50% of reserve area/cultural place/site/object.
Scattered	The impact is occurring in between 5 and 15% of reserve area/cultural place/site/object.
Localised	The impact is occurring is less than 5% of reserve area/cultural place/site/object.

Table (c): Description of the significance categories for reserve values

Significance category	Description of category
International	The value is protected under an international agreements. For example, is it listed on: Ramsar Convention of Wetlands of International Importance (Ramsar), CAMBA, JAMBA, Convention on Migratory Shorebirds (CMS), CITES, is on the IUCN red list or is World heritage listed. To help with this, a good link is: http://www.environment.gov.au/biodiversity/international/index.html
National/State	The value is protected under Federal or State legislation or the reserve contains a population of flora or fauna that is significant at the national or state level. The reserve may make a significant contribution to national or state employment or be a major tourist destination for WA or interstate visitors. The reserve may contain a site of geological significance or it may be listed on the WA heritage register or have a declared Aboriginal place .
Regional/Local	The reserve contains a population of flora or fauna that is significant at the regional or local level. The reserve may make a significant contribution to regional or local employment or it may be a tourist destination for regional visitors



Your ref: [REDACTED]
Our ref: [REDACTED]
Enquiries: [REDACTED]
Phone: [REDACTED]
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Conservation Commission of Western Australia
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BENTLEY DELIVERY CENTRE WA 6983

[REDACTED]

ALBANY PARKS PERFORMANCE ASSESSMENT

Thank you for your letter of 3 May 2010 regarding the performance assessment of the Albany parks. Conservation Commission staff are to be commended for their efforts in providing the assessment. The adoption of a sub-regional approach and use of pilot studies to emphasise management issues and outcomes is fully supported.

The Department of Environment and Conservation (DEC) provides the following specific response to the key findings.

Finding 1

There has been limited success in securing appropriate additional areas of land and water (where these areas would enhance the reserve's values) into the Two Peoples Bay Nature Reserve.

While the finding is supported, the high property value of location 3777 (on which three of the five proposed additions are located) means that these areas are currently beyond the resources available for land purchase. Of the remaining proposed additions, the Goodga River Reserve has been vested in the Conservation Commission. DEC continues to consider properties that are a high priority for purchase in the context of funding availability and statewide priorities.

Finding 2

Records of monitoring to determine whether the condition of the habitat in the Mt Gardner area is becoming unfavourable for the Noisy scrub-bird and other threatened, specially protected and priority species were not available.

Monitoring of scrub-bird sub-populations and monitoring resulting from additional funding obtained following the Manypeaks fire triggered investigations into the relationship between post-fire seral stages in scrub-bird habitat and occupancy. In addition, studies have been undertaken into food resource availability for scrub-birds on Mt Gardner. This data is stored in a South Coast Region database and has been used to assess translocation site suitability. Currently it is being analysed in conjunction with Mt Gardner population data to establish potential factors that might be contributing to the declining scrub-bird population in this area.

The finding in relation to record management is supported and DEC will ensure improved monitoring and record management into the future.

Finding 3

It is not possible to directly assess the achievement of the objectives in relation to the introduction of dieback into disease free areas over the life of the plan as recent dieback monitoring records or hygiene plans are not available.

Management of dieback is a high priority for DEC. The department's management of dieback has evolved since this plan was approved. Mapping of dieback within the Two Peoples Bay Nature Reserve occurred in 1997 and determined that the majority of the reserve was infested, with only small areas of Mt Gardner found to be free of infestation. Further mapping would have been fruitless, particularly when continual mapping and updating of infested areas information is a resource intensive exercise and should only be undertaken for high priority areas/sites.

Rather than preparing a hygiene plan for specific parks, departmental standard practice is to prepare hygiene plans for various operations such as fire within the parks of the study area. To address dieback in this reserve, access into Mt Gardner is restricted to research and management, and hygiene protocols have been adhered to when accessing this area. In conjunction with the proposed burn at Mt Gardner, an updated dieback assessment will be undertaken.

The finding in relation to record management is supported and the department will ensure improved monitoring and record management into the future.

Finding 4

The action to gazette the special conservation zone within Two Peoples Bay Nature Reserve (which was the proposed legislative mechanism for appropriate use) has not been enacted.

The prohibited and limited access areas were gazetted in 1981 under s. 62 of the *Conservation and Land Management Act 1984* (CALM Act) (Government Gazette No. 90 of 4 December 1981, pg. 4986 and 4987) (see attached Gazette notices). Since the release of this plan, legal advice has been provided that the introduction of a legislated zoning scheme and especially the establishment of a special conservation zone is unable to be achieved under s. 62 of the CALM Act since there is no mechanism to establish 'zones' on terrestrial conservation reserves. DEC considers that this strategy should therefore be removed or replaced when a new plan for the area is prepared.

A permit system is in place requiring walkers to apply for access, which is only granted under strict conditions to ensure appropriate use.

Finding 5

Current resourcing constraints are impacting upon reserve management presence, leading to higher incidences of uncontrolled access.

The additional recreation pressures from an increase in visitor numbers and greater ownership of off-road vehicles and motor bikes is also a contributing factor. A visitor services plan currently being prepared and covering the parks to be included in the new Albany Coastal Reserves Draft Management Plan will go some way to identifying visitor issues, required management actions and allocation of funds according to criteria used to establish capital priorities. In the future, issues such as uncontrolled access are likely be addressed at a broader

scale (such as the Conservation Commission's planning areas) rather than at an individual reserve scale, although there will still be a need for reserve and site scale visitor planning. A copy of this plan will be provided to the Conservation Commission once it has been completed.

DEC acknowledges that the rubber matting poses a fire risk and is a contamination risk to the environment. Historically the used matting was disposed of to a licensed pit east of Perth. The used rubber matting is only temporarily stored onsite before being disposed of appropriately.

Finding 6

There is no evidence of maintaining a weed inventory in the park and control of a declared weed (Arum lily) is not occurring.

Weed control has occurred periodically, including control of Arum lily. DEC has identified the park as an area for priority weed control in the current round of annual business planning and will be undertaking monitoring and recording of weed control for the park on an ongoing basis.

Finding 7

There are no records of seasonal access restrictions being implemented within the park.

Although no written records exist, seasonal closures have been applied to the Copper Bay area and Lake William Track. However, seasonal closure of Lake William Track was ineffective and DEC's South Cost Region office decided to close the track permanently, due to the amount of illegal activity.

The finding in relation to record management is supported and the department will ensure improved monitoring and record management into the future.

Finding 8

It is not possible to determine whether the objectives in relation to plant disease have been achieved for the park, as no dieback monitoring or mapping has been undertaken in the park area since 1990.

Management of dieback is a high priority for DEC. As stated for finding 3, to minimise the risk of dieback introduction and spread, standard departmental hygiene practices are applied and hygiene plans prepared for various operations as and when they occur. For example, it is a requirement that all machinery used in works be clean on entry. More specifically, the material used in this project was decomposed granite which poses a very low potential of introducing disease.

The finding in relation to record management is supported and DEC will ensure improved monitoring and record management into the future.

The following information is provided in relation to other parts of the report and includes some suggested corrections:

- Page 17, paragraph 3: Page 26, paragraph under Table 3. Mt Manypeaks fire was in 2004.

Appendix 3 - DEC response to findings

4

- Page 22, paragraph 4: The report states “No Western Shield monitoring data is collected for Two Peoples Bay Nature Reserve”. While this is true, fauna monitoring is undertaken for Two Peoples Bay which provides better data than the Western Shield monitoring of habitat health. In addition, the performance assessment by the Conservation Commission resulted in data on Mt Gardner held by Science Division being included in corporate data with 5000 records added. It is suggested that the Conservation Commission’s report should note that the recent fire at Waychinicup has had a significant effect on trap success.
- Page 26, Table 3. Noisy Scrub-bird census data should not cite total population figures for years where a complete survey did not occur. It is therefore suggested that the 2007 and 2008 totals should be left blank in Table 3.
- Page 31, table at top of page. In some places there is major, not just minor, erosion on trails and roads.
- The correct spelling is Waychinicup which has been spelt incorrectly in several places throughout the report.

Yours sincerely

A black rectangular redaction box covering the signature of the sender.

29 June 2010

Pilot study - performance assessment of management plans by the Conservation Commission

Aim: -through implementing and evaluating a pilot study:-

- to broaden the performance assessment process beyond single reserve management plans;***
- to enable greater coverage in protected areas assessment; and***
- to better align management plan assessments with other changes in management planning and current reporting requirements.***

Background:- Interstate reporting frameworks for biodiversity conservation

At a 2008 conference and associated workshop the Conservation Commission presented information in relation to the experiences of undertaking performance assessments under the World Commission on Protected Areas (WCPA) framework. A number of other Australian states also participated in the workshop and it was clear from the presentations that the WCPA framework has become a standard for reporting management effectiveness in the majority of the state jurisdictions. A key point of difference between the use of this framework in the other states and the method developed here in WA by the Conservation Commission is that in those other jurisdictions the reporting is essentially internally generated by the agencies charged with managing the protected areas. In NSW and Victoria the framework is implemented and reported upon through 'state of the parks' reports. In NSW these reports are state-wide over the whole reserve system (every reserve in the state) and have been brought in line with other strategic reporting requirements on a three yearly rotation.

The model of an independent authority implementing the measurement of management effectiveness (or performance assessment as described in Western Australia by the Conservation Commission) appears to be unique in Australia. There are positive and negative aspects to this approach. While there are some limitations to data access and timely reporting because of interagency protocols, the important advantage of assessment by an independent body is that it does infer a strong measure of transparency to public perception of the assessments.

In 2009, the Conservation Commission and DEC announced that all management plans would apply to regional areas rather than to individual reserves. Changes would also include objectives that are measurable and realistic, and concise plan documents.

Background:- Current DEC reporting framework for biodiversity conservation

Under this proposal a pilot study was initiated to research and report on the current reporting requirements for conservation reserves. This incorporated both the management plan requirements as well as other DEC drivers for reporting. A potential policy driver for reporting in relation to biodiversity outcomes by DEC in WA appears to be the draft document *A 100-year Biodiversity Conservation Strategy for Western Australia*¹. However it is unclear whether this document will be approved and therefore its use as a guide to DEC reporting requirements was limited. There are other relevant DEC strategic documents with some performance measures included such as Regional Fire Plans and Nature Conservation Service Plans and these were broadly evaluated in the development of this process.

Scope of the pilot-study conservation reserve performance assessment

There are some given requirements and commitments under the Commission's audit process which need to be maintained through the pilot study. As follows:-

Givens from the CALM Act:

- A Conservation Commission role is 'to assess and audit the performance of the CEO and the Forest Products Commission in carrying out and complying with the management plans'***

¹ Department of Environment and Conservation (2006) Draft – A 100 year Biodiversity Conservation Strategy for Western Australia:-Blueprint to the Bicentenary in 2029, Government of Western Australia DEC (2006).

Attachment 1- Pilot study process and results

Givens from the Commission's policy:-

- The Conservation Commission audits under the WCPA framework;
- For conservation reserves the focus is on Inputs, Management Systems, Outputs and Outcomes. The Commission has particularly asked the audit staff to focus on evidence-based 'Outcome' reporting.

Observations (general) from management plan auditing:-

To date the Commission has assessed individual management plans which have come to the end of their 10 year term. What is clear from the results of implementing a number of these audits is that:-

- There are a wide range of implementation and documentation standards across the estate, and there are varied 'styles' of management plans to assess;
- While management plans are statutory documents, the plans are generally not active documents which guide the activities and priorities of the local staff;
- Due to the first dot point and the age of the plans (and their 'style') it is challenging to undertake a review of quantitative (evidence based) reporting against the plan's objectives;
- The use of qualitative judgement has been used by the assessors to date where there is an absence of data.

Newer style plans may also allow a detailed review of KPIs (where developed) or other available quantitative information from monitoring or research.

Parks of the Albany Coast

The two statutory plans in the study area which were due for assessment were the West Cape Howe National Park Management Plan (1995-2005) and the Two Peoples Bay Nature Reserve Management Plan (1995-2005).

Implementation of pilot-study performance assessment

As mentioned the pilot-study proposal was to maintain reporting under the WCPA framework, but to alter the scope of the management plan assessment to undertake something more akin to area-based status performance assessments rather than assessments of individual reserve plans (conservation reserve performance assessments). This was seen as a necessary step to encompass the change to regional area planning. In this way it is possible to incorporate a broad assessment of management plan implementation and enable a wider view of management effectiveness for the planning area.

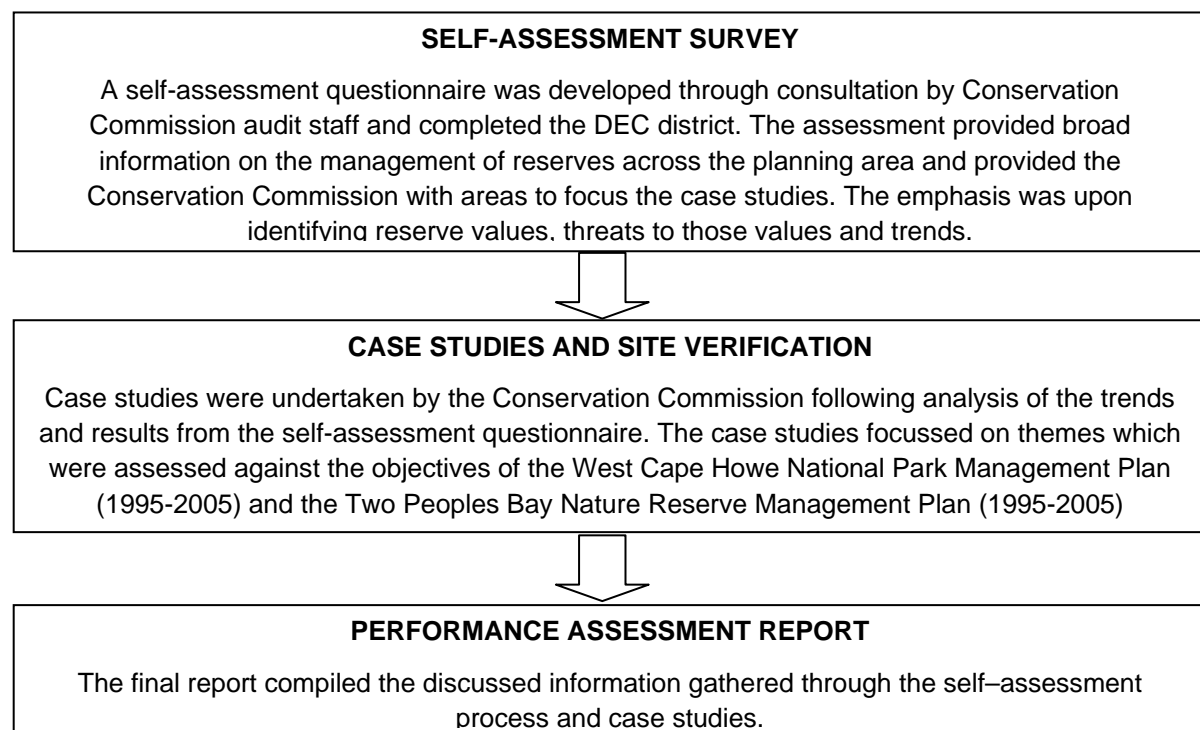
The scope of this pilot study assessment varied from previous Conservation Commission assessments primarily due to the shift in management planning from individual reserve planning to planning for multiple reserves. The methodology for the Albany Parks Pilot Study involved a three stage process. Firstly, a self-assessment questionnaire was developed by Conservation Commission audit staff through consultation with DEC regional staff. The self-assessment was designed to return broad information on the management of reserves across the Albany parks management region and provide the Conservation Commission with areas to focus more detailed case studies. The focus of the questionnaire was on identifying reserve values, threats to those values and trends.

Attachment 1- Pilot study process and results

The second stage of the pilot study involved an analysis of the trends and results from the self-assessment questionnaire. Results from the qualitative analysis questionnaire were tabulated for trend analysis using a Geographic Information System to allow spatial representation of the information gathered. Through this process case studies were identified as: (1) Threatened species - Two Peoples Bay Nature Reserve and; (2) Visitor access - West Cape Howe National Park.

The third stage of the pilot study process involved interviews with DEC regional staff, records checking and site visits to the parks to allow for evidence based reporting against strategies and actions of the relevant management plans.

The report presents the general values of (and threats to) the Albany Parks reserves, with a more detailed analysis of selected themes through the case studies. Details and results of management implementation are included where these were available with an emphasis on evidence-based reporting. Where a response from the managing agency is required, a finding has been included in the relevant section of the report. The multi-staged approach is depicted below:-



Results of the Self-assessment questionnaire

It should be noted that the draft questionnaire which is presented in Appendix 1 to this attachment was adapted from the approach taken in the NSW *State of the Parks* reporting questionnaire, with the requirements of DEC policies and typical management plan strategies also incorporated.

The questionnaire aimed to collect information on different levels. Broad questions relating to individual reserve values, their relative priority and their significance are asked in Part A of the questionnaire (see Results table 1 and accompanying mapped example for the responses received). Part B of the questionnaire aims to gather information on the threats to the values of the reserves (see Results tables 2 and 3 and accompanying mapped examples). Part C provides the opportunity for the respondent to give an overall reserve management standard for the conservation of principal values (see Results table 4 and accompanying mapped example).

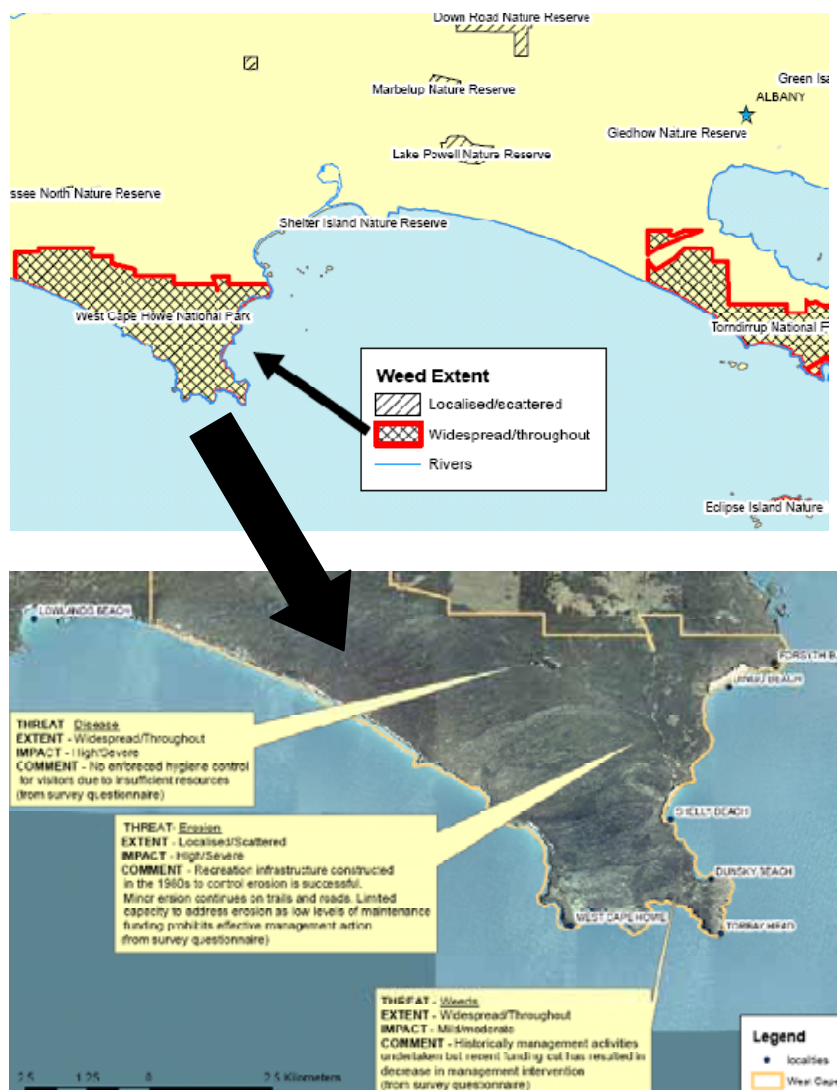
Attachment 1- Pilot study process and results

One of the proposed benefits of this procedure was to derive details and statistics on a number of reserves for analysis. Unfortunately, the numerous smaller inland reserves and the islands were grouped together respectively (see results tables) by the questionnaire respondents and this has in turn restricted the level of analysis which was achievable for the grouped reserves. It has therefore not been possible to report in detail on these grouped reserves.

Linkages to the Geographic Information System (GIS)

The raw information presented in results table 1 to 4, is stored in a database for sorting and analysis. The field used for sorting is generally the reserve field which has a unique number enabling a linkage to the GIS tenure information utilised in DEC's corporate database. In short, this allows the raw data to be presented graphically for trend analysis and map production.

An example of this process is presented in the depiction below showing the results of the questionnaire in relation to weed extent with a focus on West Cape Howe National Park. From Part B (1) of the questionnaire the 'extent' of weeds in West Cape Howe was listed as widespread/throughout (defined as - weeds occurring in more than 15% of the reserve). Further details are provided for analysis in Part B (2) of the questionnaire which details that *'historically management activities undertaken but recent funding cut has resulted in decrease in management intervention'*. The 'impact' of weeds in this reserve is listed as mild/moderate (defined as - the threat is having a detectable impact on reserve values(s) but damage is not considered significant).



Attachment 1- Pilot study process and results

This type of graphical trend analysis was used in the pilot study to help define the themes for the case studies (see attached tables and accompanying mapped examples).

Further development of the methodology for collecting the survey information (e.g. through web-based data entry by the respondents) would enable both a more user-friendly system for the respondents and reduce data entry requirements (and associated human errors) at the receiving end. The establishment of an electronic survey data return system may require the input of some external expertise at the outset if the approach outlined in this discussion paper is routinely adopted by the Conservation Commission.

Collation of reserve information and storage in the database

It is envisaged that the development of the MS Access database and linkage to GIS could over time build an information bank of individual reserve values, threats to those values and trends for numerous reserves in the State. This information would be electronically available to the DEC, specifically regional staff and management planning staff as a tool to assist in managing reserves or planning future management at a regional and individual reserve level. The information within the MS Access database would provide benchmark data on reserve values, threats and trends to be used as comparison for subsequent reporting as is the case with 'State of the Parks' reporting in NSW and Victoria.

It is fundamental to the process to ensure that information at an individual reserve level is included in the self assessment questionnaire. This will provide better information when reserves are revisited through the reporting process, and will capture the knowledge of staff that may subsequently leave the management area or the department. The end-of-plan reporting cycle is likely to be around 10 years, the normal life of a management plan. It is likely therefore that DEC staff will only be requested to complete a questionnaire on individual reserves approximately every 10 years. With the assistance of DEC staff it is likely the structure of the self assessment questionnaire will be refined over time as an online product that is tightly focused and as user friendly as practicable.

Recommendations for the assessment process

The pilot study has highlighted areas for improvement in the process, and a number of recommendations which would be beneficial, as follows:-

- Seek to amend the Conservation Commission policy on conservation reserve performance assessments to incorporate the process utilised in this pilot study;
- Further develop the methodology for distributing and returning the survey questionnaire, including an electronic format (exploring the potential for web-based data entry by respondents);
- Ensure that the key identifiers used for linking reserves between the database and the GIS are consistent with unique identifiers used elsewhere in the corporate database to ensure maximum compatibility;
- Seek to ensure that future self-assessment questionnaires are returned for each reserve within the planning area.

Attachment 1- Pilot study process and results

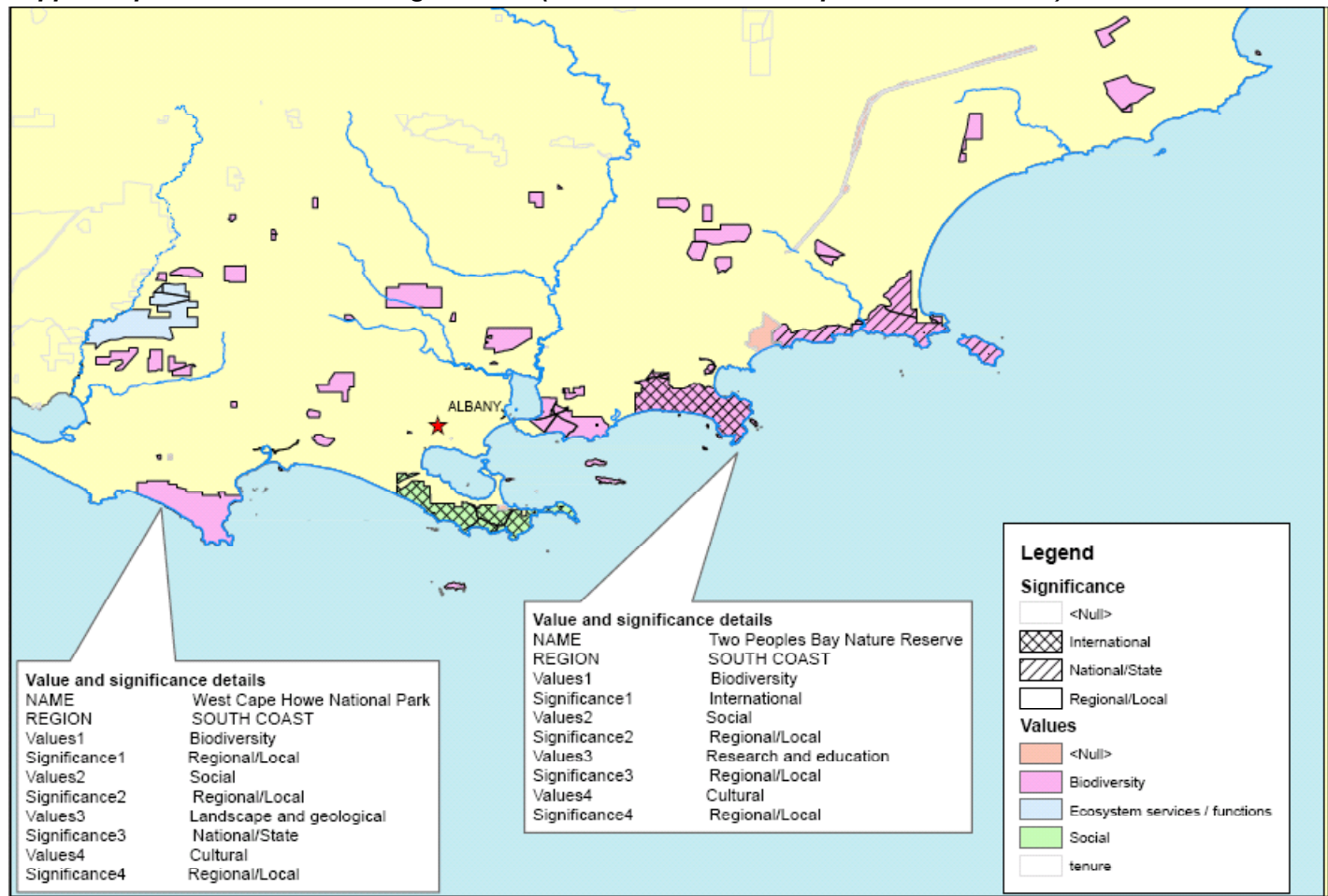
Results table 1 – Values and significance (from self-assessment questionnaire Part A)

Reserve name	Values	Importance	Significance	Values details
Gull Rock National Park, West Mount Mason Nature Reserve	Biodiversity	1	Regional_Local	Ecosystem level, Species level rare and threatened, Species level indicator species, Species level popular species, Species level economically or socially important species, Local population level, Genetic level
	Social	2	Regional_Local	Recreation, Green space, Scenic
	Research and Education	3	Regional_Local	Research
	Cultural	4	Regional_Local	Spiritual – e.g. sacred sites, Indigenous heritage, Historical, Aesthetic/artistic, Research
Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Biodiversity	1	Regional_Local	Ecosystem level, Species level rare and threatened, Species level indicator species, Species level popular species, Species level economically or socially important species, Local population level, Genetic level
	Social	2	Regional_Local	Recreation, Green space, Scenic, Wilderness
	Research and Education	3	Regional_Local	Benchmark sites, Research, Formal education
	Landscape and Geological	4	National_State	Fossils, Special geological formations and landscape features, Water bodies and wetlands, Comprehensiveness Adequate Reserve (CAR) System
	Cultural	5	Regional_Local	Spiritual – e.g. sacred sites, Indigenous heritage, Historical, Aesthetic/artistic
Inland East reserves: Lake Pleasant View, Napier , Tinkelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Biodiversity	1	Regional_Local	Ecosystem level, Species level rare and threatened, Species level indicator species, Species level popular species, Local population level
	Landscape and Geological	2	Regional_Local	Special geological formations and landscape features, Water bodies and wetlands, Comprehensiveness Adequate Reserve (CAR) System
	Social	3	Regional_Local	Green space, Scenic
	Cultural	4	Regional_Local	Indigenous heritage, Aesthetic/artistic
Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup, other unnamed.	Biodiversity	1	Regional_Local	Ecosystem level, Species level rare and threatened, Species level indicator species, Species level popular species, Local population level
	Landscape and Geological	2	Regional_Local	Special geological formations and landscape features, Water bodies and wetlands, Comprehensiveness Adequate Reserve (CAR) System
	Social	3	Regional_Local	Green space, Scenic
	Cultural	4	Regional_Local	Indigenous heritage, Aesthetic/artistic
Torndirrup National Park	Social	1	International	Recreation, Green space
	Landscape and Geological	2	International	Evidence of formation and ongoing geological processes, Special geological formations and landscape features, Comprehensiveness Adequate Reserve (CAR) System
	Biodiversity	3	Regional_Local	Ecosystem level, Species level rare and threatened, Local population level, Genetic level

Attachment 1- Pilot study process and results

Reserve name	Values	Importance	Significance	Values details
	Economic	4	National_State	Tourism, Adjacent land values
	Cultural	5	Regional_Local	Spiritual – e.g. sacred sites, Indigenous heritage, Historical, Aesthetic/artistic
Two Peoples Bay Nature Reserve	Biodiversity	1	International	Ecosystem level, Species level rare and threatened, Species level indicator species, Species level popular species, Species level economically or socially important species, Local population level, Genetic level
	Social	2	Regional_Local	Recreation, Green space, Scenic
	Research and Education	3	Regional_Local	Benchmark sites, Research, Formal education, Interpretation
	Cultural	4	Regional_Local	Spiritual – e.g. sacred sites, Indigenous heritage, Historical, Aesthetic/artistic
	Landscape and Geological	5	Regional_Local	Evidence of formation and ongoing geological processes, Water bodies and wetlands, Comprehensiveness Adequate Reserve (CAR) System
Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Biodiversity	1	National_State	Ecosystem level, Species level rare and threatened, Species level indicator species, Species level popular species, Species level economically or socially important species, Local population level, Genetic level
	Social	2	Regional_Local	Recreation, Green space, Scenic, Wilderness
	Research and Education	3	National_State	Benchmark sites, Research, Formal education
	Landscape and Geological	4	National_State	Fossils, Special geological formations and landscape features, Water bodies and wetlands, Comprehensiveness Adequate Reserve (CAR) System
	Cultural	5	Regional_Local	Spiritual – e.g. sacred sites, Indigenous heritage, Historical, Aesthetic/artistic
West Cape Howe National Park	Biodiversity	1	Regional_Local	Ecosystem level, Species level economically or socially important species
	Social	2	Regional_Local	Recreation, Green space, Scenic, Wilderness
	Landscape and Geological	3	National_State	Special geological formations and landscape features, Water bodies and wetlands, Comprehensiveness Adequate Reserve (CAR) System
	Cultural	4	Regional_Local	Spiritual – e.g. sacred sites, Indigenous heritage, Aesthetic/artistic
	Economic	5	Regional_Local	Tourism, Adjacent land values

Mapped depiction of values and significance (from self-assessment questionnaire Part A)



Attachment 1- Pilot study process and results

Results table 2 – Identifying threats (from self-assessment questionnaire Part B (1))

THREAT	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Two Peoples Bay Nature Reserve	Inland East reserves: Lake Pleasant View, Napier , Tinkelelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup
Animal pests	YES	YES	YES	YES	YES	YES	YES	YES
Animal Pests Impact	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate
Animal Pests Extent	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout
Animal Pest Information Confidence	High	High	High	High	High	Medium	High	Medium
Historical threat animal	YES	YES	YES	YES	YES	YES	YES	YES
Future threat animal	NO	NO	NO	NO	NO	NO	NO	NO
Weeds	YES	NO	YES	YES	YES	YES	YES	YES
Weed Impacts	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	High to severe	Mild to moderate	High to severe
Weed Extent	Widespread/throughout	Widespread/throughout	Localised/scattered	Widespread/throughout	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered
Weed Information Confidence	High	High	High	High	High	High	High	High
Historical threat weeds	YES	YES	YES	YES	YES	YES	YES	YES
Future threat weeds	NO	NO	NO	NO	NO	NO	NO	NO
Disease	YES	YES	YES	YES	YES	YES	YES	YES
Disease Impact	High to severe	High to severe	High to severe	-	High to severe	High to severe	High to severe	High to severe

Attachment 1- Pilot study process and results

THREAT	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Two Peoples Bay Nature Reserve	Inland East reserves: Lake Pleasant View, Napier , Tinkelelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup
Disease Extent	Widespread/throughout	Widespread/throughout	Widespread/throughout	-	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout
Disease Information Confidence	High	High	High	-	High	High	High	High
Historical threat disease	YES	YES	YES	NO	YES	YES	YES	YES
Future threat disease	NO	NO	NO	NO	NO	NO	NO	NO
Changed fire regimes	YES	YES	YES	YES	YES	YES	YES	YES
Changed fire Impact	Mild to moderate	Mild to moderate	High to severe	-	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate
Changed fire Extent	Localised/scattered	Localised/scattered	Localised/scattered	-	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered
Changed fire Information Confidence	High	High	High	-	High	Medium	High	High
Historical threat fire	YES	YES	YES	NO	YES	NO	YES	YES
Future threat fire	NO	NO	NO	NO	NO	NO	NO	NO
Erosion	YES	YES	YES	YES	YES	YES	YES	YES
Erosion Impact	Mild to moderate	High to severe	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	High to severe	Mild to moderate
Erosion Extent	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Widespread/throughout	Localised/scattered
Erosion Information Confidence	High	High	High	High	High	Medium	High	Medium
Historical threat erosion	YES	YES	YES	YES	YES	NO	YES	NO

Attachment 1- Pilot study process and results

THREAT Future threat erosion	Torndirrup National Park NO	West Cape Howe National Park NO	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve NO	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island NO	Two Peoples Bay Nature Reserve NO	Inland East reserves: Lake Pleasant View, Napier , Tinkelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed. NO	Gull Rock National Park, West Mount Mason Nature Reserve NO	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup NO
Reserve size shape locality	YES	NO	NO	NO	YES	YES	YES	YES
Reserve size shape locality Impact	Mild to moderate	-	-	-	Mild to moderate	High to severe	Mild to moderate	High to severe
Reserve size shape locality Extent	Widespread/throughout	-	-	-	Widespread/throughout	Widespread/throughout	Widespread/throughout	Widespread/throughout
Reserve size shape locality Information Confidence	High	-	-	-	Medium	High	Medium	High
Historical threat reserves	NO	NO	NO	NO	NO	YES	YES	NO
Future threat reserves	NO	NO	NO	NO	NO	NO	NO	NO
Off reserve activities	YES	NO	NO	NO	NO	YES	NO	YES
Off reserve Impact	Mild to moderate	-	-	-	-	Mild to moderate	-	Mild to moderate
Off reserve Extent	Localised/scattered	-	-	-	-	Localised/scattered	-	Localised/scattered
Off reserve Information Confidence	Medium	-	-	-	-	Medium	-	High
Historical threat off reserve	NO	NO	NO	NO	NO	YES	NO	YES
Future threat off reserve	NO	NO	NO	NO	NO	NO	NO	NO

Attachment 1- Pilot study process and results

THREAT Changed hydrology salinity or other change	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Two Peoples Bay Nature Reserve	Inland East reserves: Lake Pleasant View, Napier , Tinkelelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup
Changed hydrology	YES	NO	NO	NO	NO	YES	NO	YES
Impact	Mild to moderate	-	-	-	-	Mild to moderate	-	Mild to moderate
Extent	Localised/scattered	-	-	-	-	Localised/scattered	-	Localised/scattered
Information Confidence	Medium	-	-	-	-	Medium	-	Medium
Historical threat hydrology	YES	NO	NO	NO	NO	YES	NO	YES
Future threat hydrology	NO	NO	NO	NO	NO	NO	NO	NO
Changed water quality	NO	NO	NO	NO	NO	NO	NO	NO
Impact	-	-	-	-	-	-	-	-
Extent	-	-	-	-	-	-	-	-
Information Confidence	-	-	-	-	-	-	-	-
Historical threat water qual	NO	NO	NO	NO	NO	NO	NO	NO

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THREAT	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Two Peoples Bay Nature Reserve	Inland East reserves: Lake Pleasant View, Napier , Tinkelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup
Future threat water qual	NO	NO	NO	NO	NO	NO	NO	NO
Resource extraction	NO	NO	NO	NO	NO	NO	NO	NO
Resource extraction Impact	-	-	-	-	-	-	-	-
Resource extraction Extent	-	-	-	-	-	-	-	-
Resource extraction Information Confidence	-	-	-	-	-	-	-	-
Historical threat res extraction	NO	NO	NO	NO	NO	NO	NO	NO
Future threat res extraction	NO	NO	NO	NO	NO	NO	NO	NO
Uncontrolled access	NO	NO	YES	YES	YES	YES	YES	YES
Uncontrolled access Impact	-	-	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	High to severe	Mild to moderate
Uncontrolled access Extent	-	-	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Widespread/through out	Localised/scattered
Uncontrolled access Information Confidence	-	-	High	High	High	Medium	High	Medium
Historical threat access	NO	NO	YES	YES	YES	YES	YES	YES
Future threat access	NO	NO	NO	NO	NO	NO	NO	NO

Attachment 1- Pilot study process and results

THREAT Visitor impacts	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Two Peoples Bay Nature Reserve	Inland East reserves: Lake Pleasant View, Napier , Tinkelelup , North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup
Visitor Impact	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	Mild to moderate	High to severe	Mild to moderate
Visitor impact Extent	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Localised/scattered	Widespread/through out	Localised/scattered
Visitor impact Information Confidence	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Historical threat visitors	YES	YES	YES	YES	YES	YES	YES	YES
Future threat visitors	NO	NO	NO	NO	NO	NO	NO	NO
Climate change	NO	NO	NO	NO	NO	NO	NO	NO
Climate change Impact	-	-	-	-	-	-	-	-
Climate change Extent	-	-	-	-	-	-	-	-
Climate change Information Confidence	-	-	-	-	-	-	-	-
Historical threat climate	NO	NO	NO	NO	NO	NO	NO	NO
Future threat climate	NO	NO	NO	NO	NO	NO	NO	NO

Attachment 1- Pilot study process and results

Mapped depiction of identifying threats (example from self-assessment questionnaire Part B (1))



Attachment 1- Pilot study process and results

Results table 3 – Information on individual threats (from self-assessment questionnaire Part B (2))

Reserve	Two Peoples Bay Nature Reserve	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Manypeaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Inland East reserves: Lake Pleasant View, Napier, Tinkelup, North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup, other unnamed.
Threat detail								
Knowledge Animal Pests	Some Quantitative data	Some Quantitative data	Judgement based	Some Quantitative data	Some Quantitative data	Judgement based	Judgement based	Judgement based
Management response Animal Pests	Strategic but constrained	Reactive management	Reactive management	Strategic but constrained	No management	No management	Reactive management	No management
Trend Animal Pests	Static impacts	Increasing impacts	Unknown impacts	Static impacts	Static impacts	Static impacts	Unknown impacts	Static impacts
Knowledge Weeds	Some Quantitative data	Some Quantitative data	Some Quantitative data	Some Quantitative data	Some Quantitative data	Judgement based	Some Quantitative data	Judgement based
Management response Weeds	Reactive management	Strategic but constrained	Reactive management	Reactive management	Reactive management	Reactive management	Reactive management	Reactive management
Trend Weeds	Static impacts	Increasing impacts	Increasing impacts	Static impacts	Static impacts	Increasing impacts	Increasing impacts	Increasing impacts
Knowledge Disease	Some Quantitative data	Some Quantitative data	Some Quantitative data	Quantitative data		Judgement based	Some Quantitative data	Judgement based
Management response Disease	Strategic but constrained	Strategic but constrained	Strategic but constrained	Strategic but constrained		Reactive management	Strategic but constrained	Reactive management
Trend Disease	Increasing impacts	Static impacts	Static impacts	Static impacts		Increasing impacts	Increasing impacts	Increasing impacts
Knowledge Changed fire	Quantitative data	Quantitative data	Quantitative data	Quantitative data		Judgement based	Quantitative data	Judgement based
Management response Changed fire	Strategic but constrained	Planned and strategic	Planned and strategic	Planned and strategic		Strategic but constrained	Strategic but constrained	Strategic but constrained
Trend Changed fire	Decreasing impacts	Decreasing impacts	Decreasing impacts	Decreasing impacts		Unknown impacts	Decreasing impacts	Static impacts
Knowledge Erosion	Judgement based	Judgement based	Judgement based	Judgement based	Judgement based	Judgement based	Judgement based	Judgement based
Management response Erosion	Reactive management	Reactive management	Strategic but constrained	Reactive management	No management	No management	No management	No management
Trend Erosion	Increasing impacts	Increasing impacts	Static impacts	Increasing impacts	Unknown impacts	Unknown impacts	Increasing impacts	Unknown impacts

Attachment 1- Pilot study process and results

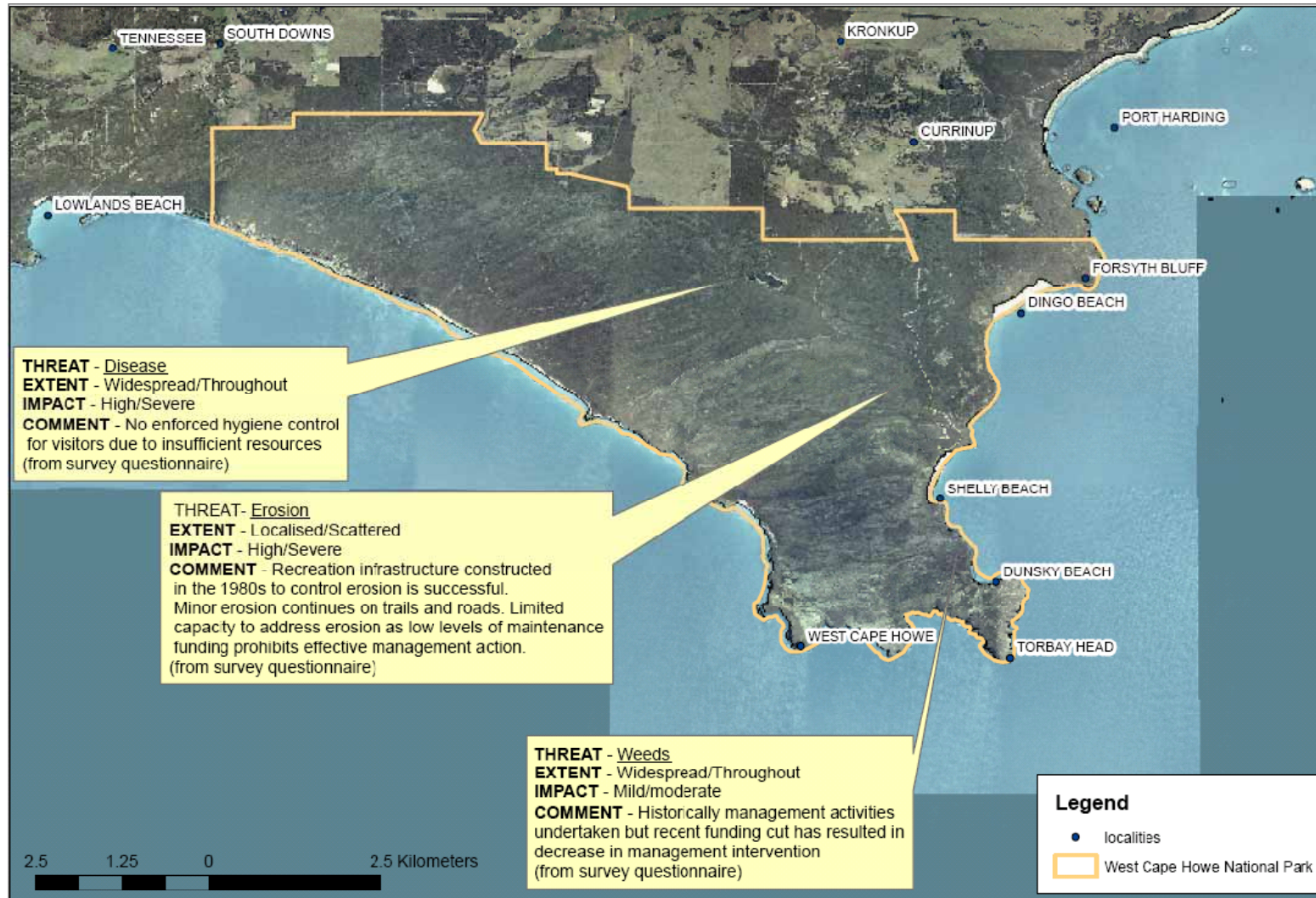
Reserve	Two Peoples Bay Nature Reserve	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Many Peaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Inland East reserves: Lake Pleasant View, Napier, Tinkelup, North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup, other unnamed.
Threat detail								
Knowledge Reserve s s l	Judgement based	Quantitative data				Judgement based	Judgement based	Judgement based
Management response Reserve s s l	No management	Reactive management				No management	No management	No management
Trend Reserve s s l	Unknown impacts	Increasing impacts				Increasing impacts	Increasing impacts	Increasing impacts
Knowledge Off reserve		Some Quantitative data				Judgement based		Judgement based
Management response Off reserve		Reactive management				Reactive management		Reactive management
Trend Off reserve		Increasing impacts				Increasing impacts		Increasing impacts
Knowledge Hydrology		Some Quantitative data				Judgement based		Judgement based
Management response Hydrology		Reactive management				No management		No management
Trend Hydrology		Increasing impacts				Unknown impacts		Unknown impacts
Knowledge Water quality								
Management response Water quality								
Trend Water quality								
Knowledge Resource extraction								
Management response Resource extraction								

Attachment 1- Pilot study process and results

Reserve	Two Peoples Bay Nature Reserve	Torndirrup National Park	West Cape Howe National Park	Waychinicup National Park, Bald Island Nature Reserve, Mount Many Peaks Nature Reserve	Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Inland East reserves: Lake Pleasant View, Napier, Tinkedelup, North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Gull Rock National Park, West Mount Mason Nature Reserve	Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup, other unnamed.
Threat detail								
Trend Resource extraction								
Knowledge Uncontrolled access	Judgement based			Judgement based	Judgement based	Judgement based	Judgement based	Judgement based
Management response Uncontrolled access	Reactive management			Reactive management	Reactive management	Reactive management	No management	Reactive management
Trend Uncontrolled access	Increasing impacts			Increasing impacts	Increasing impacts	Increasing impacts	Increasing impacts	Increasing impacts
Knowledge Visitors	Judgement based	Some Quantitative data	Judgement based	Judgement based	Judgement based	Judgement based	Judgement based	Judgement based
Management response Visitors	Strategic but constrained	Reactive management	Strategic but constrained	Reactive management	Reactive management	Reactive management	No management	Reactive management
Trend Visitors	Static impacts	Increasing impacts	Decreasing impacts	Increasing impacts	Increasing impacts	Increasing impacts	Increasing impacts	Increasing impacts
Knowledge Climate change								
Management response Climate change								
Trend Climate change								

Attachment 1- Pilot study process and results

Mapped depiction of information on individual threats (example from self-assessment questionnaire Part B (2))

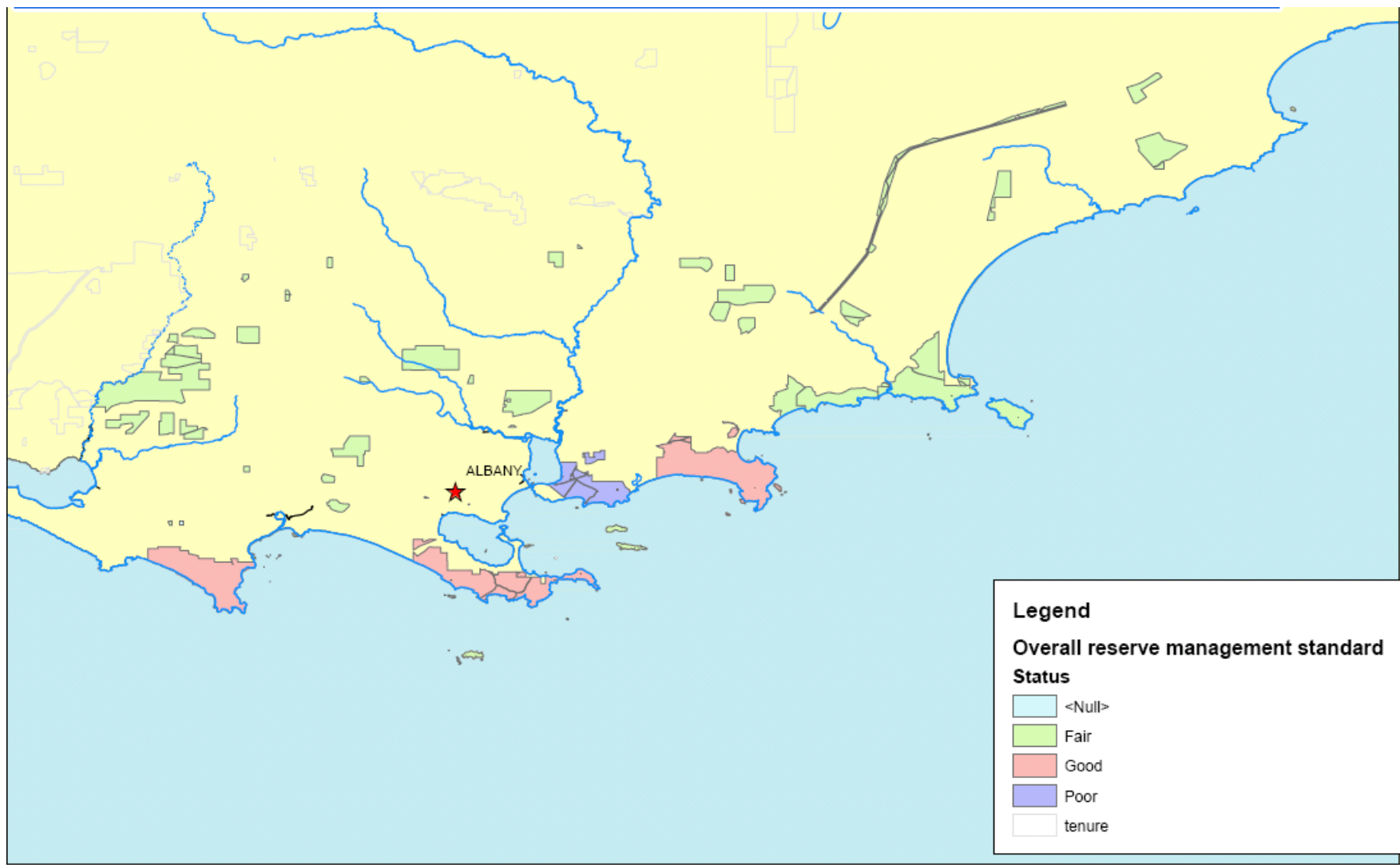


Attachment 1- Pilot study process and results

Results table 4 – Overall reserve management standard (from self-assessment questionnaire Part C)

TenureID	Status	Comments
Two Peoples Bay Nature Reserve	Good	TPB has a strong history of management and has a ranger in residence
West Cape Howe National Park	Good	Threatening processes identified and historically well managed. Recent budget constraints and reduced levels of management input may result in an increase in threatening processes
Waychinicup National Park, Bald Island Nature Reserve, Mount Many Peaks Nature Reserve	Fair	Very important threatened species breeding and recovery area
Inland west nature reserves: Phillips Brook, Gledhow, Lake Eyrie, Tennessee North, Mill Brook, Blue Gum Creek, Down Road, Marbelup, Lake Powell, Chorkerup, other unnamed.	Fair	Numerous small island reserves in an agricultural landscape. Size and shape make many open to a raft of threatening processes
Inland East reserves: Lake Pleasant View, Napier, Tinkelup, North Sister, Takenup Road, Hassell, Mettler Lake, South Sister, Cheyne Road, Palinup, other unnamed.	Fair	Numerous small island reserves in an agricultural landscape. Size and shape make many open to a raft of threatening processes
Island Nature Reserves: Mistaken Island, Cheyne Island, Green Island, Breaksea Island, Michaelmas Island, Shelter Island, Seal Island, Eclipse Island	Fair	Very important threatened species breeding and recovery area
Torndirrup National Park	Good	Current infrastructure is controlling high visitor numbers effectively
Gull Rock National Park, West Mount Mason Nature Reserve	Poor	Inherentence of a reserve with no controls, infrastructure or management actions in place

Mapped depiction of overall reserve management standard (from self-assessment questionnaire Part C)



Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

Reserve name:

Reserve number:

Area:

Part A: Identifying this reserve's values

Please list principal reserve values in order of importance, using the information provided in Table 2 below and provide a level significance for each value.

Table 1: Principal reserve values

<i>Value</i>	<i>Significance category (International, National/State, Regional/Local)</i>
e.g. enter 'Biodiversity' as the principal reserve value from Table 2 below (and circle one or more sub-categories such as 'Ecosystem level')	e.g. 'Regional/Local' (see Appendix-Table 3 for guidance on significance level)
1.	
2.	
3.	
4.	
5.	

Table 2: Ecological, socio-economic and cultural values associated with reserve management

<i>Ecological</i>	<i>Socio-economic and cultural</i>
Ecosystem services / functions <ul style="list-style-type: none">• Catchment management and water supply• Soil conservation• Climate and disaster mitigation• Clean air/pollution mitigation	Cultural <ul style="list-style-type: none">• Spiritual – e.g. sacred sites• Indigenous heritage• Historical• Aesthetic/artistic
Biodiversity <ul style="list-style-type: none">• Ecosystem level• Species level (rare and threatened, indicator species, popular species, economically or socially important species etc)• Local population level• Genetic level	Social <ul style="list-style-type: none">• Recreation• Green space• Scenic• Wilderness•
Landscape and geological <ul style="list-style-type: none">• Evidence of formation and ongoing geological processes• Fossils• Special geological formations and landscape features• Water bodies and wetlands• Comprehensiveness Adequate Reserve (CAR) System	Economic <ul style="list-style-type: none">• Tourism• Adjacent land values• Sustainable resource harvesting
	Research and education <ul style="list-style-type: none">• Benchmark sites

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

	<ul style="list-style-type: none"> • Research • Formal education • Interpretation
--	--

Part B (1): Identifying this reserve's threats

Please tick the relevant threatening processes to this reserve's principal values (the values as listed in Part A of the questionnaire above).

Pressures (threatening processes to this reserve's principal values)		Significance to this reserve's principal values (as listed above) (see Appendix-Table 3 for guidance on impact categories) (see Appendix-Table 5 for guidance on extent categories)				Confidence of source of information on pressures (High, Medium, Low, No data) (see Appendix Table 4 for guidance on confidence level)	Historical threat – this threat was pre-existing prior to the reservation of this area	Not currently a threat but a potential (future) threat to the reserve's values
		Impact		Extent				
		Mild to moderate	High to severe	Localised/ Scattered	Widespread/ Throughout			
<input type="checkbox"/>	Animal pests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Weeds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Disease (Pathogens)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Changed fire regimes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Reserve size/shape/locality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Off-reserve activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Changed hydrology (salinity or other change)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Changed water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Resource extraction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Uncontrolled access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Visitor impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Climate Change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Part B (2): Information on individual threats

Below are more detailed questions for the threats identified above (Part B (1)). Only complete the following detailed sections if the corresponding threat was identified in Part B.1 as a current threat. Furthermore only complete the following detailed sections for threats identified in Part B (1) where the significance was entered as high to severe impact and/or the extent was listed as widespread/throughout.

1. Animal pests

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of animal pests on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of animal pests on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of animal pests on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of animal pests on this reserves principal values

Management Response

<input type="checkbox"/>	A planned and strategic approach to animal pest management is being implemented in this reserve
<input type="checkbox"/>	A strategic approach to animal pest management is being implemented in this reserve but is constrained in scope and capacity
<input type="checkbox"/>	Only reactive animal pest management is undertaken in this reserve
<input type="checkbox"/>	No animal pest management is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of animal pests on reserve values are increasing
<input type="checkbox"/>	Negative impacts of animal pests on reserve values are decreasing
<input type="checkbox"/>	Negative impact of animal pests on reserve values is static
<input type="checkbox"/>	The negative impact trend of animal pests on reserve values is unknown

Documentation	List relevant documents or sources of information that guide pest management
	1.
	2.
	3.

Comments

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

2. Weeds

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of weed colonization on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of weed colonization on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of weeds on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of weed colonization on this reserves principal values

Management Response

<input type="checkbox"/>	A planned and strategic approach to weed management is being implemented in this reserve
<input type="checkbox"/>	A strategic approach to weed management is being implemented in this reserve but is constrained in scope and capacity
<input type="checkbox"/>	Only reactive weed management is undertaken in this reserve
<input type="checkbox"/>	No weed management is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of weeds on reserve values are increasing
<input type="checkbox"/>	Negative impacts of weeds on reserve values are decreasing
<input type="checkbox"/>	Negative impact of weeds on reserve values is static
<input type="checkbox"/>	The negative impact trend of weeds on reserve values is unknown

Documentation	List relevant documents or sources of information that guide weed management
	1.
	2.
	3.

Comments

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

3. Disease (pathogens)

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of pathogens on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of pathogens on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of pathogens on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of pathogens on this reserves principal values

Management Response

<input type="checkbox"/>	A planned and strategic approach to disease management is being implemented in this reserve
<input type="checkbox"/>	A strategic approach to disease management is being implemented in this reserve but is constrained in scope and capacity
<input type="checkbox"/>	Only reactive disease management is undertaken in this reserve
<input type="checkbox"/>	No disease management is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of pathogens on reserve values are increasing
<input type="checkbox"/>	Negative impacts of pathogens on reserve values are decreasing
<input type="checkbox"/>	Negative impact of pathogens on reserve values is static
<input type="checkbox"/>	The negative impact trend of pathogens on reserve values is unknown

Documentation	List relevant documents or sources of information that guide disease management
	1.
	2.
	3.

Comments

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

4. Changed fire regimes

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of fire on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of fire on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of fire on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of fire on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to fire management is being implemented in this reserve
<input type="checkbox"/>	A fire strategy is in place for this reserve but is constrained in scope and capacity
<input type="checkbox"/>	There is limited fire strategy and only reactive fire management is undertaken in this reserve
<input type="checkbox"/>	No fire management is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of fire on reserve values are increasing
<input type="checkbox"/>	Negative impacts of fire on reserve values are decreasing
<input type="checkbox"/>	Negative impact of fire on reserve values is static
<input type="checkbox"/>	The negative impact trend of fire on reserve values is unknown

Documentation	List relevant documents or sources of information that guide fire management
	1.
	2.
	3.

Comments

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

5. Reserve size, shape and/or locality

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of this reserve's size, shape and/or locality on its principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of reserve size, shape and/or locality on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of size, shape and/or locality on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of reserve size, shape and/or locality on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing the impacts of reserve size, shape and/or locality is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing the impacts of reserve size, shape and/or locality is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	There is limited strategy and only reactive management of the impacts of reserve size, shape and/or locality is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of reserve size, shape and/or locality on this reserves principal values is undertaken

Trend

<input type="checkbox"/>	Negative impacts of reserve size, shape and/or locality on reserve values are increasing
<input type="checkbox"/>	Negative impacts of reserve size, shape and/or locality on reserve values are decreasing
<input type="checkbox"/>	Negative impact of reserve size, shape and/or locality on reserve values is static
<input type="checkbox"/>	The negative impact trend of reserve size, shape and/or locality on reserve values is unknown

Documentation	List relevant documents or sources of information that guide management of the reserves size, shape and locality
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

6. Management of threats outside reserve boundaries (off-reserve activities)

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of off-reserve activities size on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of off-reserve activities on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of off-reserve activities on the principal values of this reserve is judgment based and undocumented
<input type="checkbox"/>	There is no information available of the effects of off-reserve activities on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing the impacts of off-reserve activities is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing the impacts of off-reserve activities is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of the impacts of off-reserve activities is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of off-reserve activities is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of off-reserve activities on the reserves principal values are increasing
<input type="checkbox"/>	Negative impacts of off-reserve activities on the reserves principal values are decreasing
<input type="checkbox"/>	Negative impact of off-reserve activities on the reserves principal values is static
<input type="checkbox"/>	The negative impact trend of off-reserve activities on the reserves principal values is unknown

Documentation	List relevant documents or sources of information that guide management of threats outside reserve boundaries
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

7. Changed hydrology (salinity or other)

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of changed hydrology on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of changed hydrology on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of changed hydrology on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of changed hydrology on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing the impacts of changed hydrology is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing the impacts of changed hydrology is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of the impacts of changed hydrology is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of changed hydrology is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of changed hydrology on principal reserve values are increasing
<input type="checkbox"/>	Negative impacts of changed hydrology on principal reserve values are decreasing
<input type="checkbox"/>	Negative impact of changed hydrology on principal reserve values is static
<input type="checkbox"/>	The negative impact trend of changed hydrology on principal reserve values is unknown

Documentation	List relevant documents or sources of information that guide management of hydrology for this reserve
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

8. Changed water quality

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of changes in water quality on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of changes in water quality on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of changes in water quality on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of changes in water quality on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing the impacts of changes in water quality is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing the impacts of changes in water quality is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of the impacts of changes in water quality is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of changes in water quality is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of changes in water quality on principal reserve values are increasing
<input type="checkbox"/>	Negative impacts of changes in water quality on principal reserve values are decreasing
<input type="checkbox"/>	Negative impact of changes in water quality on principal reserve values is static
<input type="checkbox"/>	The negative impact trend of changes in water quality on principal reserve values is unknown

Documentation	List initiatives and relevant planning documents for managing water quality changes in this reserves
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

9. Resource extraction

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of resource extraction on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of resource extraction on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of resource extraction on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of resource extraction on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing the impacts of resource extraction is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing the impacts of resource extraction is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of the impacts of resource extraction is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of resource extraction is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of resource extraction on principal reserve values are increasing
<input type="checkbox"/>	Negative impacts of resource extraction on principal reserve values are decreasing
<input type="checkbox"/>	Negative impact of resource extraction on principal reserve values is static
<input type="checkbox"/>	The negative impact trend of resource extraction on principal reserve values is unknown

Documentation	List relevant documents or sources of information that guide the management of resource extraction
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

10. Uncontrolled access

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of uncontrolled access on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of uncontrolled access on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of uncontrolled access on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of uncontrolled access on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing the impacts of uncontrolled access is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing the impacts of uncontrolled access is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of the impacts of uncontrolled access is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of uncontrolled access is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of uncontrolled access on principal reserve values are increasing
<input type="checkbox"/>	Negative impacts of uncontrolled access on principal reserve values are decreasing
<input type="checkbox"/>	Negative impact of uncontrolled access on principal reserve values is static
<input type="checkbox"/>	The negative impact trend of uncontrolled access on principal reserve values is unknown

Documentation	List relevant documents or sources of information that guide the management of uncontrolled access
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

11. Visitor impacts

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of visitor impacts on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of visitor impacts on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects of visitor impacts on the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects of visitor impacts on this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managing visitor impacts is being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managing visitor impacts is being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of the impacts of visitors is undertaken in this reserve
<input type="checkbox"/>	No management of the impacts of visitors is undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts of visitors on principal reserve values are increasing
<input type="checkbox"/>	Negative impacts of visitors on principal reserve values are decreasing
<input type="checkbox"/>	Negative impact of visitors on principal reserve values is static
<input type="checkbox"/>	The negative impact trend of visitors on principal reserve values is unknown

Documentation	List relevant documents or sources of information that guide visitor impact management
	1.
	2.
	3.
Comments	

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

12. Park threat.....(insert here)

Knowledge

<input type="checkbox"/>	Quantitative data exists on the effects of on this reserves principal values (list documentation)
<input type="checkbox"/>	Some quantitative data exists but knowledge of the effects of..... on this reserves principal values is mostly qualitative (list documentation)
<input type="checkbox"/>	Knowledge of the effects ofon the principal values of this reserve is judgement based and undocumented
<input type="checkbox"/>	There is no information available of the effects ofon this reserves principal values

Management response

<input type="checkbox"/>	A planned and strategic approach to managingis being implemented (list strategic documentation)
<input type="checkbox"/>	A strategic approach to managingis being implemented but is constrained in scope and capacity (list strategic documentation)
<input type="checkbox"/>	Only reactive management of theis undertaken in this reserve
<input type="checkbox"/>	No management of theis undertaken in this reserve

Trend

<input type="checkbox"/>	Negative impacts ofon principal reserve values are increasing
<input type="checkbox"/>	Negative impacts ofon principal reserve values are decreasing
<input type="checkbox"/>	Negative impact ofon principal reserve values is static
<input type="checkbox"/>	The negative impact trend ofon principal reserve values is unknown

Documentation	List relevant documents or sources of information that guide.....management
	1.
	2.
	3.
Comments	

PART C: Overall reserve management standard for the conservation of principal values

Please provide an overall rating for the management of the reserves principal values

Poor	<input type="checkbox"/>	E.g. threatening processes that are not managed are leading to permanent resource degradation.
Fair	<input type="checkbox"/>	E.g. threatening processes are poorly identified; resource degradation is occurring but retrievable.
Good	<input type="checkbox"/>	E.g. threatening processes identified and values effectively managed.
Very Good	<input type="checkbox"/>	E.g. plans for managing identified threats in place; monitoring programs in place and key issues are being addressed.
Comments		

Attachment 1- APPENDIX 1 – Self-assessment questionnaire used for the pilot study

Appendix 1 tables

Table 3: Description of the level of impact categories

Impact of the threat	Description of category
Severe	The threat will lead to loss of reserve value(s) in the foreseeable future if it continues to operate at current levels
High	The threat will lead to a significant reduction of reserve values(s) if it continues to operate at current levels.
Moderate	The threat is having a detectable impact on reserve values(s) but damage is not considered significant.
Mild	The threat is having minor or barely detectable impact on reserve value(s).

Table 4: Description of the confidence categories for reserve values

Confidence	Description of category
High	Comprehensive, credible, recent, reserve wide information - preferably documented.
Moderate	Some inadequacies in coverage, currency or credibility of data, information may not be fully documented.
Low	Limited or out of date documentation, unreliable information, incomplete coverage of reserve, or other inadequacies in the information base.

Table 5: Description of the extent categories

Extent of the threat	Description of category
Throughout	The impact is occurring in 50% or more of reserve area/cultural place/site/object.
Widespread	The impact is occurring in more than 15% but less than 50% of reserve area/cultural place/site/object.
Scattered	The impact is occurring in between 5 and 15% of reserve area/cultural place/site/object.
Localised	The impact is occurring is less than 5% of reserve area/cultural place/site/object.

Table 6: Description of the significance categories for reserve values

Significance category	Description of category
International	The value is protected under an international agreements. For example, is it listed on: Ramsar Convention of Wetlands of International Importance (Ramsar), CAMBA, JAMBA, Convention on Migratory Shorebirds (CMS), CITES, is on the IUCN red list or is World heritage listed. To help with this, a good link is: http://www.environment.gov.au/biodiversity/international/index.html
National/State	The value is protected under Federal or State legislation or the reserve contains a population of flora or fauna that is significant at the national or state level. The reserve may make a significant contribution to national or state employment or be a major tourist destination for WA or interstate visitors. The reserve may contain a site of geological significance or it may be listed on the WA heritage register or have a declared Aboriginal place .
Regional/Local	The reserve contains a population of flora or fauna that is significant at the regional or local level. The reserve may make a significant contribution to regional or local employment or it may be a tourist destination for regional visitors