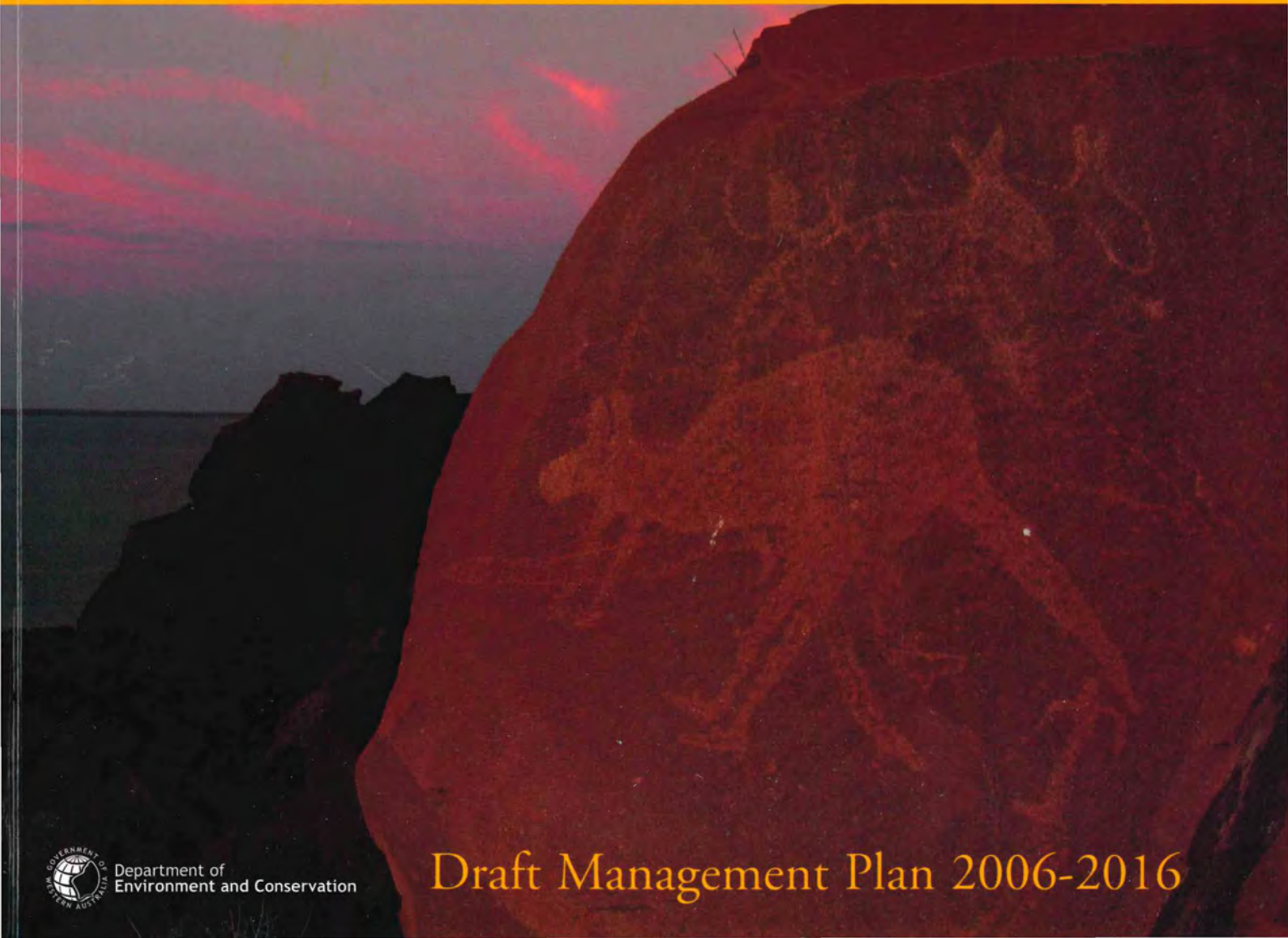




Proposed Burrup Peninsula CONSERVATION RESERVE



Foreword



This draft management plan is the result of an historic native title settlement between the Western Australian Government and the Traditional Custodians of the Burrup Peninsula, and demonstrates the Government's commitment to social justice for Aboriginal people, cultural heritage and biodiversity conservation.

The Burrup and Maitland Industrial Estates Agreement was settled in January 2003, and has been described as the most comprehensive negotiated settlement involving native title and development anywhere in Australia.

The proposal to establish a jointly managed conservation reserve marks a significant development in protected area management in WA. The recognition of ongoing Indigenous interests and responsibilities for managing country is at the core of this innovative and inclusive approach, and the draft management plan provides for cooperative management between the Department of Environment and Conservation and the Traditional Custodians.

The draft plan articulates the vision for the proposed Burrup Peninsula Conservation Reserve, including access and the provision of facilities for visitors, tourism development, education and interpretation of the magnificent cultural assets.

Comments on this draft plan are welcomed and we urge all interested persons and organisations to provide a response.

Alan Carpenter MLA
Premier of Western Australia



Steve Szabo
(second from right)
with members of the
Ngarda-ngarli
community at a
proposed visitor
centre site.
Photo - Norm Williams

Dedication

We, the current generation of Ngarda-ngarli, dedicate this management plan to the memory of our Elders. We acknowledge those who were killed defending this country and those who fought for this land through political means. We are grateful for their strength, wisdom and sacrifice, which has ensured that we have opportunities denied to them in their lives.

Some of the photographs that appear in this management plan are of people who have passed away. We thank the community for allowing us to keep these photographs in the management plan as recognition of their vision and commitment to country.

Preface

The non-industrial land of the Burrup Peninsula is proposed as freehold land vested in an Aboriginal Approved Body Corporate (ABC), comprising members of the three 'Contracting Parties' (referred to from here on as the Traditional Custodians)—the Wong-goo-tt-oo, the Yarburara Mardudhunera and the Ngarluma Yindjibarndi—registered on the Burrup and Maitland Industrial Estates Agreement Implementation Deed. When vested, the Aboriginal freehold land will be leased back to the State at a peppercorn rent to be jointly managed by the representatives of the ABC and the Department of Environment and Conservation (DEC)¹ as the proposed Burrup Peninsula Conservation Reserve.

The granting of title to the non-industrial lands of the Burrup Peninsula is the centrepiece of an historic native title settlement. The Burrup and Maitland Industrial Estates Agreement between the Traditional Custodians and the State was concluded in January 2003, and has been described as the most comprehensive negotiated settlement involving native title and development anywhere in Australia.

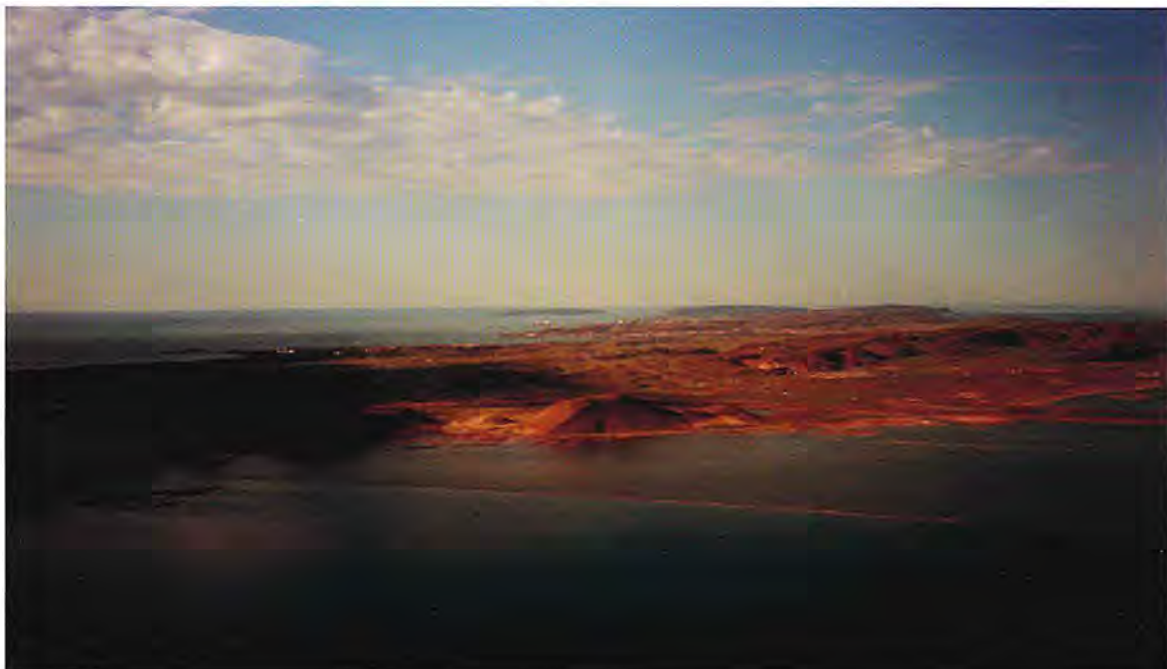
While the non-industrial lands of the Burrup Peninsula will remain freehold Aboriginal land, it is

also proposed that the area becomes a conservation reserve with formal protection under the *Conservation and Land Management Act 1984*. This will be achieved through a management agreement between the ABC and the Director General of DEC, which was negotiated between the Traditional Custodians and the State at the same time as the overall Burrup and Maitland Industrial Estates Agreement.

The proposal to establish a jointly managed conservation reserve marks a significant development in protected area management in WA. The recognition of ongoing Indigenous interests and responsibilities for managing country is at the core of this innovative and inclusive approach. Day-to-day management responsibility for the Burrup Peninsula Conservation Reserve will rest with DEC; however, reserve management will be accountable to a management council that will have at least 50 per cent Indigenous membership representing the ABC. It is only where the management council cannot achieve consensus on an issue that the Ministers responsible for DEC and for Indigenous Affairs will be asked to resolve matters.

The preparation of a management plan is a requirement

¹ The Department of Conservation and Land Management (CALM) merged with the Department of Environment, forming the new Department of Environment and Conservation (DEC) on 1 July 2006.



Burrup Peninsula
from the air.
Photo - Bill Carr

of the Burrup and Maitland Industrial Estates Agreement (see Appendix 1). An independent consultant prepared the preliminary draft of the plan under the direction of the Burrup Peninsula Conservation Reserve Planning Advisory Committee. The advisory committee comprised a majority of Indigenous members but also included representatives of CALM, the Department of Indigenous Affairs and the Shire of Roebourne. Senior members of each of the former native title claimant groups also provided extensive advice, especially in the area of cultural heritage management.

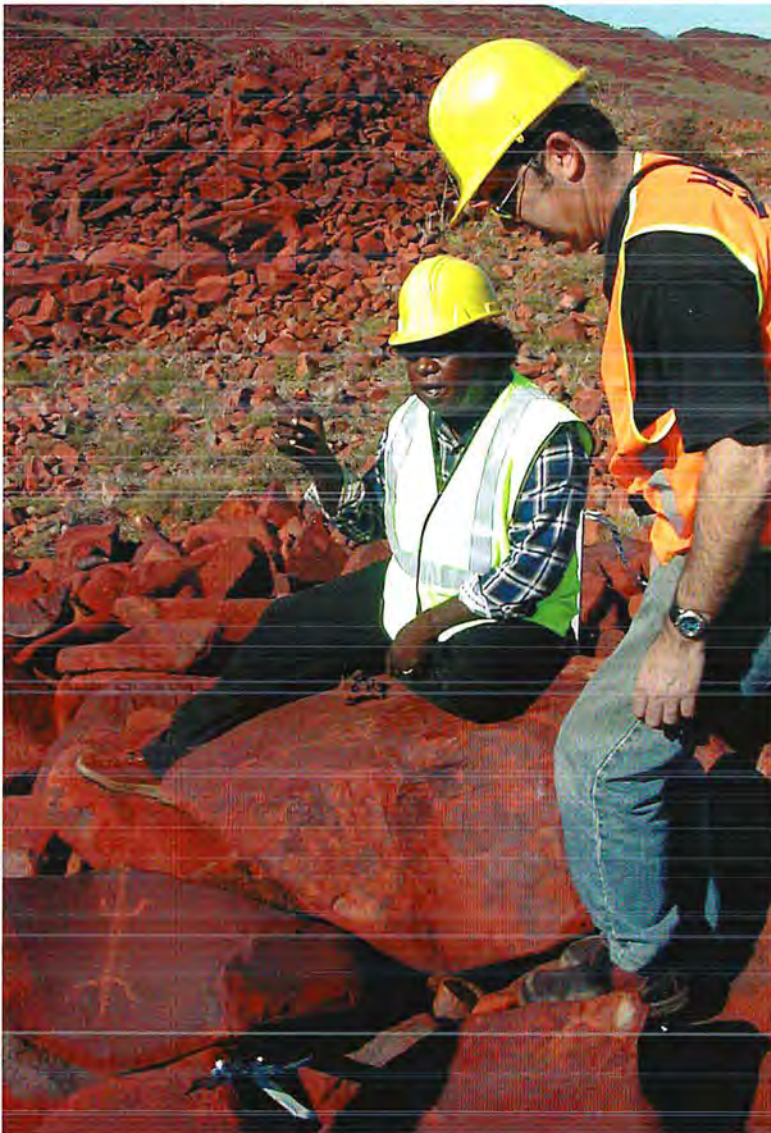
Below: David Daniels from the Ngardi-ngarli community (left) and agreement negotiator Steve Szabo on the Burrup.
Photo - Norm Williams

The advisory committee first called for input into the

preparation of the draft management plan in August 2003, and interested parties were contacted by the consultant (e.g. State and Commonwealth Government agencies, local government, industrial and commercial interests and non-government conservation organisations). A particular emphasis was put on consultations with local Indigenous people (or Ngardi-ngarli) to ensure that the management plan for their freehold land reflects their views and aspirations. Much of this work was on-site and their input was both comprehensive and generous. The advisory committee is now seeking comment on this draft document.

The central objective and challenge for the management plan is to achieve a sustainable coexistence of conservation and industrial development, of Indigenous and non-Indigenous land ownership and use. This draft plan advocates a balance between the protection of the internationally important heritage values of the Burrup Peninsula and the economic and social benefits the Burrup industries bring to the people of WA. Just over 60 per cent of the total area of the Burrup Peninsula has been dedicated to conservation and recreation with the remainder designated for industrial purposes.

This management plan is principally concerned with the proposed freehold Aboriginal lands that will form the Burrup Peninsula Conservation Reserve. Nevertheless, the protection of the natural and cultural values of the reserve will be affected by what happens in the adjacent industrial lands and waters. Sustainable long-term management will depend on the commitment of all parties with interests on the Burrup Peninsula to work together, integrate their efforts, share resources and communicate openly and regularly.



Acknowledgments

The late Steve Szabo prepared the first version of this draft management plan. Steve's passion for the Pilbara and its people was instrumental in advancing this landmark document, and is evident throughout. Wherever possible, the plan has remained faithful to the agreed vision developed by Steve and the stakeholders he consulted.

Many other individuals and organisations, both government and non-government, made valuable contributions to this management plan. It was the Burrup Peninsula Conservation Reserve Advisory Committee which made the greatest and most sustained contribution to the development of the plan and set the future path for the management of the area. It had the task of overseeing the development of the plan and ensuring that a wide range of interests were involved, informed and had the opportunity to express their views.

It is particularly important to acknowledge the Ngarda-ngarli members of the advisory committee who were nominated by and represented the Traditional Custodians. There were many differences of opinion and some tense times along the way. However, there was never any doubt about their commitment to protect this unique and special place, to see it as a place to share Ngarda-ngarli knowledge of country and culture with the broader community and visitors to the area.

The Burrup Peninsula Conservation Reserve Planning Advisory Committee comprised the following members:

- | | |
|--------------------|----------------------|
| Valerie Holborow | Kevin Cosmos |
| Audrey Cosmos | Janice Brettner |
| Les Hicks | Ashley James |
| George Ranger | Trevor Solomon |
| Michelle Adams | Wilfred Hicks |
| Tim Douglas | Robert Hicks |
| Roger Barker | Kevin Richards (dec) |
| David Daniel (dec) | Daryl Moncrieff |
| Chris Muller | Warren Fish |
| John McGowan | |

Several government agencies contributed, notably the Department of Environment and Conservation (DEC), the Office of Native Title, the Department of Indigenous Affairs (DIA) and Department of Resources (DOIR). Within these organisations the efforts of the following stood out: Peter Sharp, Peter Kendrick, Steve Van Leeuwin, Portia Brown and Laurina Bullen from DEC; Mark Miley and Warren Fish (formerly DIA) from DOIR; and Bill Carr (formerly of DOIR). The close involvement of the late Norm Williams (DOIR) was a great support and his wisdom, warmth and positive urging inspired all involved.

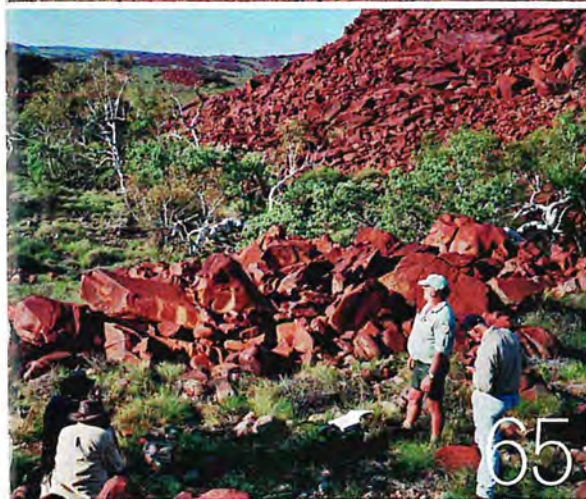
From Woodside Energy Ltd, Meath Hammond made a very significant contribution of his time and knowledge, and Kirsten Stoney was always helpful and encouraging.

The legal representatives and advisers to the three native title claimants groups also gave invaluable assistance. In particular Michael Ryan, Alum Cheedy and Helen Lawrence from the Pilbara Native Title Service, the Hon Ian Viner QC, Grantham Kitto (Kitto and Kitto Barristers and Solicitors), David Thompson and Louise Kimber from Barrack and Associates, and Ron Parker from Australian Interaction Consultants should be acknowledged.

Steve Szabo on
Conzinc Beach.
Photo - Norm Williams



Contents



Top: A Wildflower of the Burrup, *Swainsonia formosa*.
Photo – Laurina Bullen, DEC
Centre: Rock art trail.
Photo – DEC
Bottom: DEC staff and Ngardi-ngarli community members working together on the Burrup.
Photo – Bill Carr

Foreword	i
Dedication	ii
Preface	iii
Acknowledgments	v
Part A. Introduction	1
1. Brief overview	1
2. The planning area	1
Map 1. Locality and proposed tenure	2
3. The Burrup and Maitland Industrial Estates Agreement	3
3.1 Benefits of the Burrup and Maitland Industrial Estates Agreement	4
3.2 Management agreement	6
3.3 Aboriginal Approved Body Corporate	7
4. Working together	7
4.1 Aboriginal ownership	8
4.2 Management council	8
5. Legislative framework	8
5.1 Aboriginal Heritage Act 1972	8
5.2 Conservation and Land Management Act 1984	9
5.3 Environment Protection and Biodiversity Conservation Act 1999	10
6. The management planning process	11
Part B. Background and resources	13
7. History of the Burrup Peninsula	13
7.1 The original inhabitants	13
7.2 Post-European contact history	14
8. Cultural heritage	15
8.1 Significance	15
8.2 Petroglyphs and archaeological sites	16
8.3 Sacred sites	16
8.4 Living cultural values	17
8.5 Non-Indigenous cultural values	17

9.	The natural environment	18
9.1	Climate	18
9.2	Landscape	20
9.3	Geology	21
9.4	Soils and landforms	21
9.5	Hydrology	22
9.6	Vegetation and flora	22
9.7	Fauna	25
9.8	Fire	28
10	Public access and recreation	29
10.1	Current uses	29
10.2	Tourism	30
10.3	Impacts of public access	30
Part C: Management of the proposed reserve		33
11	Boundaries and tenure	33
12	Management of cultural heritage values	34
12.1	Preservation and promotion of Ngarda-ngarli cultural heritage	34
12.2	Preservation and promotion of rock art and archaeological values	34
12.3	Preservation and promotion of post-European contact heritage	37
13	Management of the natural environment	38
13.1	Soils and landform	38
13.2	Hydrology	39
13.3	Landscape	40
13.4	Flora and vegetation management	40
13.5	Fauna management	42
13.6	Fire management	43
14	Management for public use	45
14.1	Regional context	46
14.2	Zoning	48
14.3	Access	48
14.4	Visual landscape management	51
14.5	Visitor Centre	51
14.6	Recreational use	53



Above: North Burrup country.
Photo – DEC

14.7	Visitor services	56
14.8	Visitor safety	58
14.9	Communicating with the public	59
14.10	Firearms	59
14.11	Pets	60
15	Use of the reserve by Ngarda-ngarli	60
15.1	Hunting and fishing	60
15.2	Camping and living areas	61
16	Ngarda-ngarli employment and training	62
17	Commercial opportunities for Ngarda-ngarli	63
17.1	Marketing	63
18	Research and monitoring	64
19	Joint management on the Burrup Peninsula Conservation Reserve	65
19.1	Operation of the management agreement and management council	65
19.2	Additional staffing	66
19.3	Role of DEC	66
19.4	Role of other parties	66
	Map 2. Zoning	68
	Map 3. Recreation masterplan	69
	Definitions	71
	Bibliography	72
	Appendix 1. Excerpt from the Burrup and Maitland Industrial Estates Agreement Implementation Deed	74
	Appendix 2. Management agreement	76
	Appendix 3. Animals of the Burrup Peninsula	84
	Birds	84
	Mammals	90
	Reptiles and amphibians	92
	Appendix 4. Environmental weeds	95



Part A. Introduction

1. Brief overview

This draft management plan is for the non-industrial land of the Burrup Peninsula (the proposed Burrup Peninsula Conservation Reserve), as required by the Burrup and Maitland Industrial Estates Agreement (see Appendix 1).

The management plan will apply for a 10-year period or until otherwise amended, and its implementation will be administered by a management council comprising representatives of the Approved Body Corporate (or ABC, in which the freehold title of the land will be held), the Department of Environment and Conservation (DEC) and the Minister of Indigenous Affairs.

The draft plan provides a summary of the management operations proposed to be undertaken over the next 10 years. For this reason it is important that people with an interest in the area provide comments on this draft so they can be considered for incorporation into the final plan.

Much of the focus of the plan is to identify opportunities on the Burrup that will provide for

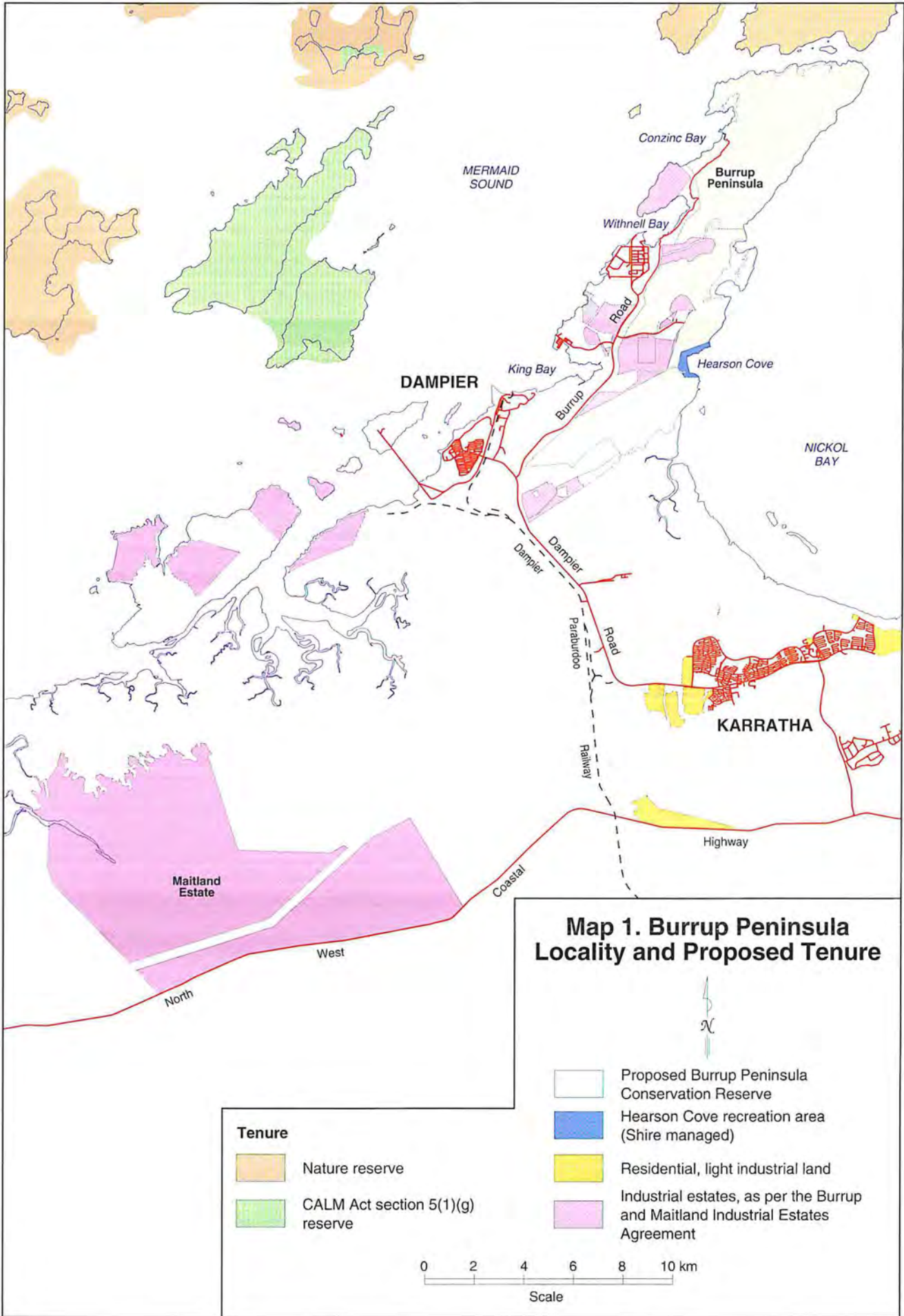
ongoing, sustainable employment and business development for Ngarda-ngarli. This includes work in managing the land to protect its environmental and cultural values, and also in tourism development. Proposals in the draft plan include the development of a major visitor centre, visitor accommodation, and various recreation sites to cater for visitors.

2. The planning area

The Burrup Peninsula is located in the north-west Pilbara region of WA. It extends approximately 20 km to the NNE from the Pilbara coast into the Dampier Archipelago at latitude 20° 35' S and longitude 116° 50' E. Until the mid-1960s the Burrup Peninsula was known as Dampier Island and was separated from the mainland by shallow tidal waters and mudflats. It is now joined to the mainland by a causeway constructed to provide road and rail access to the port facility at Dampier. In 1979 it was also re-named after Mt Burrup, the highest hill on the Peninsula which in turn took its name from Henry Burrup, a 19th century bank clerk in Roebourne.



Left: Conzinc Bay.
Photo – DEC



Dampier and Karratha are the nearest towns, the former approximately five km to the west and 12 km by road, and the latter approximately 25 km to the south by road (see Map 1). The waters of Nickol Bay to the east and Mermaid Sound to the west surround the Burrup Peninsula. The coastal waters surrounding the Burrup Peninsula are rich in marine life—to protect these values, the State Government is in the process of establishing a marine reserve system in the area. The area sustains both a commercial fishing industry (the Nickol Bay prawn fishery) and a high level of recreational fishing by locals and visitors to the area.

The Burrup Peninsula first came to national prominence with the development of the North West Shelf Gas Project, Australia's biggest energy resource development. Woodside Energy's production facility lies 130 km offshore to the north-west and gas is piped to its processing facility on the western side of the Burrup Peninsula on Withnell Bay. Industry on the Burrup Peninsula continues to make a major contribution to the economic well-being of the State.

The cultural heritage of the Burrup Peninsula is internationally acknowledged and it has been nominated for inclusion on the national heritage list based on these values. It also has significant natural and aesthetic values. The relatively undisturbed coastal and terrestrial habitats support a diversity of plant and animal life, including some vulnerable and endangered species. It is to protect these unique values forever that the WA Government and the Ngarda-ngarli custodians of this area have agreed to establish the Burrup Peninsula Conservation Reserve.

Due to its proximity to the towns of Karratha and Dampier, the Burrup Peninsula is a very important recreational and social resource for the whole community. Awareness of the values of the area has increased, as has public access and use, thus increasing impact by visitors. Recreation and tourism represent both opportunities and threats to the proposed Burrup Peninsula Conservation Reserve requiring new approaches to management, services and infrastructure.

The proposed Burrup Peninsula Conservation Reserve has an area of approximately 5000 ha, which is approximately 60 per cent of the whole Peninsula.

The proposed reserve covers all of the northern and most of the eastern part of the Peninsula. Much of the remainder of the Peninsula has been allocated for future industrial development and the infrastructure corridors required to service these industries.

The industrial land bordering the proposed Burrup Peninsula Conservation Reserve is unallocated Crown land subject to a Ministerial Temporary Reserve under the *Mining Act 1978*, which requires that the Minister for State Development (as the Minister for Mines) must agree before any mining titles are granted. The unallocated Crown land set aside for industrial development will be successively granted under freehold title to LandCorp, which will lease these individual lots on behalf of the State to industry proponents.

3. The Burrup and Maitland Industrial Estates Agreement

Transfer of freehold title to over 60 per cent of the Burrup Peninsula to Ngarda-ngarli and the proposed establishment of the Burrup Peninsula Conservation Reserve are the centrepieces of a historic agreement between the State of WA and the Ngarluma Yindjibarndi, Wong-goo-tt-oo and Yaburara Mardudhunera Traditional Custodians. The State

Below: Rock piles of the Burrup.
Photo – DEC



and the Traditional Custodians chose to negotiate a resolution of native title issues rather than go through the expensive, time-consuming and often confrontational court proceedings. Under the Burrup and Maitland Industrial Estates Agreement (BIMIEA), the Traditional Custodians agreed to the extinguishment of native title over the Burrup Peninsula in exchange for a number of other benefits including freehold title to that land on the Burrup Peninsula that was to become the Burrup Peninsula Conservation Reserve.

Below: North Burrup.
Photo—Laurina Bullen,
DEC

In January 2003 when the BIMIEA was formally announced, the Hon Eric Ripper, the Deputy



Premier and Minister with responsibility for native title described it as “...the most comprehensive settlement involving native title and development anywhere in Australia”. The BIMIEA sought to balance large-scale industrial development with conservation. Importantly, it is also designed to deliver long-term economic and social benefits to the local Aboriginal community in the region.

3.1 Benefits of the Burrup and Maitland Industrial Estates Agreement

The BIMIEA has afforded greater security for resource industries, significantly enhanced the economic prospects for the region and the State and provided protection for the natural and cultural values of the Burrup Peninsula. The BIMIEA cleared the way for the billions of dollars worth of industrial development proposed for the Burrup Peninsula to proceed.

The Traditional Custodians withdrew their objections to the compulsory acquisition by the State of lands at Hearson Cove, Karratha and the Burrup Industrial Estate required for further industrial development. In return for the extinguishment of native title, the State and the industry proponents agreed to a range of benefits for the Traditional Custodians.

The centrepiece of the BIMIEA is the granting of freehold title to the non-industrial lands of the Burrup Peninsula to the Traditional Custodians through an Approved Body Corporate. This area, some 5000 ha on the northern part of the Peninsula, is proposed to become the Burrup Peninsula Conservation Reserve. Management will be undertaken by the Traditional Custodians through a joint management agreement with DEC, and in accordance with this proposed management plan. Details of the Management Agreement are at Appendix 2. The joint management arrangements will protect and promote the Aboriginal cultural and archaeological values, the natural and environmental values and provide for managed access and recreation on the Burrup Peninsula. Importantly the agreement establishes a joint decision making structure—the Burrup Peninsula Conservation Reserve Management



Council—which has strong Aboriginal representation and enables Aboriginal people to reassert their values and culture in the on-going management of the area.

Further benefits to the Traditional Custodians include one-off payments from the State and from each of the current industry proponents and ongoing payments in the form of lease payments by industry on the industrial lands of the Burrup Peninsula. Similar provisions will apply to any new proponents establishing operations on the Burrup Peninsula.

The State and the Traditional Custodians saw in the BIMIEA an opportunity to ensure Ngarda-ngarli benefited from this new surge in employment and economic activity. The Ngarda-ngarli community had very limited participation, and had not benefited significantly from the resource development boom in the Pilbara since the 1960s. Aboriginal unemployment, poverty and social problems continued and worsened during this time in contrast to the growing affluence of the broader community in the region.

As a result the State, through the BIMIEA, is providing a package of initiatives in the area of training, education and employment. The State and the Traditional Custodians have agreed that an

Employment Service Provider should be appointed to operate from Roebourne. Its role will be to assist the Aboriginal community to acquire the skills required by industry and to link 'available persons' with emerging employment opportunities. It will identify available persons, undertake skills audits and prepare and maintain such records. The employment service provider may provide assistance to Aboriginal enterprises in the same way as it does to individuals seeking work. It will identify opportunities and provide support for Aboriginal contractors to operate within a 100 km radius of Roebourne. This will assist the State to implement its 'buy local' policy in relation to contract work on the Burrup non-industrial lands.

Each of the industry proponents has made commitments to Aboriginal employment and enterprise. For as long as a proponent holds a lease in the industrial estate they must use reasonable endeavours to promote direct or indirect employment of local Aboriginal persons. They must develop their own Aboriginal employment strategies, submit these to the employment service provider and work closely with it to implement their strategy. Each proponent is also obliged to give consideration to sponsoring social or community programs that are considered to be priorities of the Roebourne community.

Above: The beach view, from the Burrup.
Photo - Ian Walker, DEC

3.2 Management agreement

The management agreement, which is referred to in the BIMIEA, outlines how decisions will be made in relation to the Burrup Peninsula Conservation Reserve (see Appendix 2). This separate agreement between the Director General of DEC and the ABC concerns only the Burrup non-industrial (Aboriginal freehold) lands and will take effect when the ABC has been established. The management agreement commits the State and Indigenous parties to joint management and lease back of the Aboriginal owned reserve lands and requires that the parties work through a formal partnership to the protect the values of the conservation reserve under the CALM Act. The management agreement clarifies decision-

Below: A shell beach.
Photo – DEC



making processes and outlines a structure through which decisions consistent with the management plan can be made.

The iconic Northern Territory national parks of Kakadu and Uluru Kata Tjuta were among the first joint managed national parks in the world and since their establishment in the 1980s have been seen as the international benchmarks. Both are Aboriginal-owned lands resulting from the Northern Territory *Land Rights Act (1976)* and leased back to government to be run as national parks.

Most Australian states and territories have now developed positive policies that embrace Indigenous participation and decision-making in the management of national parks. Trials of approaches to Indigenous involvement in the management of national parks have had mixed results. The kinds of arrangements include (a) full Aboriginal ownership, (b) responsibility and control found in Indigenous Protected Areas, (c) lease-back and joint management through a board (as with Kakadu and Uluru) and (d) purely advisory roles for Indigenous groups in many state-controlled national parks. Generally speaking, the more responsibility the arrangements provide for Aboriginal people the more attractive it is to them. Aside from involvement in decision-making, issues like training, employment and enterprise opportunities within these protected areas are important so that local people benefit from their establishment.

The agreement draws much from the arrangements at Uluru and Kakadu in that the area is Aboriginal freehold land leased to a government conservation agency and responsibility for decision-making will rest with a Management council (called a board at Kakadu). It provides considerably greater responsibility and benefit to Aboriginal people than any previous approaches trialled in WA and for this reason will be watched with interest by all stakeholders. The Ngarla-ngerli aspire to full responsibility and control of the conservation reserve, but recognise that at present they do not have the capacity to take on the management of such a significant area without the expertise and support of DEC and other agencies.

3.3 Aboriginal Approved Body Corporate

The benefits to Aboriginal people arising from the BIMIEA are to be spread among all the Traditional Custodians. Its successful implementation depends on the establishment and operation of a single legally constituted corporate body—the Approved Body Corporate (ABC). The ABC will hold the title to the non-industrial lands, represent Aboriginal interests in dealings related to the BIMIEA and manage the funds and other benefits and responsibilities arising from it.

The ABC was established in late 2005, with membership being open to all Traditional Custodians and members of contracting claim groups who were 18 years or over.

The State has provided funds for both the establishment of the ABC and for its first four years of operation. The ABC is responsible for seeing that the benefits arising from the BIMIEA are distributed equitably among the members of the contracting claim groups. It has the power of attorney, or to grant such power, over title for the land held in its name and receiving, holding, managing and investing monies payable under the agreement and any income. The ABC will have discretion over allocation and distribution of monies for the general welfare of the contracting claim groups including cultural development, education, medical services, community and social infrastructure.

The ABC will be the registered proprietor of the Burrup non-industrial lands (the Burrup Peninsula Conservation Reserve) and the lessor of that land.

4. Working together

The inclusive management planning process, establishment of the proposed Burrup Peninsula Conservation Reserve, and ongoing joint management will be some of the most significant outcomes of the BIMIEA. These achievements can only be realised because of the negotiated compromises that were needed to secure the balanced



future of the Burrup Peninsula. The BIMIEA, for the first time, formalises the limits of industrial expansion on the Burrup Peninsula. Benchmarks for environmental impact, monitoring, Aboriginal employment and enterprise are or will be established, and the Ngarda-ngarli values and spiritual connection to the area are recognised in law and through ownership. The protection of over 60 per cent of the most natural country on the Burrup Peninsula will enable visitors and locals to be able to enjoy the area's rich heritage and beauty in a controlled and safe way.

While the signing of the BIMIEA is very positive, it needs to be seen by all parties as a beginning. It is what happens in the coming years, not what was promised in 2003, which matters. There is now a sound basis for all parties to move forward together but this will need guidance, encouragement, resources and commitment by the State to both the spirit and the letter of the agreement.

Above: Conservation Commission of Western Australia members examine engravings on rocks. Photo – Laurina Bullen, DEC

4.1 Aboriginal ownership

The proposed Burrup Peninsula Conservation Reserve will be the first statutory protected area in WA to be owned by Aboriginal people. This arrangement is the result of a landmark agreement between the WA government and local Aboriginal people (Ngarda-ngarli) which granted freehold title to the non-industrial lands of the Burrup Peninsula to an Aboriginal Approved Body Corporate (ABC). The ABC will be the registered proprietor, or 'owner', of the land. Although the ABC is yet to be formally established, the Ngarda-ngarli custodians have agreed that all their land on the Burrup Peninsula, which will be leased back to the State of WA for a peppercorn rent, will be managed jointly by the ABC and DEC.



Right: One of the Burrup's tracks.
Photo – Bill Carr

4.2 Management council

Management of the proposed Burrup Peninsula Conservation Reserve will be administered by a management council (see Clause 6, Appendix 2) comprising:

- four representatives of the ABC;
- three representatives of DEC;
- one person appointed from time to time by the Minister for Indigenous affairs; and

- other persons appointed by the ABC and the Director General of DEC.

Aboriginal ownership and participation in all levels of management represents recognition of the rights, knowledge and responsibility of Aboriginal people to manage and protect the natural and cultural values of their land.

5. Legislative framework

5.1 Aboriginal Heritage Act 1972

The Western Australian Department of Indigenous Affairs (DIA) administers the *Aboriginal Heritage Act 1972* (AHA). The AHA protects and preserves Aboriginal heritage and culture throughout WA, including any site or object whether they have been previously recorded or not. It is an offence under section 17 of the AHA to excavate, destroy, damage, conceal or otherwise alter any Aboriginal site unless authorised by the Registrar of Aboriginal Sites (section 16) or the Minister for Indigenous Affairs (section 18). In accordance with section 15, there is an obligation placed on all persons to report the location of anything to which he/she might reasonably expect the AHA to apply.

The Aboriginal Cultural Material Committee (ACMC) is the primary advisory body for Aboriginal heritage matters in WA and is established under section 28 of the AHA. Among the functions of the committee are to:

- evaluate on behalf of the community the importance of places and objects alleged to be associated with Aboriginal persons;
- recommend to the Minister places and objects which are, or have been, of special significance to persons of Aboriginal descent and should be preserved, acquired and managed by the Minister; and
- advise the Minister on any question referred to the committee, and generally on any matter related to the objects and purposes of this Act.

In the case of a proponent requiring access to land for development purposes, the DIA recommends that a comprehensive Aboriginal heritage study of the proposed development area is undertaken. Such a study should include a desktop analysis of all previously registered Aboriginal sites as well as archaeological and ethnographic surveys in consultation with the Aboriginal community. It is DIA's preference that Aboriginal sites be avoided. Where this is not possible, however an owner may seek the consent of the Minister for Indigenous Affairs to use the land.

The AHA contains provisions (sections 19 and 20) for the declaration and gazettal of 'protected areas', which are sites that are, in the opinion of the APMC, of 'outstanding importance'. Once an area has become a protected area, regulations may be made which regulate use and access to the site. There are two protected areas on the Burrup—the Climbing Men Site and the Burrup Peninsula North area (Map 2).

5.2 Conservation and Land Management Act 1984

In WA the reserve system is almost exclusively State-owned. More than 25 million ha of national parks, regional parks, conservation parks, nature reserves, State forests and timber reserves are vested in the Conservation Commission of WA. DEC manages these lands on behalf of the people of Western Australia. Marine reserves, such as those proposed around the Dampier Archipelago and the Burrup Peninsula, are also managed by DEC but these areas are vested in another body, the Marine Parks and Reserves Authority.

The proposed Burrup Peninsula Conservation Reserve will be managed by the Traditional Custodians and DEC through a partnership arrangement under the protection of the CALM Act. It is intended to apply the provisions of the *Conservation and Land Management Regulations 2002* to enable the proper protection of the proposed reserve's values under statutory law.



Left: Watering rock engravings.
Photo - DEC

The establishment of the Burrup Peninsula Conservation Reserve as an Aboriginal-owned, jointly managed protected area will be unique in WA. However, joint management of Aboriginal land for conservation has a history of nearly 30 years in the Northern Territory. Kakadu, Uluru and Katherine Gorge (Nitmiluk) national parks in particular have achieved icon status and international recognition as both Aboriginal land and outstanding national parks. In the NT, Aboriginal freehold land is leased back to either the Commonwealth or NT governments. A similar joint management arrangement is in place in one national park in NSW. Nationally and internationally there is a continuing trend towards greater engagement, participation and responsibility for Indigenous people in the management of natural and cultural heritage.

DEC and its predecessor, CALM, have been engaged for more than two decades in various cooperative management approaches with Aboriginal people. However the comprehensive joint management negotiated for the Burrup Peninsula is a major advance on previous practices in WA. It runs ahead of policy and the CALM Act, which has no provision for joint management of Aboriginal land by DEC.

While the CALM Act is silent on the issue of joint management, Sections 16 and 33 of the Act provide options for DEC to provide advice or enter into agreements with the owner, lessee or licensee of any land to manage that land for the purpose of protection and conservation. In this case the proposed Burrup Peninsula Conservation Reserve would be vested in the Approved Body Corporate.

5.3 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) has application in relation to any actions may impact on 'matters of National Environmental Significance' (NES). The EPBC Act defines these matters as the protection of, among other things, World Heritage and National Heritage Areas. To date three nominations have been submitted recommending that the Burrup Peninsula and Dampier Archipelago should be included on the National Heritage List. Should any of the proposed Burrup Peninsula Conservation Reserve be listed as a National or World

Right: Hearson Cove.
Photo - Laurina Bullen,
DEC



Heritage Area, then the relevant provisions in the EPBC Act relating to management of nationally significant heritage would be prompted. Similarly, if concerns for the heritage values of the area were such that an emergency heritage listing was lodged with the Federal Minister for the Environment and Heritage, the Minister could take steps to halt work under measures provided in the EPBC Act.

6. The management planning process

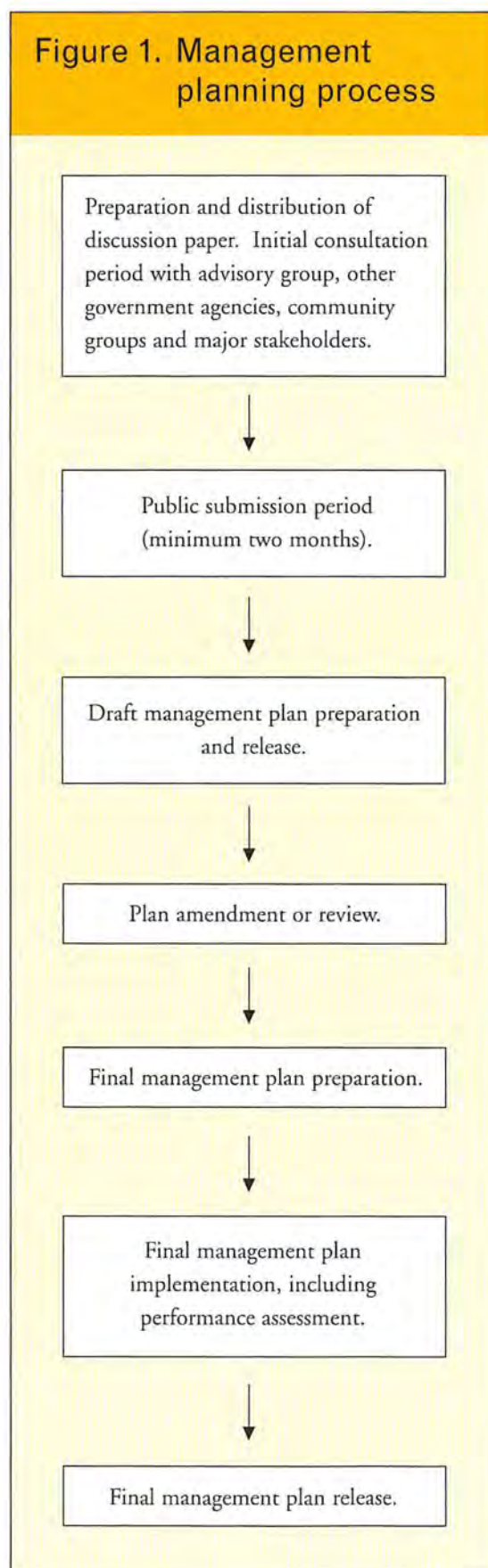
The requirement for a management plan is set out in Section 4.5 of the Burrup and Maitland Industrial Estates Agreement (see Appendix 1). In relation to the planning process, the BIMIEA specifies that the plan must be prepared in consultation with the community, the relevant local government, the Conservation Commission and any other relevant authorities. This includes an opportunity for the public to have formal input in to the plan by commenting on this draft plan. The planning process is detailed in Figure 1.

The draft plan was prepared under the direction of the Burrup Peninsula Conservation Reserve Planning Advisory Committee. The advisory committee comprised a majority of Indigenous members but also included representatives from CALM, the DIA and the Shire of Roebourne.

The final plan will be prepared following an analysis of the submissions to the draft, again under the direction of the advisory committee. For the management plan to be enacted, it must be jointly approved by the State and the Traditional Custodians.

The management agreement (Appendix 2) specifies the actions required to amend and review the management plan.

Figure 1. Management planning process





Part B. Background and resources

7. History of the Burrup Peninsula

7.1 The original inhabitants

The Burrup Peninsula's rock engravings are the most obvious and abundant evidence of the area's human history. By its nature this kind of rock art is difficult to date. Analysis of the surrounding environment, the subjects depicted in the engravings and knowledge from nearby or similar locations give some indication to their age. It is clear that many of the petroglyphs are of great antiquity (up to 10,000 years) and that such images were created continuously over the long period of human occupation (Lorblanchet 1993, Vinnicombe 2002).

The Yaburara people inhabited Nickol Bay, the Burrup Peninsula and islands of the Dampier

Archipelago. Early European records indicate they were a relatively small group whose language was a dialect closely related to their Ngarluma-speaking neighbours. The traditional lands of the Ngarluma people are to the east of Yaburara country and the lands of the Mardudhunera are to the south-west. These groups were culturally similar to the Yaburara, and would have interacted with each other in many ways including sharing access to country and resources, social, economic and ceremonial purposes.

The Yaburara of the Burrup Peninsula had to be a resilient people. They not only survived major environmental, sea level and climatic changes over tens of thousands of years, they clearly thrived. They developed a stable and sophisticated society with laws, religion and artistic expression that has survived to the present time. Their social structure land management and ecological knowledge enabled them



Opposite: North Burrup gorge.
Photo – Stewart Caves

Left: An engraving of a turtle with eggs.
Photo – Mike Bodsworth, DEC

to truly achieve sustainable management of their land. For many thousands of years this culture and knowledge was transferred to each new generation to enable it to develop and survive. What the original inhabitants could not have anticipated, nor did they have the resources to counter after so many thousands of years of stability, was the sudden and devastating impact of European colonisation.

7.2 Post-European contact history

The first recorded European contact with the Burrup Peninsula was a brief stay by William Dampier in 1699. He anchored offshore and soon left, unimpressed with what he saw. This apparently uneventful first contact heralded the end of the long stable history of the Burrup Peninsula and the Yaburara people. It was with the next recorded interactions with Dampier's countrymen in the 1860s that things would turn towards violence and chaos.

The Yaburara people, already a small group, declined in number following European settlement of the area most probably due to introduced diseases and some displacement from traditional lands. They appear to have been decimated even further by a series of violent clashes in 1868, including what has become known as the 'Flying Foam Massacre' in February of that year. The conflict was initiated by the apprehension of a young Aboriginal woman by a police officer and the subsequent attempts by Yaburara men to free her. This resulted in the killing of a police constable and two other men. A series of reprisal raids conducted by local police and 19 specially sworn-in constables followed. The records from the time are vague and inconsistent but it is clear this campaign resulted in the killing of a significant number of people (Veth *et al.* 1993).

Apart from spurts of activity sparked by gold and other mineral discoveries, the establishment and expansion of the pastoral industry dominated the history of the west Pilbara for the next 100 years. Even though the area remained very sparsely populated and remote, most of the country was deemed 'vacant' and was taken up by non-Indigenous people as large (non-exclusive) pastoral leases. In fact,

the first form of formal tenure on the Burrup Peninsula was a pastoral lease granted to William McVean for a term 1 July 1880 to 31 December 1893. It remained as such until 16 January 1967 when Hamersley Iron (as lessee) surrendered it to the Crown. Pastoral operations throughout the Pilbara owed much of their success to the resident Aboriginal people, who provided a cheap labour force, knowledge of the country and ability to work in the demanding environment.

In spite of the well-documented exploitation of Aboriginal people in the pastoral industry, the 'station days' are still fondly remembered by many older Ngarda-ngarli. These people now value the fact that they were able to maintain their physical and spiritual interaction with their country traditions, language and culture. The existence of separate Aboriginal camps on many properties meant families continued to live and work together and transferred knowledge to their children. Until the mid-1960s, Aboriginal people were key players in their region's major industry. They were much less affected by negative social and health issues related to poverty, unemployment and boredom that characterises the more urban lifestyle of many Indigenous people today. The nature of the landscape and the climate meant that many pastoral operations were marginal and the loss of Ngarda-ngarli labour following the granting of equal wages contributed to the decline of the pastoral industry.

The mid-1960s saw the beginning of the iron ore boom in the Hamersley Ranges some 250 km south-east of the Burrup Peninsula. Railways were constructed to deliver the ore to newly established port facilities on the coast including Dampier on the south-west of the Peninsula. This time marked the establishment of the Pilbara as the country's major mining province and saw a massive increase in investment, infrastructure and population. The mining boom coincided with the granting of equal wages for Aboriginal pastoral workers and, as an unfortunate consequence, many Aboriginal people were forced off the stations into towns like Roebourne, Onslow and Port Hedland. Few Ngarda-ngarli, however, benefited from or participated in the



Left: Hamersley Iron on the Burrup.
Photo – DEC

mining boom. This era also gave rise to many of the social, economic and health problems Ngarda-ngarli are facing today.

The next phase of expansion and development in the region started in the 1980s with the implementation by Woodside Energy Ltd of the huge Northwest Shelf Gas Project. Withnell Bay, on the western side of the Burrup Peninsula, was chosen as the site for Woodside's Liquefied Natural Gas (LNG) processing plant. It was at this time that Woodside commissioned the Western Australian Museum to identify, document and relocate approximately 1800 items of rock engravings to what is now called the WA Museum Compound.

Availability of a vast supply of clean energy, and an established infrastructure including shipping channels and a deep-water port has stimulated another phase of industrial expansion. During the development of the Northwest Shelf Gas Project an awareness and appreciation of the unique cultural values of the Burrup Peninsula began to emerge. Attitudes towards Indigenous Australians and a growing environmental awareness led to stricter controls over industry with mandatory Environmental Impact Assessment and cultural heritage surveys and clearances.

The BIMIEA signed by the State and the Traditional Custodians aims to balance and share the economic benefits of industrial development. It provides for the expansion of industrial development on the Burrup Peninsula on lands designated for that purpose but limits any further development outside of those lands. The granting of the remaining 62 per cent of the Burrup Peninsula to Ngarda-ngarli, and the joint

management of that land as a conservation reserve, recognises the Ngarda-ngarli values in the land and encourages their participation in the emerging tourism industry in the region.

Fishing, pearling and mining continue in the region today and have each contributed to the economy, history and character of the West Pilbara. Commercial fishing including the Nickol Bay Prawn Fishery occurs in the waters immediately adjacent to the Burrup Peninsula and other islands of the Dampier Archipelago.

8. Cultural heritage

8.1 Significance

The cultural heritage values of the Burrup Peninsula are widely acknowledged. The area is the largest known 'gallery' of petroglyphs with the greatest abundance and highest concentration of any known site in the world. The whole area is a cultural landscape, a record of human occupation, use and management spanning as much 20,000 years (see section 7.1 The Original Inhabitants).

A visit to this unique landscape and quiet contemplation of its long history is for many people a powerful experience. While it is now known that the area is an enormous repository of ancient artistic expression and archaeological sites, there is insufficient information to fully comprehend its scale and meaning. Most of the research into the cultural heritage values has been focused on the physical evidence of Ngarda-ngarli use and occupation rather than the knowledge and deeper associations between the people and the land.

Much of this knowledge has been lost and effort is required to maintain what remains.

The bulk of the research into the cultural heritage values of the Burrup Peninsula has been prompted by proposed industrial development. Research and information has been concentrated on those parts of the Burrup Peninsula which have been most attractive to industry, much of which has now been moved, destroyed or had its context significantly altered.

The importance of the cultural heritage values of the Burrup Peninsula is widely recognised and management strategies implemented should be consistent with best practice. The Dampier Archipelago to Cape Preston area that includes the Burrup Peninsula Conservation Area has been nominated for inclusion on the National Heritage List and is currently being assessed by the Australian Heritage Council as to whether it meets the criteria for inclusion on the list.

8.2 Petroglyphs and archaeological sites

Archaeological sites contain material evidence of past human life and culture such as middens, stone arrangements, quarries, graves, stone artefacts and rock art. The petroglyphs of the Burrup Peninsula are its most prevalent and visible cultural heritage and archaeological feature. Their abundance, density and variety of subject matter and styles are what make the Burrup Peninsula truly remarkable.

The Australian Heritage Commission describes the Climbing Men site, one of two places inside the proposed Burrup Peninsula Conservation Reserve on the Register of the National Estate as follows:

"...[the] Climbing Men nominated area contains four main panels of engravings that are of high quality in terms of artistic and technical accomplishment. Range of motifs includes stylised facial representations, anthropomorphic figures and groups of figures involved in various activities. Most of the motifs have been made by pecking techniques and show a considerable amount of fine detail."

Petroglyphs can readily be seen from many roads and tracks, beaches and picnic spots. Some have suffered deliberate damage through vandalism, some pieces have been stolen, and others suffer incidental damage from impacts such as dust from dirt roads. There is very limited knowledge of less accessible areas: this difficulty of access is the primary means by which these areas are currently protected.

The WA Museum Compound also holds over 1800 pieces. These items were relocated to the compound from the Woodside LNG site. A strategy for these displaced materials was prepared by DOIR, in partnership with the Traditional Custodians and DIA, in 2004 (DOIR 2004). The strategy recognises that some areas could be enhanced by well-designed use by some of the displaced material to form interpretation areas and entry panels (e.g. the visitor centre).

The rock art is of great importance to Ngarda-ngarli and is of particular interest to visitors. For Ngarda-ngarli the rock art reminds them of stories, customs and knowledge of their land and resources. It plays an important part in the education of their children and is a tangible link to the events and people of the past. To them, it confirms their status as the first people of Australia and is something they are very proud of. More adventurous or curious visitors could easily find unrecorded sites especially as there is no on-ground management presence or guidelines on places visitors can and cannot go.

8.3 Sacred sites

Throughout the Burrup Peninsula Conservation Reserve are sites and places that are of particular importance or sensitivity to Ngarda-ngarli. These places may relate to religious beliefs, creation times, initiation ceremonies or birthing places. Some of these places may be dangerous to strangers and can only be approached in certain ways and by a few senior people. Access to sacred sites is dependent on knowledge and status within Ngarda-ngarli law, not on Aboriginality. The break in continuous contact with this country has led to a loss of knowledge of the location of all the sacred sites. This increases the risk



Left: Members of the Conservation Commission of WA examine engraved rocks.
Photo – DEC

of accidental intrusion into these places by bushwalkers or people working in the area.

The Aboriginal Heritage Act provides a formal legal framework for protection for such places. Aboriginal tradition obliges Ngarda-ngarli to manage and care for sacred sites. Proper protection can be afforded to these places through a combination of contemporary legal mechanisms, limiting access, and the continued responsibilities of Ngarda-ngarli for their sacred places and knowledge.

8.4 Living cultural values

The Indigenous cultures of Australia are often described as the oldest continuing cultures on earth. They have certainly survived an enormous length of time and faced challenges such as climate change, landscape change and invasion, disease and massacre. While these pressures have required Ngarda-ngarli to change and adapt, the current generation remain part of an unbroken history that is linked to the past and the future through its connections with the land.

To Ngarda-ngarli the cultural heritage and archaeology of the Burrup Peninsula is not a relic of the past. The stories, the resources and the spirit of the land are just as alive and important today as the people are themselves. It is important for the

knowledge about the country to be taught to young people and that the country and special places are respected.

Recent history has limited the contact and familiarity between Ngarda-ngarli and the Burrup Peninsula, although in the context of Ngarda-ngarli history, this period is insignificant. However the Burrup agreement and the transfer to Aboriginal freehold of the non-industrial lands has prompted renewed associations between Ngarda-ngarli and this country. These associations will continue through Ngarda-ngarli control, occupation and utilisation of the proposed Burrup Peninsula Conservation Reserve.

8.5 Non-Indigenous cultural values

There is a legitimate view that the cultural heritage of the Burrup Peninsula is part of the cultural heritage of all people.

The non-Indigenous cultural heritage of the Burrup Peninsula Conservation Reserve relates to relatively recent history, since the mid-19th century. The early contact with whalers and pearlers has left little behind in the way of physical remains or a historical record. The period of conflict with the Yaburara people, followed by their steady demise from disease, dispossession and dislocation is consistent with what



Above: The Burrup landscape.
Photo – DEC

occurred across much of Australia’s rangelands. The Burrup Peninsula proved very marginal pastoral land and for most of the next century was only occasionally grazed.

The region gained State and national significance with the iron ore boom of the 1960s. This period represented a major acceleration in the economic growth of WA and made the Pilbara one of the world’s great mining provinces.

This burst of development changed the entire character of the region. It brought huge investment into major infrastructure projects such as roads, ports and railway lines. New towns developed seemingly overnight and the population grew rapidly. Much of this change and development was focussed directly on the Burrup Peninsula, which became the site for the town of Dampier and the port for Hamersley Iron.

Many of the non-Indigenous people who moved to the Pilbara with the mining boom have stayed on and

become long-term residents of the area. They have raised their families in the region and have their own stories and developed deep and personal associations with the area. The Burrup Peninsula and the land within the proposed conservation reserve have become a part of the cultural and social heritage of the more recent arrivals in the region.

9. The natural environment

9.1 Climate

The Burrup Peninsula Conservation Reserve lies at the western edge of the semi-desert tropical Pilbara region within Australia’s arid zone. The climate is commonly described as having two seasons: fine, warm and dry winters from May to November, and hot, wetter summers from December to March.

July is the coolest month with average minimum temperatures of 13°C and maximums of 26°C at the nearest Bureau of Meteorology station at Dampier (Table 1). February and March are the hottest months averaging 26°C minimums and maximums above 36°C. The summer period is consistently hot with maximums frequently exceeding 40°C and extremes of up to 47°C.

Table 1. Mean monthly temperatures

	Average daily max	Average daily min
January	35.9	26.1
February	36.1	26.5
March	36.2	25.6
April	34.4	22.8
May	29.9	18.2
June	26.6	15.1
July	26.1	13.4
August	27.7	14.6
September	30.5	16.9
October	32.6	19.6
November	34.3	22.2
December	35.7	24.6

Source: Bureau of Meteorology (www.bom.gov.au)

Table 2. Mean monthly rainfall

	Average rainfall	Average rainy days
January	28.4	3.7
February	68.2	5.8
March	41.1	4.2
April	21.1	1.9
May	29.6	3.9
June	35.8	3.6
July	14.6	2.5
August	6.1	1.2
September	1.4	0.5
October	0.5	0.3
November	0.4	0.3
December	13.5	1.6

Source: Bureau of Meteorology (www.bom.gov.au)

The high temperatures and low humidity of the Pilbara are moderated by the influence of the sea, which virtually surrounds the Burrup Peninsula. The microclimate of the Peninsula is cooler and more humid than the inland Pilbara with no point on the Peninsula more than two kilometres from the sea.

As the Peninsula runs in a north-south direction, its climate benefits from the prevailing winds throughout

the year. In winter the wind comes from the east and south-east in the mornings and generally swings to a westerly sea breeze later in the day. Summer conditions are less predictable with changeable winds and occasional squalls during thunderstorms.

The average annual rainfall at Dampier is 261 mm and there is great variation between years including years when no rain falls at all (Table 2). Records show that February and March are the wettest and October and November are the driest months. The annual evaporation rate is 3500 mm. Occasionally rains associated with winter weather patterns in the south of the State will drift north to the West Pilbara. However, most significant rainfall events occur between November and April and are associated with tropical cyclones or scattered summer thunderstorms. Tropical cyclones regularly form off the north-west coast of Australia, making the Pilbara coast one of the most cyclone-prone areas in the world. Severe tropical cyclones with destructive winds up to 250 km/hr threaten the coastline almost every year.

Aboriginal people had their own seasonal calendar based on the natural cycles they observed in their country on the plant and animal life.



Left: Conzinc Bay.
Photo – Stewart Caves



Above: The Southern Burrup landscape.
Photo - Stewart Caves

9.2 Landscape

The Burrup Peninsula is a narrow strip of land extending some 22 km from the mainland and is part of the Dampier Archipelago, a group of 42 inshore islands up to 40 km off the port of Dampier. The Burrup Peninsula was formerly known as Dampier Island before it became a peninsula following the construction of a causeway from the mainland.

Large outcrops and ranges of fractured red/brown rock and spinifex-covered scree slopes dominate the rugged and spectacular landscape of the Burrup Peninsula. The turquoise waters of the surrounding seas and clear blue skies contrast with this dry and apparently harsh country. The land is elevated from the typically low and flat coastal plains of the West Pilbara. There are numerous gorges, creeks and drainage lines cutting across the landscape, which provides variety in the landscape and the vegetation communities it supports. The landscape is distinctive in its appearance and is restricted to the Burrup Peninsula and some nearby islands and adjacent mainland.

The hilly and rocky terrain is in contrast to most of the Pilbara coast, which is characterised by gently sloping plains, and a broad intertidal zone of mudflats and mangrove. The coast of the Burrup Peninsula is very varied with rocky coves, steep cliffs and sandy beaches, mangrove-lined inlets and saline mud flats.

Changes in the landscape outside of the proposed Burrup Peninsula Conservation Reserve have occurred since the establishment of the iron ore and salt industries in the 1960s and more recently with Woodside Energy's LNG plant in the 1980s. Further change will occur on the industrial lands that will impact on the visual amenity of some areas within the proposed reserve. However, the Minister for State Development has agreed that any developments on the industrial land at Conzinc South will be built to specifications to prevent impacts on the viewshed from the proposed visitor centre site (see section 14.5 Visitor Centre).

New industrial development will be largely limited to the south-west and southern third of the peninsula.

Although the landscape in these industrial lands will have a very modern industrial look, the remaining lands will retain much of its natural character.

9.3 Geology

Before the construction of Dampier and iron ore and salt infrastructure, the Burrup Peninsula was effectively an island, isolated from the mainland by over two km of supra-tidal mud flats. Permanent connection to the mainland is now established by road and rail infrastructure corridors, and by an extensive network of bunds constructed for the Dampier Salt solar evaporation ponds.

The Burrup Peninsula is part of a spine of Archaean igneous rocks, primarily Fortescue Group granophyres and gabbros with small exposures of granites, which form a large part of the islands of the eastern Dampier Archipelago, particularly Dolphin, Angel and Gidley Islands (Hickman 1997, Biggs 1976). These basement rocks are distinct from other basaltic units forming the majority of the Dampier Archipelago islands to the west. These ancient basalts form large bare exposures on both the Burrup Peninsula and the nearby islands, which have weathered to a locally characteristic 'rockpile' form. These rockpiles are a dominant feature of the Burrup landscape, and cover a large proportion of the land surface.

In overall morphology, the Burrup Peninsula is divided into two sections. Between Hearson Cove and King Bay, a low-lying expanse of supra-tidal mud flat and sand dunes, between one and two km wide, separate two elevated rocky sections of the peninsula.

This low-lying area would have been inundated by even minor elevations of sea level, dividing the Burrup Peninsula into two islands. While providing a present day connection between the northern and southern Burrup, the Hearson Cove-King Bay corridor may still present a barrier to gene flow for some low-mobility rocky habitat faunal groups. This area is now a focus for industrial development proposals.

9.4 Soils and landforms

The soils of the Burrup Peninsula are red-brown in colour. The soils are generally shallow but reach a maximum of two m in depth in the lower alluvial slopes. A coarser sandy soil is found around in the beaches and flatter coastal areas where the influence of tides and storm surges has introduced silts and shell fragments. There are large saline mudflats in the intertidal areas that are mainly on the eastern side of the peninsula.

While most of the Burrup Peninsula is elevated and heavily weathered, valleys contain extensive stony clay colluvial infill. Aeolian sands have accumulated adjacent to beaches and supra-tidal flats, especially along Conzinc Bay. These sands are prone to erosion when denuded of vegetation. Extensive supra-tidal mud flats extend along the southern margins of the Burrup, although most of these flats are now inundated beneath salt evaporation ponds. Small areas of relatively undisturbed supra-tidal communities still occur between Hearson Cove and King Bay. Intertidal mud flats are well developed in sheltered embayments along both eastern and western coasts of the peninsula (northern Conzinc Bay, Hearson Cove, Cowrie Cove, Watering Cove).



Left: Hearson Cove.
Photo – Stewart Caves

9.5 Hydrology

As with much of the west Pilbara, the Burrup Peninsula Conservation Reserve has limited surface freshwater. Freshwater flows are highly variable, characterised by short periods of very high flow that coincide with major rainfall events usually associated with tropical cyclone activity. These periods of high flow are followed by dry periods sometimes lasting years, when stream flow stops and even the deeper waterholes in the gorges can dry up completely.

There is little readily accessible groundwater on the Burrup Peninsula. There is no evidence of successful harvesting of ground water from the pastoral era and it is likely that the area was only grazed when surface water was available. Like much of the Pilbara, some groundwater is located in fractured rock aquifers where groundwater is stored in the fractures, joints, bedding planes and cavities of the rock mass. Groundwater recharge is directly related to rainfall events where water infiltrates in the fractures of the surface rock or through leakage from surface water flows. These fractured rock aquifers are very localised systems with little regional flow.

The lack of free water has meant that industry is increasingly dependent on desalinated seawater: visitors to the proposed Burrup Peninsula Conservation Reserve will also be dependent on desalinated water or imported water (see section 14.7 Visitor services – water supply).

9.6 Vegetation and flora

The Burrup Peninsula forms part of the Abydos Plain, one of eight physiographic units with distinctive vegetation located within the Fortescue Botanical District. The Abydos Plain extends from Cape Preston east to Pardoo Creek, and south to the Chichester Range.

Various vegetation and flora studies have been undertaken on parts of the Burrup Peninsula since Beard (1975) broadly classified the vegetation as *Triodia pungens* hummock grassland with very few shrubs. Trudgen (2002) subsequently provided a complete list of species, collated with records from previous surveys undertaken on the Burrup Peninsula over the past 25 years.



Right: Another tricky driving area known as a jump up.

Photo - Stewart Caves

There are at least 383 native vascular plant species from 54 families currently known from the Burrup Peninsula. A high proportion of these plants are dicotyledons, with the most species recorded from the Papilionaceae (44 species), Malvaceae (31 species) and Amaranthaceae (29 species) families. Of the native monocotyledons recorded, Poaceae was the most numerous family (45 species), followed by the Cyperaceae family (15 species).

Approximately 200 different vegetation associations have been described on the Burrup Peninsula. Many have very limited distributions. This is a large number, considering the Peninsula's relatively small area, and is a reflection of its habitat diversity (Trudgen 2002). The vegetation is composed of Pilbara coastal and near coastal groups, Eremaean groups, and of groups of species related to the Northern Botanical Province (commonly called 'Kimberley' species) (Blackwell et al. 1979). The Burrup Peninsula is especially significant in respect of the latter as, even though these Kimberley species are found elsewhere within the Fortescue Botanical District, they are far more common on the Burrup and have a strong association with rock piles.

The vegetation of the Burrup Peninsula is generally in very good or excellent condition, except in areas of coastal sand. Disturbance from human activity (especially four-wheel-drives) and subsequent invasion by buffel grass (*Cenchrus ciliaris*), an introduced weed, has altered the vegetation of these coastal sand dunes. Buffel grass quickly proliferates and displaces the native vegetation, forming a tussock grassland (see sections 13.4 Weeds and 9.8 Fire). Other factors identified by Trudgen (2002) that can affect the condition of the vegetation include clearing for industry, an increased incidence of fire, and competition from invasive weed species.

Native plants of conservation significance

There are currently no known 'declared rare' (threatened) flora identified on the Burrup Peninsula. DEC also classifies flora into 'priority' categories. These are generally species of concern that are poorly understood. There is one Priority 1 species (*Terminalia supranitifolia*) and one Priority 3 species (*Gymnanthera*



cunninghamii) (CALM and WA Herbarium 2005). *T. supranitifolia* has a geographically restricted distribution that consists of several disjunct sub-populations that suggests the species was previously widespread. *G. cunninghamii* is quite uncommon in the Fortescue Botanical District, although it is widespread in other parts of the State and in the Northern Territory and Queensland. This species remains on the priority flora list due to the small number of records within the Fortescue Botanical District. Further surveys may identify threatened and other priority species on the Burrup Peninsula.

Above: *Swainsonia formosa*.
Photo – Laurina Bullen, DEC

In addition to declared rare and priority species there are other categories of flora or specific populations of flora that are recognised as having conservation value.

Trudgen (2002) identified 33 native plant species on the Burrup Peninsula that are neither rare flora nor priority flora, but that are of conservation interest for a number of reasons including:

- being uncommon or possibly rare, although not officially recognised as such due to a lack of appropriate research;
- being newly discovered, in which case they may be rare or at least poorly collected or known;
- being newly recognised as distinct, although they have been collected previously (many of this group are uncommon or rare also);
- the population may be at the end of the range of the species and therefore of particular conservation significance; and
- the population may be a significant extension of the known range of the species concerned.

A significant number of the native vascular plant species are geographically restricted, including taxa that are new to science. For example, some elevated parts of the Burrup Peninsula are dominated by a species of wallaby or kangaroo grass (*Themeda* sp. Burrup) that is not known from elsewhere (Trudgen 2002). Several other undescribed species are also known from the Burrup Peninsula, but are not restricted to it.

Another species identified as important by Trudgen (2002) is the Burrup form of *Triodia epactia*. This spinifex species is geographically restricted with most of the known population on the Burrup Peninsula, where it is the dominant species. The two other forms of spinifex on the Burrup Peninsula are also considered to be geographically restricted forms that may warrant recognition as new species or subspecies (Trudgen 2002). The presence of three geographically

Below: *Ptilotus exaltatus*.

Photo – DEC



restricted spinifexes as the dominant plants is thought to be due to the Burrup Peninsula's relatively recent isolation from the mainland by higher sea levels. Another example is provided by the species *Abutilon indicum* var. *australiense*, which is at or near the southern end of the range and not common locally (Trudgen 2002). Although the species is widespread in the Kimberley, it is uncommon in the Fortescue Botanical District, only occurring on Dolphin and Gidley Islands (Trudgen 2002). Further studies are required to confirm the status of this and the other species of conservation interest.

Plant communities of conservation significance

There are currently no known Threatened or Priority Ecological Communities on the Burrup Peninsula, although Trudgen (2002) concluded that the vegetation of the Burrup Peninsula is atypical of the vegetation of both the Fortescue Botanical District and the Abydos Plain and has relatively little in common with it. Much of the vegetation is distinct in a regional sense, resulting from a combination of coastal climatic influences with the unusual geomorphology and relative isolation of the Burrup Peninsula. Therefore, at the subregional level, the Burrup Peninsula has a very high value for the conservation of vegetation, and adds to the conservation value of the area at a regional level.

The floristic and vegetation zones of the Burrup Peninsula are strongly modified by the local geology and microclimate resulting in many vegetation associations that have a very limited distribution, as well as a very limited area of occurrence. For example, a *Terminalia supranitifolia* shrubland was only found on one area of steep slopes on the eastern coast of the Burrup Peninsula (Trudgen 2002).

The basalt rock piles in particular are important for providing fire and evolutionary refuge for flora (Kendrick and Stanley 2001).

Semeniuk (1997) assessed the mangrove communities of the tropical arid zone for international significance. Mangrove communities identified as regionally

significant from a biodiversity and ecological basis are located along Searipple Passage and Conzinc Bay. Other mangrove stands include Cowrie Cove, Watering Cove and adjacent to Dampier Salt Pond Zero intake (Kendrick and Stanley 2001).

9.7 Fauna

The fauna of the Burrup Peninsula is composed of a subset of the species typical of the western Pilbara coast and hinterland. Although the Burrup Peninsula was until recently an island, it retained a tenuous connection with the mainland across the tidal mud flats. The Peninsula has a complex and diverse topography, containing a wide variety of habitat types, which in turn supports a diverse fauna. Its size and proximity to the coast has meant that the Burrup has a higher species diversity than on the islands of the Dampier Archipelago, and probably higher than any comparable area of land in the Pilbara.

On the current knowledge the proposed Burrup Peninsula Conservation Reserve supports approximately by 260 vertebrate species for at least part of each year. This is comprised of 32 mammal (four introduced), 168 bird (one introduced) and 60 reptile and frog (see Appendix 3) species.

Like the rest of the arid and semi-arid zone, the west Pilbara has experienced a wave of extinction in historical times, affecting mainly mammals in the 0.35 grams to eight kg weight range. Predation by foxes is thought to be the principle cause. While this has affected the bandicoots, smaller macropods and rodents of the region, there is no evidence that the reptile, bird or smaller mammal fauna, including bats, has been affected. Visitors to the proposed Burrup Peninsula Conservation Reserve will notice the larger species of reptile and many bird species, which are easily observed.



Above: A rock wallaby.
Photo - Babs and Bert Wells/DEC

Birds

The Burrup Peninsula has a rich bird fauna, attributed to its complex topography and consequent diversity of habitats, including inter-tidal and marine. One hundred and sixty-eight species are known from either the Burrup or from areas close by, and all are considered at least possible infrequent visitors. Eleven species listed as being known from close to the Burrup are considered to be possible vagrants, given the types of habitat present on the peninsula. No species of bird are known to be restricted to the Burrup Peninsula.

Although the peninsula possesses no large permanent fresh-water wetlands, the salt ponds of the Dampier Solar Salt operation and the sheltered waters of the mangroves, creeks and small embayments all provide good localities for episodic visits by many waterbirds. Many species normally associated with fresh water habitats are occasionally found as vagrants in such places, particularly the rich shallows of the salt farm impoundments.

Although not large in a regional context, the intertidal flats surrounding the Burrup attract a good variety of marine waders. These flats are locally important, particularly the sheltered embayments such as Conzinc Bay, and Watering and Cowrie Coves. Many of these species are protected by the CAMBA and JAMBA (China Australia Migratory Bird Agreement and Japan Australia Migratory Bird Agreement) treaty arrangements.

Mammals

Fourteen native ground mammal species are known to be present on the Burrup Peninsula with four introduced species (the house mouse, black rat, cat and fox). Three native species are known to have or are likely to have become extinct on the Burrup—the pale field rat (*Rattus tunneyi*), dingo (*Canis lupis dingo*) and western pebble mound mouse (*Pseudomys chapmani*). None of these species were formerly restricted to the Burrup Peninsula and are still found elsewhere.

In addition to the ground fauna, at least 14 species of bats are likely to occur within the Burrup Peninsula. The bat fauna has not been comprehensively surveyed, and the list in Table 2 is derived from the known distributions of these species. All of these species have relatively wide distributions, and their mobility ensures that they are likely to be found throughout the local area, at least episodically. Note that the ghost bat (*Macroderma gigas*) is included in the list because

while it is known to occur on the adjacent mainland, it may occasionally forage on the Burrup.

The mammal fauna of the Burrup is dominated by species with either northern distributions such as the northern quoll (*Dasyurus hallucatus*), delicate mouse



Above: The feral cat and the European fox have been linked to the extinction of several native mammals.

Photos - Babs and Bert Wells/DEC

Ospreys (*Pandion haliaetus*) and sea eagles (*Haliaeetus leucogaster*) have shown they are vulnerable to human impacts and their continued survival locally would be enhanced by appropriate management measures. This would require control of access to nest sites when breeding birds are most vulnerable.

(*Pseudomys delicatulus*) and common rock rat (*Zyomys argurus*), or those with distributions centred on the Pilbara or western desert, including Rothschild's rock wallaby (*Petrogale rothschildi*), little red kaluta (*Dasykaluta rosamondae*), Pilbara ningau (*Ningau timealeyi*), possibly two undescribed Planigale species, and Rory's pseudantechinus (*Pseudantechinus roryi*). In addition, there is a suite of species with very broad distributions across WA.

The mammal fauna of the Burrup is similar to that of the adjacent mainland, and is richer than the islands of the Dampier Archipelago because it is both larger than any of the islands, and is closest to the mainland. Only two species of mammal that occur on the nearby mainland are not found on the Burrup—the western pebble mound mouse (*Pseudomys chapmani*) and Woolley's pseudantechinus (*Pseudantechinus woolleyae*). The water rat (*Hydromys chrysogaster*) is the only species known from the Burrup but not from the nearby mainland and was recorded from mangrove habitats on the northern Burrup in the late 1970s.

Other particular interest is the presence of Rothschild's rock wallaby and the undescribed Planigale species. Rock wallabies persist on the Burrup in low numbers only because of an ongoing fox baiting program but are abundant on nearby islands of the Dampier Archipelago due to the absence of foxes. Two species of planigale, both currently undescribed, occur in the Pilbara (Cooper et al 2001). One of these is known from the Burrup, and is extensively known across the Pilbara and into the margins of the western desert. A second planigale species is known from Cape Preston and from the Hamersley Plateau. The taxonomy of both new species is currently being investigated by the WA Museum. Given the proximity of Cape Preston (50 km south-east), it is possible that both species occur on the Burrup.

In addition to foxes, the cat, black rat and house mouse are now naturalised on the Burrup. All are most common in the vicinity of Dampier, and around industrial areas such as King Bay and the port. No control of these species is undertaken.



Reptiles and frogs

The reptile fauna of the Burrup is relatively rich, with a total of 58 reptile and two frog species known to occur there. This compares with 75 reptile and five frog species known from the adjacent mainland, and 38 reptile and two frog species from the Dampier Archipelago islands. The frog fauna of the Burrup is the same as that of the Dampier Archipelago. No species of reptile are known to be restricted to the Burrup Peninsula.

The only reptile species present on the islands and the Burrup Peninsula but absent from the nearby mainland is the legless lizard *Delma borea*. Further collecting may confirm this species on the nearby mainland, as survey effort in the area is comparatively poor. In general, however, the Burrup reptile fauna is similar to that of the mainland. Most of these species have broad distributions throughout the north and Pilbara, and are not considered rare or threatened.

Several reptile species are both common and conspicuous on the Burrup Peninsula. Most obvious among these are the yellow-spotted monitor (*Varanus panoptes*), ring-tailed dragon (*Ctenophorus caudicinctus*), and two skink species (*Ctenotus pantherinus* and *C. saxatilis*), while the tracks of another skink, *Lerista bipes*, are very common in sandy areas such as beach dunes. Following heavy rain, Main's burrowing frog (*Cyclorana maini*) emerges in great numbers to feed and breed.

Above: The rock rat, which lives on the Burrup.
Photos - Babs and Bert Wells/DEC.



Above: A northern quoll.
Photo - Babs and Bert Wells/DEC

However, most species are generally difficult to see, remaining hidden among the spinifex, rock piles or under soil and litter.

There are currently at least two undescribed species of reptile on the peninsula. Both currently belong to the *Lerista muelleri* 'complex'; one is found on white coastal sands, and the other on hard stony substrates.

The Pilbara olive python (*Liasis olivaceus barroni*) is currently listed under Wildlife Conservation Act as 'fauna that is rare, or likely to become extinct'. This species has been subject to behavioural and ecological studies on the Burrup Peninsula by DEC scientists and a local volunteer group (Pearson 2003). The Burrup is thought to support a healthy population of Pilbara olive pythons. These large animals are highly vulnerable on roads, and roadkills of large individuals of breeding age are fairly common. High speed road traffic to recreation areas on the Burrup will certainly lead to mortality of these pythons residing in the vicinity.

9.8 Fire

Fire has been a major factor in shaping arid zone ecosystems for thousands of years, with use of fire by Aboriginal people thought to have been common throughout mainland Australia.

Studies in spinifex-dominated communities, such as the Burrup Peninsula, have shown frequent small fires result in a mosaic of spinifex at differing stages of succession, which is important for providing a range of habitat types and for breaking up the run of large wildfires. It is thought that the cessation of traditional burning has created substantial changes to the landscape across Australia, particularly to the range and structure of vegetation types.

Spinifex will normally only carry a fire every five years or so, although this could be more frequent under severe fire conditions, or following high growth periods. Rainfall is the primary influence on growth rates of spinifex grasslands and large, extensive wildfires are usually preceded by several seasons of above average rainfall. Fire management needs to be practised to maintain species diversity in spinifex-dominated communities, but burning too frequently, or at the wrong time of year leading to large intense fires, can be detrimental to some species. The spinifex bird (*Eremiornis carteri*), for example, requires large clumps (i.e. long unburnt) of spinifex for its ongoing survival.

While the majority of plant species on the peninsula show characteristics that allow them to survive regular fire (e.g. spinifex regenerates strongly after fire), some gorges and valleys of the range are relatively fire-free and contain species with tropical affinities. These species and communities are likely to be fire sensitive, although little information is available.

It is known that at least one weed present on the Burrup Peninsula responds vigorously to fire. Buffel grass (*Cenchrus ciliata*) burns readily when cured, rapidly regenerates after fire and may increase the frequency of wildfires in communities that are not adapted to fire or particular regimes (Tu 2002), leading to the loss of native species (Miller 2003). Regular wildfire events maintain buffel grass populations while suppressing or replacing native species, resulting in a change in the structure of the vegetation community and a reduction in species diversity (Miller 2003, Dixon *et al.* 2001). The success of buffel grass as an invasive weed not only impacts on vegetation communities but also on the fauna that use them for habitat and refuge.

10 Public access and recreation

The attractions of the Burrup Peninsula include its rugged natural beauty, rock art, beaches, fishing and, to some, the industrial developments. Residents of the towns of the Roebourne Shire, especially Karratha and Dampier, are the major recreational users of the area which has been subject to little control or management. Industrial development and accompanying transport infrastructure have facilitated easy public access and enjoyment of the southern end of the Burrup Peninsula.

The peninsula is a great place for the local population to take their visitors or to enjoy family outings. With the exception of Hearson Cove, which is vested in and managed by the shire, there has been very little investment in visitor services or in promoting awareness of the values of the area, largely due to uncertainty over the future tenure of the lands of the Peninsula and a lack of clarity on land management responsibility.

In spite of this low-key approach, an awareness of the extraordinary cultural values of the area has grown and independent travellers access the area for the cultural experience it offers. In addition, some commercial tourism has operated in the area in recent years.

10.1 Current uses

Swimming, boating, camping, fishing and other social activities are the current uses of the area. Hearson Cove has been the most popular destination for locals being easily accessible with good roads and one of the best swimming beaches in the region. The Roebourne Shire has developed this area with toilet, parking and picnic facilities, and has maintained the area with cleaning and rubbish collection over the past 15 years.

Withnell Bay also experiences a high level of usage by locals. It is an informal boat launching area for the large number of boat owners in the Karratha-Dampier area. The area does not have a formed boat ramp but functions effectively on most tides and provides better (closer) boat access to the northern Burrup Peninsula and the Dampier Archipelago than the purpose built boat ramps in Dampier and Karratha.

The Deep Gorge area near to Hearson Cove is the most frequently visited cultural heritage site, with abundant petroglyphs that are easily accessed by a short walk. The Climbing Men site has also become well-known among locals and tour operators and is frequented by independent visitors and some tour groups. Neither site is actively promoted, nor is there any effective management strategy in place.



Left: Recreational fishing is a popular pastime.
Photo - Ian Walker, DEC.

Road access to the northern section of Burrup Peninsula is restricted to 4WD vehicles. A section of the track north beyond Withnell Bay known as the 'Jump-Up' is very challenging even for 4WDs and has served as an effective filter on visitor numbers. The difficult terrain and the resulting remote feel of the northern Burrup Peninsula has made it a favoured destination among 4WD enthusiasts and a small numbers of bushwalkers.



Left: Recreation in the north-west Burrup.
Photo - Stewart Caves

10.2 Tourism

The Pilbara does not have the profile as a tourist destination that other remote areas, such as the Kimberley, the 'Top End' and Central Australia, can claim. However, it offers many of the same attractions of unspoiled natural landscapes, climate, remoteness, wildlife and a vibrant Indigenous culture. Tourism WA (2004) identified the key iconic attractions to the North West Region (basically all areas north and east of Exmouth) as being:

- 'rugged outback experiences' (e.g. including minimalist adventure travelers, rugged outback, untouched nature, Karijini NP, four wheel driving and camping);
- 'comfortable scenery experience' (e.g. relaxing on Cable Beach, swimming in gorges, staying at El Questro, flying over the Purnululu National Park or organised tours); and

- 'Indigenous experience' (e.g. including Indigenous art and crafts or cultural displays, or visiting an Aboriginal site or community).

Within the broader region, the product and infrastructure gaps were considered to be accommodation, amenities, attractions/activities (specifically Indigenous product) and access. The Pilbara is a case in point—it has yet to take advantage of its potential due to its recent development and industry focused on mining and, before that, pastoralism. This is despite Karijini National Park, the Dampier Archipelago, Indigenous experiences and the Burrup Peninsula all being identified as having 'iconic' status (Tourism WA 2004). All, however, rated extremely poorly in regards to market readiness.

The limited data on visitor numbers to the area indicates a steady upward trend. The data is somewhat contaminated by the large number of people employed on a fly-in/fly-out basis that share accommodation and airline services with tourists. There is a very marked seasonal fluctuation in visitor numbers. Statistics from the Karratha Visitor Centre show that approximately 70 per cent of visitors arrive between May and September, while only 16 per cent between November and March.

Data on visitors specifically to the Burrup Peninsula are restricted to occasional vehicle counts on the Hearson Cove Road and anecdotal reports. Again, the trend is clearly upward. There is growing local pressure to open up more areas of the Burrup Peninsula for recreation as the industrial lands are developed and consequent loss of amenity of destinations such as Hearson Cove and Cowrie Cove. As a condition of the Burrup and Maitland Industrial Estates Agreement, the management plan must consider the provision of public access, recreational facilities and facilitation of recreational activities on the proposed Burrup Conservation Reserve.

10.3 Impacts of public access

The public has enjoyed virtually unimpeded access to the non-industrial lands of the Burrup Peninsula, apart from being limited somewhat by the 'Jump-Up.'



Protection of environmental and cultural values from recreation has been limited, with little regulation of what people do and where they go. The exceptions are Hearson Cove, which is fully maintained by the Shire of Roebourne, and Withnell Bay where the shire collects the rubbish and signs have been installed about fishing and boating regulations. Although the Burrup Land Use Management Strategy (1997) recommended that a management plan be developed when there was an on ground management presence in the area, responsibility for management remained in limbo until the recent signing of the Burrup and Maitland Industrial Estates Agreement.

While much of the northern Burrup remains in relatively good condition, uncontrolled access and a lack of management has led to some environmental damage and unsustainable patterns of usage. There has been loss of vegetation and some erosion caused by off-road vehicles including in sensitive sand dunes. A growing number of unplanned and unserviced campsites has led to further vegetation loss and a build-up of litter. Vegetation cover has also been lost due to uncontrolled fires.

Ngarda-ngarli and others interested in protecting the heritage values of the Burrup have noted some incidents of vandalism at rock art sites and there are anecdotal reports of heritage materials being stolen. While all Aboriginal sites in WA are protected under the Aboriginal Heritage Act and some sites on the Burrup are registered under State and Federal

legislation, this has not been supported by an on-ground management and enforcement capacity to date. In addition to the management measures outlined, the State intends to set up a permanent Department of Indigenous Affairs presence to be co-located with DEC in Karratha in 2006.

It is also clear that access to the Burrup Peninsula either by visitors or people working on the Burrup Peninsula is resulting in a significant number of road kills of native species, particularly kangaroos. This may be in part attributable to the time of day that people begin and end their working days coinciding with times these species are most active. Traffic speed is also a factor. While these road kills occur on land that will not be subject to this management plan, it is still of concern to Ngarda-ngarli.

The region around Karratha including the Burrup is expected to continue its industrial, population and tourism growth of the past three decades. This will result in greater public use and pressure on the internationally significant heritage values and the environment of the Burrup Peninsula. For these values to be protected and enjoyed in the long term, a more strategic and sustainable approach to management is required. Importantly, the State Government has agreed to the establishment of a 'Burrup Management Coordination Council' with a charter to take a strategic approach to managing the environmental and heritage values of the broader area in the context of further industrial development.

Above: Negotiating tracks in the north-west Burrup.
Photo - Stewart Caves



Part C: Management of the proposed reserve

The vision for the proposed Burrup Peninsula Conservation Reserve is that:

The Burrup Peninsula Conservation Reserve is recognised internationally as an outstanding example of human expression, innovation and survival. A lasting partnership between Aboriginal people, government and industry balances the protection of its ancient and living heritage with the exploitation of the region's natural resources.

Ngarda-ngarli have occupied, used and managed the Burrup Peninsula for hundreds of generations. This is recorded in the country, its special places and rich archaeology making it truly a cultural landscape. This long history of occupation, ownership and management was broken by European colonisation and for over 150 years local Indigenous people had no control over the land. Through this management plan, Ngarda-ngarli and their joint management partners will seek to ensure the protection of the area and to revive Ngarda-ngarli knowledge, associations and responsibility.

Ngarda-ngarli welcome visitors to their land. Visitors are encouraged to enjoy the country, to look around, and appreciate and learn from the country and its people.

11 Boundaries and tenure

The irregular shape of the reserve, its rugged topography and coastline and lack of fences makes it difficult to distinguish the industrial land from the reserve area. With the exception of the existing major industrial facilities, it is not clear where the proposed Burrup Peninsula Conservation Reserve stops and starts. To ensure the values and integrity of the reserve are properly protected, and to assist with practical management, it is important that its boundaries are recognisable by managers, the public and industry. Natural resource management practices also need to be consistent and complementary across tenures and boundaries. This will require genuine cooperation and regular dialogue between the Management Council and the adjacent industries. This will be readily achieved with the establishment of a Burrup Management Coordination Council.



Left: A north-west Burrup campsite.
Photo - Stewart Caves



Above: Industry on the Burrup.
Photo - Norm Williams

Wildlife do not recognise land-use boundaries and consequently the territories of many animals on the proposed reserve would incorporate parts of the non-industrial land as well. This must be provided for in any strategies to delineate the boundary between the proposed reserve and the industrial estate. While fences will be necessary to secure boundaries of individual industrial leases, their design and construction must allow for movement of fauna and avoid creating hazards or traps. This same principle will apply to all structures built within the proposed reserve such as waste disposal systems and earthworks.

Objectives

1. To establish a visible boundary between the proposed Burrup Peninsula Conservation Reserve and the adjacent industrial lands.
2. To promote effective and integrated management of natural resources across the tenures and leases adjacent to the Burrup Peninsula Conservation Reserve.

Strategies

- Install boundary markers and signs on tracks so visitors are aware they are entering the proposed reserve.
- Ensure that the proposed reserve is clearly defined on maps and marketing material.
- Encourage proponents to construct fencing and other structures to a standard that minimises the impacts on the movement of fauna and visual impact.
- Hold regular meetings with other land managers such as the Burrup Management Coordination Council when it is established, and the Burrup Industrial Park Coordinating Council about matters of natural and cultural heritage management.

12 Management of cultural heritage values

Conservation reserves in WA have the protection of the natural values of the area as their primary management objective. Almost without exception, these areas are vested in the Conservation Commission of WA and managed by DEC. The proposed Burrup Peninsula Conservation Reserve will be vested in an approved Aboriginal Body Corporate and management responsibility shared between that body and DEC as directed by the management council (see Clause 6, Appendix 2).

The primary management objective in the case of the proposed Burrup Peninsula Conservation Reserve is the protection of the unique and internationally significant cultural heritage values of the area. It is not that Ngarda-ngarli place less value on what non-Indigenous people see as being natural resources or values, rather that for Ngarda-ngarli all elements of their country has a cultural dimension, whether it is land forms, wildlife or special places. All these elements have cultural value as foods, medicines, tools, and shelter, or are part of stories and beliefs. For Ngarda-ngarli, looking after culture means looking after nature.

12.1 Preservation and promotion of Ngarda-ngarli cultural heritage

It is the Ngarda-ngarli cultural heritage of the Burrup Peninsula that makes it such a truly remarkable landscape and a place of global significance. Protection of these values is the highest priority for the Aboriginal owners of the area. Ngarda-ngarli are also keen to promote and share their country and culture with the broader community and visitors to the area. In doing so they hope that non-Indigenous people will learn to respect and revere their country and share in the responsibility of protecting its special values for all time.

The Ngarda-ngarli cultural heritage includes material elements like middens, grinding stones, sacred sites, stone arrangements and engraving sites. Just as important are the cultural elements that cannot be seen such as knowledge, spiritual associations, beliefs, stories and language. A greater understanding of the cultural heritage of the Burrup Peninsula is required by managers to effectively protect these values. For the past several decades Ngarda-ngarli have had limited access to the country and those people with an intimate knowledge of the Burrup Peninsula have passed on. There is an urgent need to record the stories, language and memories of the elders living today. Having Ngarda-ngarli back on the country as managers and owners will renew their associations and enable them to learn from the country. Systematic scientific survey work is required to find and record the human history within the proposed reserve but it must be through a partnership with Ngarda-ngarli and inform their management of the area.

Comprehensive recording of the Ngarda-ngarli heritage sites across the Burrup Peninsula will be an on-going task requiring a long-term commitment of people and resources for many years. Recording knowledge and sites must also be done strategically and professionally to give proper protection to those areas requiring it. Priority will go to those areas under threat due to ease of access, planned development or proximity to industrial areas. Aboriginal staff and contractors should be directly involved at all levels with support and training from heritage professionals and the WA Department of Indigenous Affairs. The establishment of a permanent DIA office co-located with DEC as is planned for 2006 will progress this body of work.

Cultural heritage recording and protection will be a key priority for this management plan, and should run concurrently with similar work on the adjacent industrial lands as required under the Burrup and Maitland Industrial Estates Agreement.

Objectives

1. Ngarda-ngarli cultural heritage values are protected and promoted at the highest standard and in accordance with the wishes of Ngarda-ngarli.

2. Recording of Ngarda-ngarli knowledge and stories occurs as a priority.

Strategies

- Establish, as a subcommittee of the management council, a Ngarda-ngarli Cultural Heritage Committee to advise the council on Ngarda-ngarli cultural heritage matters, to direct the systematic recording of Ngarda-ngarli cultural heritage of the proposed Burrup Peninsula Conservation Reserve, to control storage and access to cultural heritage information.
- Promote awareness and appreciation of the Ngarda-ngarli cultural values and knowledge of the area and support processes leading to national and international recognition of the cultural heritage status of the area.
- Commence a cultural heritage plan during the first year of this management plan to identify, record and protect the Ngarda-ngarli cultural heritage values of the proposed Burrup Peninsula Conservation Reserve.
- Prepare a design brief for the visitor centre as soon as possible, ensuring that the centre design includes facilities and space take into account future likely staffing requirements.
- Use Ngarda-ngarli language names for locations, wildlife and concepts in promotional and interpretive material where practicable.
- Identify culturally restricted sites and prohibit public access where necessary.
- Coordinate cultural heritage management on the Burrup Peninsula Conservation Reserve with related work outside of the reserve including the Rock Art Monitoring Program.
- In consultation with the Department of Indigenous Affairs, ensure that heritage material removed from the Burrup Peninsula in the past is repatriated.
- Develop the technical capacity of Ngarda-ngarli to take increasing responsibility for the protection and promotion of cultural heritage values.



Above: A researcher studies the rock art on the north-east Burrup.
Photo - Stewart Caves

- Establish a DIA office, nominally in Karratha, to undertake heritage surveys of the proposed Burrup Peninsula Conservation Reserve, and to train Aboriginal rangers in archaeological methods to appropriately document new heritage sites and to manage the potential impacts of heritage tourism.

12.2 Preservation and promotion of rock art and archaeological values

It is not possible to estimate with any confidence the amount of rock art and other physical evidence of human occupation in the proposed Burrup Peninsula Conservation Reserve. Most of the detailed archaeological surveys on the Burrup Peninsula have taken place on the industrial lands in response to proposed industrial developments.

What is certain is that there is a huge volume of material evidence of a rich and successful culture that occupied the Burrup Peninsula and adjacent coastal areas and islands for thousands of years, and that this material is of international significance. The first people of this area were prolific engravers, depicting all elements of their lives from the day-to-day to the religious and spiritual. Visitors to the area cannot help but come across engravings, standing stones, middens, hides, quarries, grinding stones and camping areas.

High concentrations of rock art and other archaeological material often occur in the places visitors most like to go. Beaches, good fishing spots, places with a good view, freshwater pools and gorges also attracted Ngarda-ngarli who spent time there and recorded the things that were important to them. Because of the huge volume of material it is not possible to control all access to rock art and archaeological sites area. 'Discovering' rock art is one of the most memorable experiences for a visitor to the Burrup and will not be discouraged except in area where there are known sacred or restricted sites.

Remoteness and the ruggedness of the terrain will continue to be the most effective means of protecting the rock art and archaeological values. Creating an awareness and appreciation of cultural values by visitors will also be a focus of management. The most culturally sensitive areas will be closed for all visitor access while others may be accessed only in the company of an approved Ngarda-ngarli guide.

Some rock art interpretive sites will be developed and promoted. While one site will be developed in the vicinity of Conzinc Bay to take advantage of the proximity of the visitor centre (and hence the main visitor hub), the location of other sites will depend on future site surveys. Deep Gorge is acknowledged as one possible site but has the disadvantage of being remote from and south of the main visitor hub. It is preferable that all first-time visitors to the proposed reserve first call in to the visitor centre to learn about

the features and values of the proposed reserve, how to conduct themselves, and to get orientated to the site. If future site surveys find appropriate rock art sites in closer proximity to the visitor centre, one or more of these may be developed as a preference.

The advisory committee have also agreed that material from the WA Museum Compound may be considered for inclusion in the visitor centre.

Objectives

1. Rock art and other archaeological features across the reserve are recorded and protected, and promoted as appropriate.
2. The proposed Burrup Peninsula Conservation Reserve is recognised nationally and internationally for its heritage values.

Strategies

- Promote awareness and understanding of the living cultural heritage of the area and associated Ngarda-ngarli through the development of interpretive material.
- Develop a range of sites to allow visitors of all levels of fitness and mobility to enjoy educational and inspirational interactions with rock art and other archaeological sites.
- Provide opportunities to rock art viewing and interpretive facilities at the visitor centre. In particular, consider the requirements of people with limited mobility including wheelchair access.
- Develop at least one other high-density rock art site with a more low-key self-guiding walk track.
- Record and regularly monitor rock art and archaeological sites as part of the proposed reserve's ongoing work program.
- Develop a 'code of conduct' for visitor to encourage appropriate behaviour in and around cultural/archaeological heritage places and sacred sites.
- Support the relocation and interpretation of the heritage material displaced by industry both within the proposed reserve and in adjacent areas.

- Allow exclusive access for Ngarda-ngarli tour operators and guides to take visitors to more remote and sensitive areas (see section 17. Commercial Opportunities for Ngarda-ngarli).



12.3 Preservation and promotion of post-European contact heritage

Above: The Burrup's European connection.
Photo - Norm Williams

There has been little recording of the non-Indigenous heritage or history of the Burrup Peninsula. Nor is there much physical evidence of non-Indigenous uses of the area prior to the development of Dampier in the 1960s.

The first non-Indigenous industries were based on the marine resources of the Burrup Peninsula and the adjacent islands. Evidence of a small-scale whaling operation in the region persists, and pearls were also harvested from the area.

The Burrup Peninsula was formerly part of the Karratha Station and for most of the post-colonial period was used for seasonal sheep grazing. This resulted in limited physical impact on the land and left behind little evidence of the human interaction with the area during that period. Several living Ngarda-ngarli worked the area as stockmen and their oral histories can add to the limited knowledge of the area.

Since the 1960s landscape scale change has occurred, largely in the southern and western parts of the Burrup Peninsula where major industries, port facilities and road transport infrastructure have focussed. All this recent development has occurred outside the boundaries of the proposed reserve.

The most significant post-European site for Ngardangarli is where the Flying Foam Massacre occurred, which lies outside the proposed reserve. Although it is more accurately recorded as a series of events at various locations rather than a single site, Ngardangarli feel strongly about seeking to have an area at Kings Bay registered as a protected area and recognition given to the event(s) through a memorial and interpretive plaque. A plaque erected previously on the site was stolen, and another sign is badly damaged and largely unreadable.

Objectives

1. To record and protect the post-European contact heritage of the reserve.
2. To build understanding of the interaction between the colonial heritage and culture and that of the original inhabitants.

Strategies

- Encourage and facilitate research into the early European contacts and activities in the area including whaling, fishing, pastoralism and mining, including oral histories.
- Develop a display in the visitor centre featuring the post-European contact period of the region.
- In consultation with DIA and the relevant industrial landowner, investigate options to have the Flying Foam Massacre site registered as a protected area under the Aboriginal Heritage Act, and liaise with the relevant industrial landowner about the possibility of establishing a memorial and interpretive site on industrial land adjacent to the proposed reserve (see section 7.2 Post European Contact History).

13 Management of the natural environment

The protection of the natural resources of the area is a major reason for establishing the Burrup Peninsula Conservation Reserve. It is integrally linked with the cultural heritage values of the area and is subject to the same on-going threats from the activities of people and industry in the region.

The rugged landscape of the proposed reserve has a unique aesthetic appeal and is a major reason why people are attracted to the area. The beaches are the best in the region, the fishing is good and there are opportunities for wildlife observation and bushwalking, all of which will continue to attract growing numbers of visitors to the area.

Management will seek to achieve a balance between recreational and commercial use of the reserve with the long-term protection of its natural resources. The reserve does not exist in isolation. Its size, location and irregular shape means that natural resource management must be coordinated with the neighbouring industrial lands, and cooperation between all land users will be essential in implementing effective natural resource management practices on the Burrup Peninsula.

13.1 Soils and landform

The rocky terrain over much of the proposed reserve is resistant to erosion. Many of the ranges and gorges are impassable to vehicle and are consequently protected from damage caused by 4WDs. There are extensive areas of stony sloping ground with very shallow soils, which have also shown resistance to erosion.

The beaches and adjacent dunes, and areas with deeper alluvial soils and mudflats are most vulnerable. Vehicle traffic has been the major cause of soil erosion within the reserve area but has not yet reached the point of being a major environmental impact. However, with the expected increase in traffic in the area and the improved 2WD access to the more remote north-west of the peninsula, a more pro-active approach to management will be adopted.



Left: Existing 4WD tracks.
Photo - Stewart Caves

The limited surface water in the reserve is very important to sustaining the wildlife, which is well adapted to this arid environment. The marine environment moderates the climate with overnight dew and high humidity providing some additional moisture.

Early human occupation, colonial settlement and introduction of livestock were all limited by the supply of fresh water. Industrial and residential (Dampier) water supplies have historically depended on piping water from inland reserves. In the most recent phase of industrial development, desalination of seawater has been introduced.

The hot climate means that visitors, tourists and recreational users will require drinking water for their own health and safety. There are no reliable and safe supplies of naturally occurring water. Visitors and will also be attracted to freshwater creeks and pools in hot weather. While there are no pools in the reserve suitable for swimming, many gullies and gorges contain small waterfalls and rock pools which are very attractive for bathing especially after rains. These areas are also very important to wildlife and many pools will also have cultural significance or are adjacent to such areas.

Ground water supplies are also very scarce and cannot provide a reliable water supply.

Objectives

1. Minimise erosion across the reserve, and rehabilitate those areas already impacted.

Strategies

- Prohibit off-road driving except by authorised persons.
- Consider the impact on soils in any decisions about siting and construction of facilities and infrastructure in the reserve.
- Close off and rehabilitate tracks that are not required for visitor access or management purposes.
- Pave areas of low-lying and alluvial soils where and when signs of erosion become evident, and provide formed pathways to beaches and through dunes areas.
- Inform visitors of road conditions and closures (e.g. after rain, during wildfire suppression or other fire management operations, for cultural reasons).

13.2 Hydrology

Freshwater is very scarce across the reserve area. Rainfall is usually associated with cyclonic events that cause strong flows through the watercourses, flooding and water logging to low lying areas. The more sheltered gorges and rock pools will retain water for long periods after rain, however the high evaporation rates and droughts that may last several years means the country remains very dry for most of the time.

Objectives

To protect the waterways of the proposed reserve.

Strategies

- Discourage the use of freshwater pools and creeks for bathing for ecological, safety and cultural reasons.
- Inform day visitors on entry to the reserve of the scarcity of water and the need for them to bring their own water supplies for the duration of their stay.

- Design all buildings and surrounds to harvest rain and limit water consumption with water-efficient ablution systems.
- Consider the use of desalination plants to provide additional water for tourist developments, or piping water from alternative sources if it is cost-effective.
- Encourage the use of seawater for washing in campgrounds where practical.
- Maintain surface water quality through maintaining vegetation and limiting human impacts.



Above: A north-west Burrup beach campsite.

Photo - Stewart Caves

13.3 Landscape

The proposed Burrup Peninsula Conservation Reserve remains largely undeveloped and retains its outstanding and distinctive natural landscape values. Landscape values may be seen as a matter of personal preference. Many people are fascinated by major industrial and engineering feats and already the impressive industrial developments of the Burrup Peninsula, the enormous iron ore ships and gas tankers attract a significant number of visitors in their own right.

The stark contrast between this major industrial hub and the ancient natural and cultural landscape adds interest and complexity to management and visitor's perception of the area.

The landscape features of the proposed reserve will be protected. While the direct industry impacts on the Peninsula are restricted to the industrial lands on the southern and western side, these developments will be visible and to a lesser extent audible from many locations within the proposed reserve. For many people this industrial aspect will detract from natural landscape values. Siting facilities to screen industry from the viewshed will be attempted wherever possible. Further, DOIR has committed to ensuring that the viewsheds from the proposed visitor centre location will not be impacted by any developments on the Conzinc South Industrial Land.

Objective

1. Minimise adverse impacts on the landscapes of the proposed reserve.

Strategies

- Assess the landscape impacts of all planned works visible from inside the proposed reserve, and seek to minimise any unacceptable visual impact by participating in processes relating to the landscape and environmental impacts of industrial developments on the adjacent industrial lands.
- Consult with State and industry officials about the aesthetic and design standards for industrial lands.
- Promote and complement the area's landscape values through all reserve management activities.
- Site all major visitor destinations, including the visitor centre, to highlight and promote the natural landscape values of the reserve.

13.4 Flora and vegetation management

The flora and vegetation associations of the Burrup Peninsula have been demonstrated to have a high level of diversity, with at least 383 native vascular plant species from 54 families recorded and over 200 different vegetation associations. This is a reflection of its habitat diversity.

The vegetation is significant in that its many associations have a limited distribution and areal extent. Also notable is the number of species with tropical affinities ('Kimberley' species)—these are strongly, though not exclusively, associated with rock piles.

Trudgen (2002) described the vegetation as generally being in very good or excellent condition, but noted several threats—an increase in the incidence of fire, off-road vehicles, clearing for construction, and weed invasion. Management of these factors will therefore be a focus of this plan.

Weeds

Environmental weeds can be described as "...plants that establish themselves in natural ecosystems and proceed to modify natural processes, usually adversely, resulting in decline of the communities they invade" (CALM 1999). The Environmental Weed Strategy for Western Australia rates weeds as high, moderate, mild or low according to their potential invasiveness, distribution and environmental impact.

Fourteen weed species were recorded on the Burrup Peninsula by Trudgen (2002). Although this is a relatively low number, and reflects the relatively low level of disturbance on the peninsula, five of these species have been rated as 'high' (see Appendix 4). Of these, buffel grass (*Cenchrus ciliaris*) and kapok bush (*Aerva javanica*) and are of greatest concern. Chaff flower (*Achyranthes aspera*), which was not rated in the strategy, is also a potentially serious threat. Trudgen (2002) recognised that although most occurrences were at a low level, evidence of its spread is apparent.

Buffel grass can reproduce either vegetatively or by seed, and is easily dispersed by wind, flood, fire and by attaching to animal fur or human clothing. It significantly alters environmental conditions when invading new habitats as it reduces soil fertility, increases soil erosion, which increases surface water run-off and creates unstable watersheds with degraded water quality. It also exudes chemicals that are toxic to other plants. Buffel grass is most



Above: Kapok bush, an environmental weed.
Photo - Laurina Bullen, DEC

common on the peninsula in disturbed areas such as roadsides and where soils are disturbed by off-road driving (e.g. coastal sands). Trudgen (2002) noted that it was not a problem in rockpiles at that time, but required observation. Kapok bush showed similar characteristics in its distribution to buffel grass, favouring areas of disturbance. This species has spread substantially on the Burrup Peninsula since the late 1970s.

Objective

1. To conserve native flora and vegetation communities.

Strategies

- Implement those strategies related to fire management (section 13.6 Fire Management) to protect fire sensitive flora and vegetation against inappropriate fire regimes (e.g. 'Kimberley' species found in rockpiles).
- Control occurrences of weeds rated as 'high' according to the Environmental Weeds Strategy for Western Australia, with a particular emphasis on new populations and those invading rockpiles.
- Ensure that disturbance by off-road vehicle access is controlled to prevent disturbance to vegetation and weed invasion.
- Rehabilitating disturbed areas as they occur.

13.5 Fauna management

The Burrup Peninsula almost certainly has a richer fauna than any other area of the Pilbara of equivalent size, due to the unique combination of complex topography, diverse habitats and a semi-insular position close to the mainland.

It should be noted that the fauna of the Burrup Peninsula and Dampier Archipelago are imperfectly known. Most survey work and observations have been made on those islands managed as conservation reserves. However, the pattern observed in the species lists in the region show a richer fauna on the Burrup than on the Archipelago (which comprises 42 islands in total).

Much of the Peninsula is very rugged, or largely inaccessible. This protects both the habitats and fauna of these areas from most human disturbances. However, several management issues will have a direct impact upon the maintenance of biodiversity on the Peninsula, in particular the presence of introduced species, visitor access and use, and fire management.

Feral animals

Four introduced species of mammal are now naturalised on the Burrup (cat, black rat, house

mouse and fox). The first three are most common in the vicinity of Dampier, and around industrial areas such as King Bay and the port. Foxes are controlled by 1080 baiting on the northern Burrup, but continually re-invade from the south. Fox baiting should be continued, as per the regime currently applied under *Western Shield* (four times per year, twice from aircraft, twice from vehicle and foot traverse). This may need to be varied as new information comes to light. Consideration should be given to developing a cat control baiting program, to complement the existing baiting program. At present, however, the baiting of cats is difficult as they are far more selective in their bait uptake.

It is important to note that 1080 poison is also lethal to domestic dogs. For this reason, and the fact they may disturb native wildlife, it is proposed to prohibit dogs from the proposed reserve. Dogs are allowed at Hearson Cove, which is managed by the Shire of Roebourne.

Feral pigeons are naturalised in small numbers around Karratha and Dampier. This species has a history of establishing on islands, particularly near towns. They have caused major problems for seabird nesting in other parts of WA (e.g. Shoalwater Bay islands). If nesting feral pigeons are located on the Burrup, they should be exterminated by whatever means are most expedient.

Vehicle access

Vehicle access poses a direct threat to fauna. High speed road access results in significant mortality and injury to larger species, particularly echidna, kangaroos, eagles and pythons. Over time, a busy road may in fact eliminate breeding Olive Pythons from the vicinity of the roadway, and other species numbers may be reduced. As a guiding principal, the linear distance of high speed roads within the proposed conservation reserve of the Burrup should be minimised, and the attainable speed on such roads should be minimised regardless of the inconvenience to visitors or management.



Right: Feral cats are difficult to control.
Photos - Babs and Bert Wells/DEC

Fauna research

There is high potential for short-range endemic species to be identified among the invertebrate fauna of the Burrup. In particular, there are two species of Camaenid land snail currently undescribed on the Peninsula, one of which has a very restricted distribution. Other groups, such as aquatic insects, molluscs (in particular the undescribed species of *Bayadella*) and other invertebrates, may be vulnerable to impacts from industrial emissions. Given the high botanical and vertebrate fauna diversity of the Burrup, it is recommended that baseline studies of terrestrial and aquatic molluscs, other aquatic invertebrates, larger arthropod groups (ground dwelling spiders, scorpions, millipedes) be undertaken. Monitoring of vertebrate fauna should be undertaken at least every 10 years.

Areas of natural intertidal habitats on the Burrup, particularly Cowrie, Watering and Conzinc Bays, should also be assessed for their significance to wading birds. While these areas may be less significant as habitat than the nearby Dampier Salt ponds, it is important to demonstrate the importance of these areas to species protected under the CAMBA and JAMBA treaty arrangements.

Objectives

1. Conserve the diversity of native fauna on the Burrup Peninsula, particularly threatened or other priority species.
2. Achieve a cooperative approach to management of native fauna with neighbours, industry and the public.

Strategies

- Conduct fauna surveys during the life of this management plan to establish baseline data.
- Continue to control foxes on the Peninsula, and consider the implementation of a cat control program during the life of this management plan.
- Prohibit visitor access near bird nesting sites as required (temporarily at least).



Left: Edible molluscs.
Photo - Laurina Bullen
DEC

- Involve industry, community and school groups in survey and monitoring programs.
- Work with industry and other agencies through the Burrup Industrial Park Coordinating Committee to reduce accidental deaths and other interference with wildlife, and to ensure fencing and other infrastructure works are planned and constructed so as to limit impacts on native fauna.

13.6 Fire management

The role and history of fire in the Australian landscape continues to be debated and development in the scientific and land management communities in Australia. There is broad agreement that for Aboriginal people fire was their most powerful land management tool. Through regular and strategic burning they created a mosaic effect on the landscape, which provided a wide range of habitats for wildlife, regenerated vegetation and limited the destructive capacity of wildfire.

This pre-colonial fire regime depended on Ngardangarli living and walking on their country making small fires as they went. As with most of Australia this practice has largely stopped. Over the past two decades many land managers, including DEC and its predecessor, CALM, have been learning traditional burning practices and adapting and applying them to modern needs.

The proposed Burrup Peninsula Conservation Reserve has a particular challenge in developing and implementing a fire management program that does not threaten the major investments of its neighbours who are involved to the production and utilisation of large volumes of highly volatile substances.

The only effective approach to fire management in the Burrup Peninsula Conservation Reserve is to adopt a 'whole-of-Burrup' approach involving all other Burrup leaseholders and neighbours. Fire management and suppression needs to be coordinated across the entire Burrup Peninsula. Fire should be a standing agenda item on meetings with the Burrup Industrial Park Coordinating Committee, and considered by the Burrup Management Coordination Council when established.

Fire is a landscape level process that requires active management, to ensure that large areas of the Burrup are not lost to wildfire in single fire events. A regime of active fire management, using either buffers or a patch mosaic, is needed. A large proportion of the mammal and reptile fauna of the Burrup depend upon mature spinifex clumps for shelter or food (invertebrate numbers are much higher under mature clumps than under juvenile clumps). A patch mosaic fire regime will ensure that much of the small mammal and reptile fauna will have persistent populations from which burnt areas can be re-colonised. In addition, spinifex-clump dependent birds such as the spinifex bird will be protected from local extinction. However, prescribed burning is not a high priority early in the life of this plan. Observation and anecdotal information suggests that in recent years the area has been subject to intense, unplanned and uncontrolled burns. Following an

uncontrolled wildfire on the northern peninsula in mid 2001, much of the mature spinifex was destroyed. Populations of spinifex bird probably persist in unburnt areas to the south, but re-colonisation would be slow, having to wait until the large clumps of spinifex develop again.

The impact of fire on the spread of weeds also needs to be considered. It is known that buffel grass responds vigorously to fire and can help perpetuate a fire regime of hot, frequent fires. This has the effect of changing the structure of the vegetation community and reducing species diversity.

With increased visitor use, it is possible that the risk of wildfires from campfire escapes could increase. This issue is addressed in section 14.6 Recreational use – open fires.

Objectives

1. Maintain fire diversity and protect ecologically sensitive areas from inappropriate fire frequency or large and intense wildfire.
2. Protect life, property and assets from wildfire.

Strategies

- Protect fire-sensitive species from inappropriate fire, in particular species with 'Kimberley' affinities.
- Discuss fire management and suppression for the entire peninsula with adjacent industrial landowners through the regular meetings of the Burrup Industrial Park Coordinating Committee.
- Ensuring that Ngardangarli staff are trained in fire management, including suppression.
- Protecting infrastructure assets from wildfire by maintaining mineral earth breaks, fuel-reduced buffers and fire fighting capacity.
- Consider the application of prescribed fire to maintain a mosaic of vegetation age classes (although unlikely to be required over the life of this management plan).

14 Management for public use

The provision of access, recreational facilities and services, and the development of commercial opportunities for Ngarda-ngarli are key management objectives for the proposed conservation reserve. These are among the principles behind the successful negotiation of the Burrup Agreement, transfer of land ownership to Ngarda-ngarli and the establishment of the proposed reserve.

Over the life of this management plan, a range of high quality visitor facilities and services will be progressively established over the proposed Burrup Peninsula Conservation Reserve. These facilities and services will contribute to the safe enjoyment of the range of experiences the reserve has to offer while ensuring the protection and appreciation of the Burrup Peninsula's internationally significant heritage values. Better control over the movements of visitors will also enhance the security of the industrial leases and related capital infrastructure.

The proposals for visitor use in this draft management plan are largely derived from the Burrup Peninsula Recreation and Tourism Masterplan (CALM 1999), which has been reviewed as part of the management planning process. The masterplanning process considered a number of criteria to determine future visitor facilities development on the Peninsula, including:

- existing visitor use facilities and opportunities, and predicted patterns of use;
- environmental and cultural values;
- commercial opportunities (e.g. tourism accommodation, retail);

- opportunities for education/information about Ngarda-ngarli culture;
- visitor expectations; and
- visitor safety.

As a result of these deliberations, the major foci for recreation and tourism on the proposed reserve are to:

- Develop a visitor centre as the visitor hub for the proposed reserve, including opportunities to view rock art viewing. The requirements of people with limited mobility (e.g. wheelchairs access) will be catered for.
- Develop at least one other high-density rock art site with a more low-key self-guiding walk track.
- Provide a range of different recreation opportunities that complement those at Hearson Cove and on the Dampier Archipelago islands.
- Manage access to protect the values of the proposed reserve and to maximise visitor experiences.
- Analyse a range of commercial opportunities (including tourist accommodation, retail sales from the visitor centre, visitor fees, and commercial tours) to determine the most appropriate development options.

The issue of visitor fees is a difficult one. Fees to natural areas and cultural sites are common throughout the world, and in WA DEC charges visitor fees to many national parks. Revenue from fees is generally used to fund visitor infrastructure for the direct benefit of users, or conservation works for the public good. The introduction of visitor fees may deter some visitors from the site and deny locals with free access to an area they have used previously.



Left: A possible interpretation centre site in the Conzinc precinct.

Photo - Stewart Caves

To this end, several options are being considered:

1. no fees;
2. a differential fee, where non-residents pay to enter but residents of the Shire of Roebourne do not;
3. a local annual pass, similar to DEC's 'Park Pass'; and
4. a standard visitor fee to all visitors.

Ultimately the decision will depend upon feedback received on this draft management plan and an economic analysis of the revenue options.

In any of these options, nominated/registered Ngarda-ngarli will not have to pay.

Facilities will be complemented by developments on adjacent parts of the peninsula. This includes a sealed road up to Conzinc Bay, the swimming and recreation area at Hearson Cove, boat launching and parking facilities at Withnell Bay, and cultural interpretation sites at Picnic Creek and potentially at the Flying Foam Massacre site. The potential for integrating the presentation of these with sites within the proposed Burrup Peninsula Conservation Reserve will be explored.

This management plan caters for the broad range of visitor interests, capacities and activities. Increasingly, the proposed Burrup Peninsula Conservation Reserve will develop its profile as an internationally significant visitor destination and management must be in place to be able to deal with these pressures effectively. Uncontrolled access is a major threat to the values of the area and requires regulation, education and the development of infrastructure and facilities.

Four management zones have been identified based on their natural and cultural features, accessibility, attraction to visitors and environmental, cultural and social sustainability. Within the zones specific visitor 'nodes' will be developed which highlight each zone's special features.

Objectives

1. To progressively develop a range of public facilities and services while protecting the natural

and cultural values of the reserve, maintaining a safe environment for visitors, and facilitating the recognition of the proposed Burrup Peninsula Conservation Reserve as a significant regional tourist destination.

Strategies

- Implementing the strategies in this management plan to protect the natural and cultural values of the proposed reserve.
- Prepare a business plan that considers the different development options and revenue streams available to the ABC. Criteria should include return on investment, desired visitor experiences, employment opportunities, and public acceptability.
- Adopt best practice standards in environmental sustainable design and construction for all facilities and infrastructure.
- Under guidance of the management council prepare an infrastructure development plan to enable the phased development of main visitor destinations across the reserve.

14.1 Regional context

The Burrup Peninsula is a favourite playground for locals, with Hearson Cove being one of the best swimming beaches in the region. The Roebourne Shire has developed this area with toilet, parking and picnic facilities. Withnell Bay is also popular as a boat launching site as it provides better access to the northern Burrup Peninsula and the Dampier Archipelago than the purpose built boat ramps in Dampier and Karratha (the Pilbara has one of the highest boat ownership rates in Australia). Visitation rates to the northern peninsula are unknown but access is limited due to difficulties in passing the 'Jump-Up'. DEC estimates that approximately 15,000 people a year visit the islands of the Dampier Archipelago either for day visits, to camp, or to stay in one of the private shacks managed by the Dampier Archipelago Recreational Dwellers Association.

Tourism WA identified ‘rugged outback experiences’, ‘Indigenous experiences’ and ‘comfortable scenery experiences’ (see section 10.2 Tourism) as the iconic features of the north-west, but listed accommodation, amenities, attractions/activities (especially Indigenous product) and access as significant product and infrastructure gaps (Tourism WA 2004). Three major gaps were identified specifically for the Burrup Peninsula—a two-wheel drive road to the tip of the peninsula, safari-tent accommodation, and rock art tours. These issues are all addressed in this management plan or in the Burrup and Maitland Industrial Estates Agreement.

Other major infrastructure proposals in the region will impact on tourism and visitation. For example, sealing the road between and Karratha and Tom Price will have the effect of creating a sealed loop between Port Hedland, Karijini National Park, Tom Price, Millstream – Chichester National Park and Karratha. Given this, and the increased profile of the Burrup as a tourist destination, it is anticipated that an increasing number of visitors will come to the proposed Burrup Peninsula Conservation Reserve.

There are few accommodation options in the region. Hotel/motel accommodation and caravan parks are available in Point Sampson, Karratha and Wickham. No tourist accommodation is available on the Dampier Archipelago islands, although residents of the Shire of Roebourne are eligible to become members of the Dampier Archipelago Recreational Dwellers Association and hence access the shacks on the islands for overnight stays. As a consequence, niches in the accommodation market exist for shore-based camping and semi-permanent tented accommodation or cabins in a natural setting.

Objective

Provide visitor and tourism infrastructure and services that take advantage of market opportunities and complement those existing at present.

Strategies

Implement strategies related to access (section 14.3 Access) and recreational use (section 14.6 Recreational Use) and marketing (section 17.1 Marketing).



Left: Mangroves on the north-east Burrup. Photo - Laurina Bullen, DEC

14.2 Zoning

'Zoning' is a tool often used in planning to allocate different types of activities to specific areas. It does this to ensure that:

- recreation activities and developments occur in areas where they are most appropriate; and
- a range of different visitor experiences can be offered and maintained, from 'remote' through to 'developed'.

On the Burrup Peninsula, the natural environment dictates the level of access, and hence the key to the zoning scheme. Large areas of untracked land provide ideal opportunities for both remote bushwalking experiences and shorter walks based from the visitor centre. In contrast, the Conzinc Bay 'precinct' (including the visitor centre) will be a developed zone accessed via a sealed road. The proposed zoning scheme for the Peninsula is shown on Map 2.

It is possible that over the life of this management plan sites are identified that Ngarda-ngarli do not want public access to. Up-to-date information will be provided at the visitor centre to alert visitors to any prohibited areas (see also section 14.3 Access).

Below: Vandalism at Conzinc mudflat.
Photo - Laurina Bullen, DEC.



Objective

1. Maintain a spectrum of recreation opportunities for visitors, from remote to developed.
2. Ensure that up-to-date information is available that details areas where visitors are not allowed to access.

Strategies

- Implement the zoning scheme indicated on Map 2.

14.3 Access

Public access and enjoyment is one of the key objectives of management the proposed Burrup Peninsula Conservation Reserve. Under the conditions of the Burrup and Maitland Industrial Estates Agreement, the draft management plan must consider the provision of public recreational facilities and recreational activities on the proposed reserve, and provide access accordingly, while taking into account cultural and environmental values and other proposed uses of the area by Ngarda-ngarli. Visitor safety must also be considered.

The area offers visitors a range of activities and environs to enjoy and experience. Although most visitors will continue to access the area as independent travellers in private vehicles, management will provide access to a range of the area's natural and cultural resources for visitors ranging from the fit and adventurous through to those with limited stamina and mobility.

Temporary access restrictions may be applied at the discretion of management to allow for a variety of needs including fire management, infrastructure work, feral animal control, Ngarda-ngarli ceremony or environmental protection. An example of the latter is the need to protect White-bellied Sea-eagles and Ospreys that nest along the Burrup coastline, often in conspicuous nests close to recreation beaches. These birds can be vulnerable to direct disturbance.

Access to restricted areas within the proposed Burrup Peninsula Conservation Reserve will require a permit from reserve management system.

Vehicle access

Public vehicle access on the Burrup Peninsula is limited at present. Two wheel drive access is available to Hearson Cove and Withnell Bay only, with four wheel drives able to access Conzinc Bay and the north-western tip of the Peninsula.

Major changes to public access are proposed as part of the ongoing industrial development on the Peninsula and the proposals in this management plan.

The Burrup Road running north along the western side of the Peninsula to the Woodside LNG Plant is the only road currently providing entry to the proposed reserve. It is proposed that this road be extended along the north-south infrastructure corridor beyond Withnell Bay to the Conzinc South Industrial Land, and then northwards onto the proposed reserve to Conzinc Bay and the visitor centre. It is proposed that this road be completed early in the life of this management plan, as many of the other proposals in the plan are contingent upon its completion. The management council and the ABC will have no direct responsibility for the design, construction or maintenance of the roads outside the proposed reserve.

The access plan within the proposed reserve is shown on Map 3. This shows the proposed sealed road to Conzinc Bay and the visitor centre, and that some tracks will be closed and rehabilitated to prevent further environmental degradation and public access to sites of cultural significance. Other tracks will be closed to the public but maintained for management purposes (e.g. for fox baiting, weed control or servicing of remote visitor facilities).

Mountain bike access will be permitted on all roads within the proposed reserve, including unformed vehicle tracks (see Map 3). They will not, however, be allowed on walking tracks.

Boat access

A small proportion of visitors to the proposed reserve access it by boat. This group is difficult to manage because they can access extensive areas of remote coastline that vehicles cannot get to. Information

provided at boat launching areas as to the zoning scheme and permitted activities will be crucial. There are also potential conflicts with other users where boats are moored on public beaches.



Access to the waters off the northern Burrup Peninsula is provided by an informal over-the-beach launching facility at Withnell Bay, as well as purpose-built facilities in Karratha and Dampier. The Shire of Roebourne is responsible for maintaining the Withnell Bay site.

Above: Boat access to remote areas on the Burrup.

Photo - Laurina Bullen, DEC

A proposal for a purpose-built boat launching facility and inland marina at Conzinc Bay was presented to the advisory committee during the preliminary planning process. This would involve the construction of a lock system to account for the tidal variance in the area. The advisory committee is not in favour of a marina in Conzinc Bay for a number of reasons, including:

- potential impact on cultural sites;
- environmental impacts on both marine and terrestrial ecosystems; and
- the potential dominance of the facility in the bay.

Options for such a facility on the Burrup are limited. Withnell Bay has often been put forward as a preferred location but this is adjacent to the Woodside LNG Plant and security issues exist—under current circumstances, it is highly unlikely that such a facility would be built in Withnell Bay. Nickol Bay has also been suggested as a possibility (Tourism WA 2004) but to date little interest has been shown.

Although the advisory committee has indicated a reluctance to develop a boat launching facility or marina in Conzinc Bay, if proposals can adequately address the issues listed above the management council may consider them in the public interest.

Pedestrian access

The rugged nature of the Burrup Peninsula lends itself to the provision of remote and challenging walks, with many places accessible by foot only. At present there are no formal walking tracks on the proposed reserve.



Above: The Burrup driving track.
Photo - Laurina Bullen, DEC

Six categories of walking trails are recognised by Standards Australia (2001), from trails where there is no modification to the natural environment (Class 6) to broad, hard surface tracks suitable for wheelchair use (Class 1).

This draft management plan proposes the construction of several walking tracks (Map 3), including a long-distance (overnight) walk around the north-eastern Burrup (Australian Standard Class 4-5), a walk into the 'Withnell Bay Valleys' (see also Map 2), and hardened pathways suitable for wheelchairs (Australian Standard Class 1). Management may also issue walking permits for people wishing to access remote areas of the reserve where there are no designated trails and there are no culturally sensitive sites.

Objectives

1. To provide safe access to the diversity of activities, attributes and experiences of the proposed Burrup Peninsula Conservation Reserve in a way that is consistent with the protection of natural and cultural values.
2. To provide a range of access types (vehicle, boat, pedestrian) to enhance visitor experiences.

Strategies

- Provide vehicular access to the proposed reserve as per Map 3.
- Provide parking areas and associated facilities at the main visitor destinations.
- Prohibit vehicles from beaches and dunes, and close and rehabilitate those vehicle tracks over dune areas, beaches, eroded areas of deeper alluvial soils and mudflats.
- Seek agreement with relevant authorities for a speed limit on the Burrup Peninsula of 80 km/hour, and alert drivers to travel at safe speeds and watch out for wildlife.
- Develop walking trails as per Map 3 and according to the appropriate Australian Standard.
- Ensure that the appropriate safety standards are considered in the provision of all walk trails.
- Develop a brochure on the walk trails that include directions, safety advice and information about the natural and cultural attributes to be seen en-route.
- Provide information on boating, landing, marine reserve zoning, and anchoring at Withnell Bay and Dampier boat ramps.
- If conflicts between users arise, define areas where boats can pull ashore on the beaches of the northern Burrup.
- Conduct regular boat patrols around the coastline of the proposed reserve with particular emphasis on weekends and during holiday periods.

14.4 Visual landscape management

Despite the high level of industry on the Burrup Peninsula, the viewsheds from many parts of the proposed reserve effectively hide the industrial development and allow visitors to focus on its natural and cultural values instead. The natural landscape of the peninsula can be broken down into several component parts—rocky outcrops, island outcrops, low-lying islands, mangrove flats, and salt flats.

Although there is no landscape management plan for the peninsula, CALM developed interim landscape management strategies when preparing a draft recreation masterplan for the non-industrial area in 1999. These strategies should still apply, and included:

- locating and designing recreation sites and facilities so as to minimise their alteration of the natural scenery; and
- preserving the landscape north of Withnell Bay as predominantly natural landscape. Any development on the Conzinc South Industrial Land should be sensitively located to minimise visual impacts, and not intrude on the Conzinc Bay viewshed.

Objective

1. Protect and enhance the proposed reserve's visual landscape qualities.

Strategies

- Encourage all Burrup Peninsula land users to participate in the preparation of a landscape management plan for the whole of the Burrup.
- Apply the strategies listed above as interim measures until such time as the landscape management strategy is completed.

14.5 Visitor centre

Funding of up to \$5.5 million has been allocated to the design and construction of a visitor centre as part of the State's commitment to the Burrup and Maitland Industrial Estates Agreement.

Consultation, design and construction of the visitor centre will commence as soon as practicable after the approval of the management plan. The visitor centre will be primarily dedicated to the presentation and interpretation of the values of the proposed Burrup



Left: Conzinc Bay.
Photo - Laurina Bullen,
DEC

Peninsula Conservation Reserve, but should also incorporate administrative, management and meeting facilities and allow for sharing of space with partner agencies, especially those involved in research.

Siting

The preferred location for the visitor centre is an area of sloping land approximately 300 m inland from the first sandy beach on Conzinc Bay. This location is within the proposed Burrup Peninsula Conservation Reserve (several sites outside the proposed reserve were previously considered) and will allow for surveillance and a strong management presence of an area where the greatest number of visitors are likely to gather. This site was also chosen because it is the first suitable building site travelling north on the Burrup Peninsula where industrial developments are not visible. During the preparation of this draft management plan, discussions were held with DOIR to ensure that the viewshed from the area would not be compromised by developments on industrial land at Conzinc South. This will be achieved by ensuring that project specifications included reference to visual landscape management.

Function

There are a number of options for the development of the visitor centre, including:

- Information and interpretation. The visitor centre will include indoor and outdoor interpretive displays and will feature heritage material that has been relocated from industrial areas.
- An administrative and management hub for the reserve with office, storage and work areas.
- A commercial shopfront. This could include merchandise such as souvenirs, local Ngardangarli art and craft, guidebooks, and basic food items/groceries for campers and day visitors.
- A booking agency for Ngardangarli tours.
- A café. The café could serve traditional fare as well as bush tucker.

- Meeting/conference facilities.
- Research facilities.

While the two points are given, the final configuration and function of the centre will depend on an assessment of the economic returns and employment opportunities generated by the remaining proposals and site capacity.

Development of the visitor centre and any other visitor or management infrastructure north of Withnell Bay is dependent on the construction of a 2WD standard access road as through the north-south infrastructure corridor to Conzinc Bay. Planning and design work was under way at the time of drafting this plan. Planning and design for the visitor centre should start once funds for the road are committed and need not wait till the road is completed.

Funding has been allocated and planning has commenced through Ngarluma Yindjibarndi Foundation for the construction of an Aboriginal Cultural Centre in Roebourne. To ensure that the two centres complement rather than compete with each other, discussions between the respective planners and designers will be required. There may also be benefits in the management groups rationalising aspects of administration, management and staffing and training.

Objectives

1. To construct a multi-function visitor centre within the proposed reserve that:
 - assists and encourages visitors to appreciate, enjoy and understand the values of the Burrup Peninsula Conservation Reserve;
 - provides a comfortable and efficient working environment for staff;
 - provides economically viable, sustainable business opportunities for Ngardangarli; and
 - acts as the centre for commercial activities on the proposed reserve.

Strategies

- Ensure that the design of the visitor centre caters for its proposed uses and meets the highest environmental and design standards, and complies with the relevant building, health and environmental codes.
- Conduct an assessment of the economic returns and employment opportunities generated by the potential options for the visitor centre and other possible tourism services.
- Conduct a detailed heritage survey at the proposed visitor centre site and nearby recreational areas on Conzinc Bay.
- Relocate suitable displaced heritage material to the visitor centre site for interpretive and educational use.
- Liaise with the Ngarluma Yindjibarndi Foundation regarding the development of the Roebourne Cultural Centre and opportunities for collaboration.
- Call for expressions of interest from interested Ngarla-ngarli groups and individuals to undertake commercial ventures at the visitor centre.

14.6 Recreational use

Fishing

Fishing in the marine waters surrounding the proposed reserve has been dealt with in the indicative management plan for the proposed Dampier Archipelago – Cape Preston marine conservation reserve. This was released for public comment in January 2005 and is yet to be finalised. The indicative management plan proposes three types of zones around the proposed Burrup Peninsula Conservation Reserve:

- Sanctuary zones at the eastern end of Searipple Passage and off Watering Cove. The primary purpose of these zones is to provide areas where natural processes can be studied or appreciated free of significant human influence. These zones will also provide other ecological benefits such as refugia for exploited species, replenishment areas,

nature appreciation sites and a degree of ecological 'insurance'. All extractive activities are excluded from the proposed sanctuary zones, including recreational fishing. However, passive nature-based tourism, some recreational activities, boating and approved scientific research is permitted. Both zones are in remote areas inaccessible to vehicles and consequently unlikely to significantly impact on visitor or Ngarla-ngarli use.

- A recreation zone off Conzinc Bay. Recreation zones have the primary purpose of providing an opportunity for recreation, including recreational fishing (subject to bag limits and other conservation measures) by both private visitors and patrons of commercial nature-based tourism operations. Petroleum drilling and production, commercial fishing, pearling, and aquaculture are not permitted in the proposed recreation zones.
- A general purpose zone around the remainder of the Peninsula. The general use zone will provide for recreational and commercial activities to occur, providing that they are compatible with the overall maintenance of the marine park's values.

Fishing by Ngarla-ngarli is addressed in section 15.1 Hunting and Fishing.

The Department of Fisheries manages recreational fishing throughout the State in accordance with the Fish Resources Management Act 1994. This provides legislation to regulate size, bag limits, gear controls, closed seasons and licensing.

Objective

1. To provide opportunities for fishing consistent with the Dampier Archipelago-Cape Preston Marine Conservation Reserve Management Plan and the Fish Resources Management Act.

Strategies

Ensure that visitors to the proposed reserve are aware of the relevant fishing regulations by providing information at the visitor centre and elsewhere as necessary.



Above: Rock art trail.
Photo – DEC

Day use

Based on its size and its proximity to a range of visitor accommodation, it is expected that the proposed Burrup Peninsula Conservation Reserve will primarily be a day trip destination. It is also expected that at least in the foreseeable future, the majority of visits to the reserve will be by local people accessing the swimming beaches at Conzinc Bay during the hotter parts of the year.

The main day visitor sites on the proposed reserve will be at Conzinc Bay, where it is proposed that two sites are developed—one at the southern end of the bay adjacent to the proposed visitor centre, and the other near Conzinc Creek. Up to 70 cars will be catered for, with toilets and gas barbecues provided at each site.

Deep Gorge is also being considered as a site for day visits due to the abundance and accessibility of petroglyphs, but as a preference a site closer to the visitor centre will be developed. This is dependent on future surveys finding a site comparable with Deep Gorge that can be accessed by large groups and disabled visitors (see also section 12.2 *Preservation and promotion of rock art and archaeological values*).

Day use sites on adjacent lands will complement those on the proposed reserve. This includes the Shire-managed area at Hearson Cove, the proposed site where the Flying Foam Massacre occurred, Picnic Creek, and the beaches of the Dampier Archipelago islands.

Objective

1. To provide a range of opportunities for day visitors to experience the cultural and natural values of the Burrup Peninsula.

Strategies

- Provide major day visitor sites at the visitor centre/Conzinc Bay South and Conzinc Creek.
- Develop additional interpretive sites pending further surveys, with a preference to develop a major rock art interpretive site in close proximity to the visitor centre. Such a site should cater for disabled visitors.
- Establish basic facilities, such as parking and information, at trailheads.
- Implement the zoning scheme as indicated in Map 2.

Overnight stays

There are few accommodation options in the region. Hotel/motel accommodation and caravan parks are available in Point Samson, Karratha and Wickham, and a four-star tourist resort in Point Samson also. As a consequence, gaps exist in the tourist accommodation market.

The provision of formalised accommodation on the north-west Burrup will be the focus of a detailed site and economic analysis. At present, there are few regional opportunities for tourists to stay overnight in the natural environment without (a) local knowledge or (b) access to a boat to reach camping areas on the Dampier islands. Providing accommodation on the proposed reserve also offers economic returns and employment opportunities for Ngarda-ngarli.

It is proposed to consider two levels of overnight stay—basic camping in designated areas, and high quality safari-tent accommodation focusing on best practice eco-design. The latter in particular has great potential, as there is no similar accommodation in the region. This type of accommodation has proven to be successful in other areas of the State (e.g. Dampier Peninsula north of Broome, Purnululu National Park) as well as the Northern Territory, and is often accompanied by a café/restaurant facility to service guests. CALM had previously advertised for expressions of interest to develop similar accommodation on the islands of the Dampier Archipelago without success—the establishment and service costs of such a venture are very high. In contrast, the construction of a sealed road to the visitor centre and

the proximity of power and mains water are a great advantage to a development on the peninsula.

While neither the safari-tent location nor the camping area(s) have been determined as yet, it is proposed that the former is designed to take advantage of:

1. the natural surroundings to provide a feeling of remoteness and exclusivity;
2. viewsheds of the surrounding waters;
3. prevailing weather conditions during the period of highest visitation; and
4. the proximity to other infrastructure and servicing.

Potential camping areas have been identified in the north-western part of the proposed reserve—options include adjacent to the visitor centre and on Searipple Passage. Both will be designed to cater specifically for tent-based camping, as caravan facilities already exist at nearby towns. People undertaking long walks across the reserve will be allowed to camp overnight in designated remote campsites or other nominated areas by prior arrangement.

There is also an opportunity to provide for beach camping accessed only by boat. For example, the north-facing beach at the eastern end of Searipple Passage has such potential. Any overnight camps at remote boat-based locations would be strictly 'pack in, pack out' due to the difficulties associated with servicing such sites. This site offers an 'exclusive' experience, and could be offered as part of a commercial tour operator licence.



Above: The Burrup from the ocean.
Photo – Stewart Caves



Above: A north-west Burrup beach.
Photo – Stewart Caves

Objectives

1. To provide a range of overnight accommodation that will facilitate different visitor experiences and an employment and economic outcome for Ngarda-ngarli.

Strategies

- Investigate the potential for camping and safari-tent accommodation and associated facilities on the northern Burrup. Criteria for assessment of options will include:
 - return on investment;
 - desired visitor experiences;
 - employment opportunities; and
 - site capability and desirability.
- Consider the possibility of providing for boat-based camping at the eastern end of Searipple Passage, and whether such an opportunity could be offered as part a commercial operator licence.

Open fires

Campfires provide a focal point for social interaction, and to many visitors are an integral part of many visitors' camping experience. However, the collection of firewood and escapes from campfires is a concern. Firewood removal has detrimental effects on natural ecosystems, including loss of vegetation cover and a reduction in habitat. The area around fireplaces also suffers from vegetation loss and compaction, the accumulation of ash and the failure of groundcover to regenerate where there have been continuous open fires. Sites impacted by open fires and firewood

collection can take many years to recover and regenerate. Consequently the collection of firewood within the proposed reserve will be prohibited.

To prevent further degradation to environmental values, it is proposed to ban campfires in all areas except:

- where firewood and campfire rings are provided at serviced camping areas (i.e. not those on long distance walking trails);
- when part of a authorised guided tour; and
- in accordance with Ngarda-ngarli use of the reserve as proposed in Section 15 – Use of the Reserve by Ngarda-ngarli.

Objective

1. To protect the habitat value of fallen timber by prohibiting campfires except in controlled circumstance.

Strategies

- Provide fire rings and firewood at serviced camping areas.
- Permit campfires when authorised as part of an organised tour or in accordance with Ngarda-ngarli use of the reserve.

14.7 Visitor services

Rubbish collection

The number of visitors to the proposed reserve will increase dramatically with the construction of the road and facilities proposed in this management plan. To date, visitors have been responsible for taking their own rubbish out with them. While this will continue to be encouraged, a rubbish collection service will be required for the visitor centre, café and accommodation areas.

Objective

1. To maintain the proposed reserve is free of rubbish.

Strategies

- Provide central rubbish collection points (including recycling facilities) and/or encouraging visitors to remove their own litter.

Barbecues

It is proposed to supply gas barbecues at the major day use sites at Conzinc Bay and the serviced accommodation areas (see also section 14.6 Recreational Use – Open Fires) in order to prevent the use of illegal campfires for cooking, and to provide a convenient service to visitors to the Burrup.

Objective

1. To prevent degradation to the natural values of the Burrup and to provide high quality services to visitors.

Strategies

- Install gas barbecues at the Conzinc Bay day visitor sites and serviced accommodation areas.

Water supply

Water is a rare and precious commodity on the Burrup Peninsula (see Section 13.2 Hydrology). Mains water is provided to the Woodside LNG facility on Withnell Bay, and it is possible to extend the system to the visitor centre site although no costings have yet been done. Other options for water supply include:

- bore water (although the fractured rock aquifers on the Burrup are very localised systems with little regional flow);
- rainwater from catchment tanks; and
- desalinated water.

The amount of water required will depend on the accommodation option(s) chosen and their design, and the design and function of the visitor centre. Irrespective of which option is chosen, all facilities will be designed to achieve the highest level of water conservation.

Objective

1. Achieve the highest standards in water conservation in the design, construction and operation of all facilities and infrastructure.

Strategies

- Ensure that the scarcity of water is mentioned on any information for the proposed reserve, and inform day visitors of the need to bring their own water supplies for the duration of their stay.
- Design all buildings and surrounds to harvest rainwater and limit water consumption with water-efficient ablution systems (including considering the use of composting toilets).
- Consider water supply options for the proposed reserve once the level and type of facility development is known.

Power supply

Mains power is currently provided as far as the Woodside LNG facility on Withnell Bay. The provision of power from this point to the visitor centre at least will need to be carefully considered, as the visitor centre site has been chosen based largely on its natural viewsheds. Alternative power sources—including generators, battery banks, wind turbine, solar and gas—will be investigated so as not to impinge upon these views. Other factors to be considered will be establishment, maintenance and running costs.

Objective

1. To provide a cost-efficient power supply to facilities while protecting the aesthetic qualities of the proposed reserve.

Strategies

- Investigate the most appropriate power supply for facilities on the proposed reserve, taking into consideration the protection of aesthetic values, establishment costs and ongoing running costs.

14.8 Visitor safety

The ABC will have a legal responsibility to consider the personal safety and welfare of visitors to the proposed reserve. DEC has developed a visitor risk management policy that provides for the carrying out of periodic safety audits of all recreation sites, facilities and visitor services.

The main risks associated with recreation on the proposed reserve are the lack of water and high temperatures for long distance walkers.

Risks within the park are not restricted to recreation activities. There is also a significant risk to drivers from wildlife crossing roads at night. A number of options exist to minimise the number of accidents, including:

- reducing the legal speed on the road;
- ensuring adherence to the existing speed limit; and
- educating users to be more cautious when travelling between dusk and dawn.

It is proposed to work with industry and other agencies through the Burrup Industrial Park Coordinating Committee to reduce accidental deaths and other interference with wildlife, and to ensure fencing and other infrastructure works are planned and constructed to limit the impact on native fauna.

Objective

1. The objective is to minimise risks to public safety while maintaining a range of visitor experiences wherever possible.

Strategies

- Implement a visitor risk management program.
- Provide information to enable visitors to consider and cater for risks associated with their activities.
- Install wildlife warning signs at appropriate locations.



Right: North Burrup Gorge.
Photo – Stewart Caves

14.9 Communicating with the public

One of the objectives of the Ngarda-ngarli owners of the proposed Burrup Peninsula Conservation Reserve is to build among non-Indigenous people a sense of pride and responsibility for the Ngarda-ngarli land they are now living on. It is hoped that visitors to the reserve will leave feeling privileged to have visited such a special site. Ngarda-ngarli feel this is best achieved through ongoing communication, which could be achieved via staff-led interpretive experiences on-site, through information and interpretation provided at key sites on the proposed reserve (e.g. the visitor centre), or other mediums. Local people will also have the opportunity to put forward ideas and comments to the management council. Sustainable management of the proposed reserve will largely be determined by the ability of management to communicate its objectives and win the support of the people using the area. Gaining the support and cooperation of this group will be the highest communication priority for reserve managers as it is so critical to long-term security and protection of the reserve. The enormous volume of engravings, sites and archaeological materials, and the lack of comprehensive data on this, makes protection through regulation impossible.

The Ngarda-ngarli owners of the proposed Burrup Peninsula Conservation Reserve would like all visitors to the area to leave with the following key messages regarding the values of their country:

- The Burrup Peninsula Conservation Reserve contains one of the world's great archaeological and cultural heritage treasures.
- This country is a record of the history and the lives of the Traditional Custodians over tens of thousands of years and is alive with the spirits of these ancestors today.
- The Ngarda-ngarli custodians of the reserve welcome visitors to enjoy and learn from their country and culture.

Objectives

1. To increase awareness, greater appreciation and understanding of Ngarda-ngarli culture among visitors and the local community.

2. To provide for visitors with a wide range of abilities and interests.
3. Ngarda-ngarli people and concepts are at the forefront of information and interpretive services in the reserve.

Strategies

- Prepare a communication plan for the proposed reserve, which considers all aspects of public communication, interpretation and information.
- Continue to work with Ngarda-ngarli to record stories and knowledge about the country for interpretation and information products.
- Promote and encourage direct contact between Ngarda-ngarli and visitors.
- Follow established DEC standards and style in presentation of information and signage.
- Maximise the number of staff directly engaging with visitors, as resources permit.
- Seek advice from the Ngarda-ngarli members of the management council regarding Aboriginal cultural information used in public communications.
- Encourage and support the development of Ngarda-ngarli employment and enterprise opportunities in interpretation, guiding and other visitor services.

14.10 Firearms

Firearms and other hunting equipment including crossbows, traps and nets will not be permitted in the proposed reserve.

Due to safety concerns, Ngarda-ngarli wishing to use firearms in the proposed reserve for hunting will be required to make prior arrangements with reserve management (see also section 15.1 Use of the Reserve by Ngarda-ngarli – Hunting and Fishing). Any weapons used must be properly licensed and the hunter must agree to hunt in areas specified by management.

Objective

1. To prevent the use of firearms on the proposed reserve by members of the public.

Strategies

- Prohibit the use of firearms on the reserve by members of the public.
- Provide information at key points alerting visitors to the ban on firearms.

14.11 Pets

Pets will be not permitted within the proposed Burrup Peninsula Conservation Reserve due to the potential negative impact of domestic animals on native wildlife. The poison used to control foxes (1080) is also lethal to domestic dogs. Dogs are currently allowed at Hearson Cove, which is managed by the Shire of Roebourne.

Exceptions will apply to seeing-eye or hearing dogs, or where individuals can verify they require a companion animal for medical/therapeutic reasons.

Objective

1. Protect the reserve and visitors from the impact of domestic animals.

Strategies

- Prohibiting dogs and other domestic animals entering the parks.

15 Use of the reserve by Ngarda-ngarli

One of the major benefits of Aboriginal freehold title to the proposed Burrup Peninsula Conservation Reserve is that Ngarda-ngarli will be able to re-establish their connections with this country. Pastoral, mining or government interests have taken up much of the traditional country of Ngarda-ngarli. These tenures have not always been welcoming of Ngarda-ngarli nor been compatible with continued access and use. The proposed reserve will allow and

encourage Ngarda-ngarli to enjoy the full benefits of ownership of this significant area.

Access to and use of country has important cultural and social benefits for Ngarda-ngarli. It provides opportunities for contact between generations and the transfer of knowledge, stories and skills.

With the ownership of the Burrup Peninsula Conservation Reserve goes both rights and responsibilities for Ngarda-ngarli. They will have access to places and resources that others will not but they will also be accountable for the long-term protection of the area's unique values and the safety and enjoyment of the visitors to the area. As owners they welcome non-Aboriginal visitors to their country and agree that considerable resources need to be spent on visitor facilities over the life of this management plan. Visitors should understand they are welcome guests on Aboriginal land and as such should respect the land and its people, take nothing away and doing no harm.

Ngarda-ngarli may from time to time wish to conduct ceremonial or religious activities or for other reasons need to limit access by non-Aboriginal people to the reserve or parts of it. In such circumstances, every effort will be made to inform the public well in advance.

15.1 Hunting and fishing

Aboriginal rights to utilise native species for food, cultural and family reasons are enshrined in national and State legislation. In WA, this includes, for the most part, protected areas such as national parks. These rights have been further reinforced through the Burrup and Maitland Industrial Estates Agreement. This management plan recognises and supports the continuing rights of eligible Ngarda-ngarli to hunt, fish and collect natural resources from within the proposed reserve.

Use of biological resources and the profound knowledge of the living environment are both aspects that define what it means to be Ngarda-ngarli. The associations between Ngarda-ngarli and wildlife go back many thousands of years and are very deep. Ngarda-ngarli supports the management objective of

the proposed reserve to conserve native wildlife and does not see a conflict between this and the right of Ngarda-ngarli to hunt and gather their traditional resources. Traditional resource use is a management issue that, like others, will be monitored and modified if found to be having a negative effect on particular species or the environment.

It is probable that the only hunting that will occur on the proposed reserve, if any, will be very infrequent and for ceremonial purposes only. Ngarda-ngarli recognise that there are safety and public perception issues with hunting in close proximity to visitors on a conservation reserve. As a consequence, hunting by Ngarda-ngarli with firearms will only occur when the absolute safety of visitors can be guaranteed. This may mean that, after prior arrangement with reserve management, hunting occurs:

- at off-peak periods;
- when the reserve has been closed to the public; or
- in areas where visitors are not permitted.

This approach addresses public safety, assists with monitoring and will ensure that only local Ngarda-ngarli with connections to the area will be able to enjoy traditional resource rights.

However, harvesting of plant resources and fishing will remain popular activities pursued by Ngarda-ngarli visiting their country.

The *Indicative Management Plan for the Dampier Archipelago Marine Park and Cape Preston Marine Management Area* proposes to establish two sanctuary zones adjacent to the proposed Burrup Peninsula Conservation Reserve. These are areas where fishing is prohibited (see section 14.6 *Recreational Use – Fishing*). Ngarda-ngarli respect the concept of sanctuary zones and their purpose, but insist that their rights to custodial use of lands and waters persist.

Objectives

1. To support the transfer of Ngarda-ngarli traditional ecological knowledge and cultural continuity by encouraging the sustainable use and management of traditional resources.

2. To respect and support the right of Ngarda-ngarli to use natural resources (including plants and animals) in accordance with their tradition.

Strategies

- Ensure that any weapons and hunters adhere to relevant firearm legislation.
- Ensure that the use of firearms for traditional hunting is controlled and safe for all users of the proposed reserve.
- Ensure that all Ngarda-ngarli wishing to use firearms in the reserve make prior arrangements with reserve management.
- Maintain a register of all eligible persons with rights to hunt and otherwise access natural resources from within the reserve.
- Place limits on the type and number of species to be taken to ensure sustainability.
- Explain any issues relating to traditional resource use in public information and interpretation material.

15.2 Camping and living areas

For the life of this management plan, Ngarda-ngarli members of the advisory committee have determined they will not establish any permanent living areas in the proposed reserve. However, the requirement for staff to live on-site to service tourism needs and for security purposes will need to be considered as part of the assessment of the business opportunities generated by the potential options for the visitor centre and other possible tourism services. The siting of any staff accommodation should consider visitor servicing needs, staff privacy and landscape values.

There is some interest in establishing one or more serviced camping areas for the exclusive use by Ngarda-ngarli during the life of the plan. Being away from the main visitor destinations is important for Ngarda-ngarli privacy and comfort. Establishing Ngarda-ngarli camping area(s) would enable a wide range of people to enjoy the area and build a stronger sense of Ngarda-ngarli community ownership.

In the meantime, Ngarda-ngarli wishing to camp away from the designated camping area will be able to do so through arrangements with reserve management.

Objectives

1. To establish at least one serviced camping area for the exclusive use of 'eligible persons' and their family and friends.
2. To encourage regular use and enjoyment of the Burrup Peninsula Conservation Reserve by Ngarda-ngarli.

Strategies

- Consider the requirement for on-site staff accommodation as part of the assessment of business opportunities generated by the potential options for the visitor centre and other possible tourism services.
- Identify at least one suitable Ngarda-ngarli camping area with basic facilities away from main visitor destinations.
- Promote the use of the proposed reserve among Ngarda-ngarli for their enjoyment and to maintain culture.

16 Ngarda-ngarli employment and training

Direct Ngarda-ngarli employment in the management and protection of the proposed Burrup Peninsula Conservation Reserve is a central element of joint management and one of the benefits Ngarda-ngarli negotiated under the Burrup and Maitland Industrial Estates Agreement.

The Aboriginal owners of the proposed reserve place the highest value on 'proper jobs' (i.e. full-time permanent positions with the conditions, security and authority associated with public sector employment). The level of funding negotiated in the Burrup and Maitland Industrial Estates Agreement for the first five years of management is adequate to fund four full-time positions. Since then, additional funding has

also been allocated by the State to establish a further three positions. At this stage, it is envisaged that staffing will comprise one senior DEC ranger and four Ngarda-ngarli trainees (ideally being at least one trainee from each claimant group) funded through DEC as the agency jointly responsible for management, and two Department of Indigenous Affairs officers. A key principle underlying the Burrup agreement is that all parties should be working towards full Ngarda-ngarli control and management of the proposed reserve over time. This should occur gradually as individuals develop the necessary qualifications, confidence and experience.

There will be limitations on the number of permanent positions available in the proposed reserve, at least during the establishment phase. Much of the work associated with the proposed reserve is also seasonal and reliant on commercial development, such as in the area of tourism and visitor services. Other work opportunities will be out-sourced as contracts for construction or environmental projects in accordance with this management plan. Consistent with the Burrup and Maitland Industrial Estates Agreement, it is the intention of this plan to direct employment opportunities to Ngarda-ngarli individuals and enterprises (see also section 17, *Commercial opportunities*).

Objectives

1. To maximise the employment and training opportunities for Ngarda-ngarli arising from the ownership and joint management of the proposed Burrup Peninsula Conservation Reserve.
2. To encourage and support Ngarda-ngarli enterprises through the visitor centre and other visitor and tourism services.

Strategies

- Develop a recruitment policy and selection criterion tailored to the requirement of maximising Ngarda-ngarli employment (e.g. take into account flexibility, part time, seasonal and contract work).

- Ensure that the ABC has a proactive role in staff selection for all positions in the reserve including those funded through DEC.
- Encourage Ngarda-ngarli individuals and companies to tender for contracts arising from the implementation of this plan.
- Ensure that all contractors working in the reserve demonstrate a sensitivity to, and awareness of, Aboriginal cultural values associated with the reserve, or are willing to undertake such training at their own expense, by making it part of the selection criteria.
- Liaise with the employment service provider (see section 19.4 Role of other parties) to identify employment and enterprise opportunities and link these to training leads.

17 Commercial opportunities for Ngarda-ngarli

Awareness of the proposed Burrup Peninsula Conservation Reserve will increase with active promotion, and with improved visitor access and services the reserve is likely to become a major tourist destination in the Pilbara. The Aboriginal ownership of the proposed reserve and a central role in joint management ensures that Ngarda-ngarli will have opportunities to establish commercial enterprises based on tourism, cultural and natural resource management.

Commercial tourism and visitor services play an important part in promoting the reserve and helping visitors to enjoy their stay.

The responsibility for identifying and developing enterprise opportunities rests with Ngarda-ngarli individuals, organisations and the ABC. However, in order for the ABC, and the management council, to properly administer commercial activities, it must avoid any conflict of interest and remain at arm's length from commercial operations. The management council has the responsibility to ensure commercial activities are consistent with management objectives and may, at times, be required to regulate or limit such activities.

Examples of the kinds of enterprises that would be compatible with the objectives of the proposed Burrup Peninsula Conservation Reserve include:

- cultural interpretation and tour guiding;
- environmental protection and rehabilitation;
- recreational equipment hire (e.g. sea-kayaks, bikes);
- café/restaurant;
- shopfront, supplies, drinks, souvenirs;
- visitor fees;
- local arts and crafts; and
- accommodation (e.g. camping, semi-permanent safari tents).

Objectives

1. To create an environment where Ngarda-ngarli enterprises can develop and grow with increased public access and enjoyment of the reserve.
2. To support and provide advice to Ngarda-ngarli commercial enterprises which are based on the sustainable use and enjoyment of the proposed Burrup Peninsula Conservation Reserve.

Strategies

- Maximise opportunities for Ngarda-ngarli to apply for commercial contracts that may be periodically identified.
- Encourage Ngarda-ngarli individual and groups to identify commercial opportunities through sustainable use of the proposed reserve, and provide a forum for the management council to consider these ideas.
- Encourage and support Ngarda-ngarli employment and enterprise in a wide range of tourist and visitor services.

17.1 Marketing

The success of commercial enterprises on the proposed reserve is dependent on a coordinated and targeted approach to marketing. There is little point having well presented and managed facilities and services if no-one knows of their existence.

Promotion of the Karratha area is the responsibility of the Karratha Visitor Centre, with the broader region marketed by Australia's North West Tourism. DEC also has a role in promoting visitation to national parks and other conservation reserves. In the Pilbara, this includes the islands of the Dampier Archipelago, Millstream-Chichester National Park and Karijini National Park.

Objectives

To create a market identity and promote the proposed reserve as a destination in its own right, but also as part of a tourism 'package' in the Pilbara.

Strategies

- Ensure that commercial enterprises developed by Ngarda-ngarli are promoted using high quality information and promotional material in a variety of media for broad distribution across the region.
- Develop and use the Burrup Peninsula Conservation Reserve corporate logo on all promotional and corporate material.
- Liaise with the Karratha Visitor Centre, DEC's Tourism and Marketing Unit (and DEC Pilbara Region staff), and other regional tourism services to promote the proposed reserve as an icon destination and as part of a Pilbara tourism package.

18 Research and monitoring

Research and monitoring are important components of management. Of particular interest to Ngarda-ngarli and the management council will be research that adds to the knowledge, or provides advice and allows adaptive management, of:

- rock art sites;
- the impacts of industry and visitors on rock art (see section 18.1 Rock art monitoring);
- tourist and visitor expectations, satisfaction and impacts;
- sustainable Ngarda-ngarli use of the reserve;
- the use of fire for biodiversity management;

- weeds, in particular those species that threaten areas/species of significant conservation value.

Rock art monitoring

The Rock Art Monitoring Program is designed to determine if there are any long-term impacts of industry emissions on the rock art over and above that due to natural weathering and includes:

- two studies covering the monitoring of ambient concentrations of air pollutants, and microclimate and deposition (atmospheric research); and
- four studies of artificial fumigation of rock surfaces, fieldwork on rock surface colour changes, microbiology and rock mineral characteristics.

The field study component of the projects commenced in 2004.

The Burrup Rock Art Monitoring Committee will meet annually with the ABC to discuss the progress and results of the study. Following completion of the study, the Rock Art Monitoring Committee will report its results and make recommendations regarding those results to the State Government. These results will be made available to the ABC when State Government has reviewed them and decided if any further action is required.

Objective

1. To increase knowledge and understanding of visitor use, natural and cultural values, and the impacts on those values.

Strategies

- Seek funding to conduct research, and encourage research by others, focusing on those areas listed above.
- Collaborate with the Burrup Rock Art Monitoring Management Committee over the rock art monitoring program currently underway.



19 Joint management on the Burrup Peninsula Conservation Reserve

19.1 Operation of the management agreement and management council

Funding for operating the management council and management of the proposed reserve will be provided by the State through DEC or any other relevant department.

The functions and responsibilities of the management council members are listed below:

- Members will be responsible for electing a chairman from among their number on each anniversary of the commencement date of the management agreement.
- Decisions will be reached by consensus in keeping with the partnership principles that underpin the management agreement.
- The management council will meet regularly and as required but no less than three times per year.

- The management council can invite other persons to meetings, especially where specialist advice or technical information is required to inform decision making.
- Other persons wishing to attend meetings as observers, or to put issues to the council may do so but will require prior approval by the chairman. Generally, requests to attend management council meetings should be put in writing to the chairman at least 21 days before a meeting.
- The management council may occasionally appoint committees comprising its own members or others to investigate and advise on matters as the management council sees fit.
- The management council can only make decisions that are consistent with the management plan.

The Karratha office of DEC will provide secretariat services for the management council. Meetings will be held either in Roebourne or Karratha until suitable facilities are established on the proposed reserve (e.g. at the visitor centre).

Above: DEC staff and Ngardi-ngarli community members working together on the Burrup.
Photo – Bill Carr

19.2 Additional staffing

Ngarda-ngarli are very conscious of their responsibility for the protection of the internationally significant cultural heritage values of the Burrup Peninsula. They want the highest standards of recording and protection of sites and materials in place both on their freehold land inside the reserve and the adjacent Burrup industrial lands. In addition to the employment opportunities identified in section 16 (Ngarda-ngarli employment and training), there will be a need in the long-term to provide additional staff to meet visitor demands. This could be done either as employment through the ABC, or possibly as licensed operations to outside parties.



Left: Walking along a north-east Burrup gorge.

Photo – Stewart Caves

19.3 Role of DEC

DEC will be the lessee and joint manager of the proposed Ngarda-ngarli-owned Burrup Peninsula Conservation Reserve. DEC has the responsibility and authority to undertake day-to-day management and implement the management plan under the guidance of the management council. It is intended that Ngarda-ngarli officers employed by DEC will have powers under the CALM Act to enforce all relevant laws and regulations to ensure the protection of the significant values of the reserve. This role is consistent with that which DEC plays in other protected areas across the State, except that in those cases they are the managers of land vested in the Conservation Commission, rather than owned by an Aboriginal corporation.

As a result of the Burrup and Maitland Industrial Estates Agreement, DEC will have the major responsibility for ensuring the State's commitments under the Burrup Agreement are carried out. Funding agreed under the agreement for management of the reserve, staffing, and the development of infrastructure will be transferred to DEC and administered by them for the purposes outlined in the agreement. DEC will also have a significant role in training and supporting its Ngarda-ngarli joint management partners to maximise Ngarda-ngarli employment and participation in all aspects of management of the proposed reserve.

19.4 Role of other parties

Maintaining good relations with other government and private sector organisations in the region, and the broader community, is a high priority for reserve management. This approach will foster a sense of ownership and shared responsibility across the community for the protection of the unique values of the proposed Burrup Peninsula Conservation Reserve.

The **Conservation Commission of WA** is normally the vesting body for conservation reserves in WA, including many of the islands of the Dampier Archipelago. The functions of the Commission include:

- to be an advisory and policy development body to the Minister for the Environment;
- to submit management plans for vested lands to the Minister;
- to develop policies to protect the State's natural environment and for the appreciation and enjoyment of that environment by the community;
- to promote and facilitate community involvement; and
- to advise the Minister on the management of flora and fauna.

Although not having a statutory role in this management plan, the Conservation Commission of WA is particularly interested in the protection of

environmental values and the provision of recreation and tourism opportunities in the context of management of the Dampier Archipelago islands.

The **Shire of Roebourne** has been very supportive of the establishment of the proposed Burrup Peninsula Conservation Reserve, Aboriginal ownership and joint management. The shire will provide a range of services that will contribute to the management, access and enjoyment of the Burrup Peninsula Conservation Reserve. The Hearson Cove beach area is vested in the shire, which has full responsibility for the development and maintenance of the area, including picnic and ablution facilities, access and parking, safety and rubbish removal.

The shire will also maintain other areas outside the proposed reserve area, including the Withnell Bay boat launching area and the track leading to the proposed Mt Wongama lookout on the Woodside lease.

From time to time the Shire of Roebourne will be engaged to undertake specific works within the proposed reserve such as track maintenance and other infrastructure projects.

As a means to ensure on-going dialogue and understanding, it is intended that a standing invitation be extended to the shire to attend management council meetings as observers.

The **Department of Indigenous Affairs (DIA)** will provide training, advice and, if necessary, enforcement capability in the area of Indigenous heritage protection. DIA will assist with the physical protection of some heritage sites through signage and erection of barriers where such areas may be under threat. They will also provide a link between the heritage management issues within the proposed reserve and similar issues in the adjacent industrial lands.

The Minister for Indigenous Affairs will nominate a representative of the DIA to the management council and if required will work together with the Minister for Environment to resolve unresolved matters.

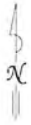
The **Rock Art Monitoring Committee** was established to monitor the impact of industrial emissions of the rock art of the Burrup Peninsula. Some of the monitoring sites are within the proposed reserve and the management council will have a particular interest in these sites. The management council will request that the Rock Art Monitoring Committee provide a written annual report on the activities and findings of the Rock Art Monitoring Program. A representative of the Rock Art Committee may also be asked to provide interim briefings to the management council from time to time.

The **Department of Employment and Training (DET)** received funds under the Burrup and Maitland Industrial Estates Agreement to contract an employment service provider to facilitate the training and placement of Ngarda-ngarli into employment in the region. The large industry players in the region have their own largely effective Aboriginal employment strategies and commitments in place. Once appointed, the DET-funded employment service provider should be able to provide other opportunities including small business and sectors such as in tourism and hospitality, retail and environmental/land management services.

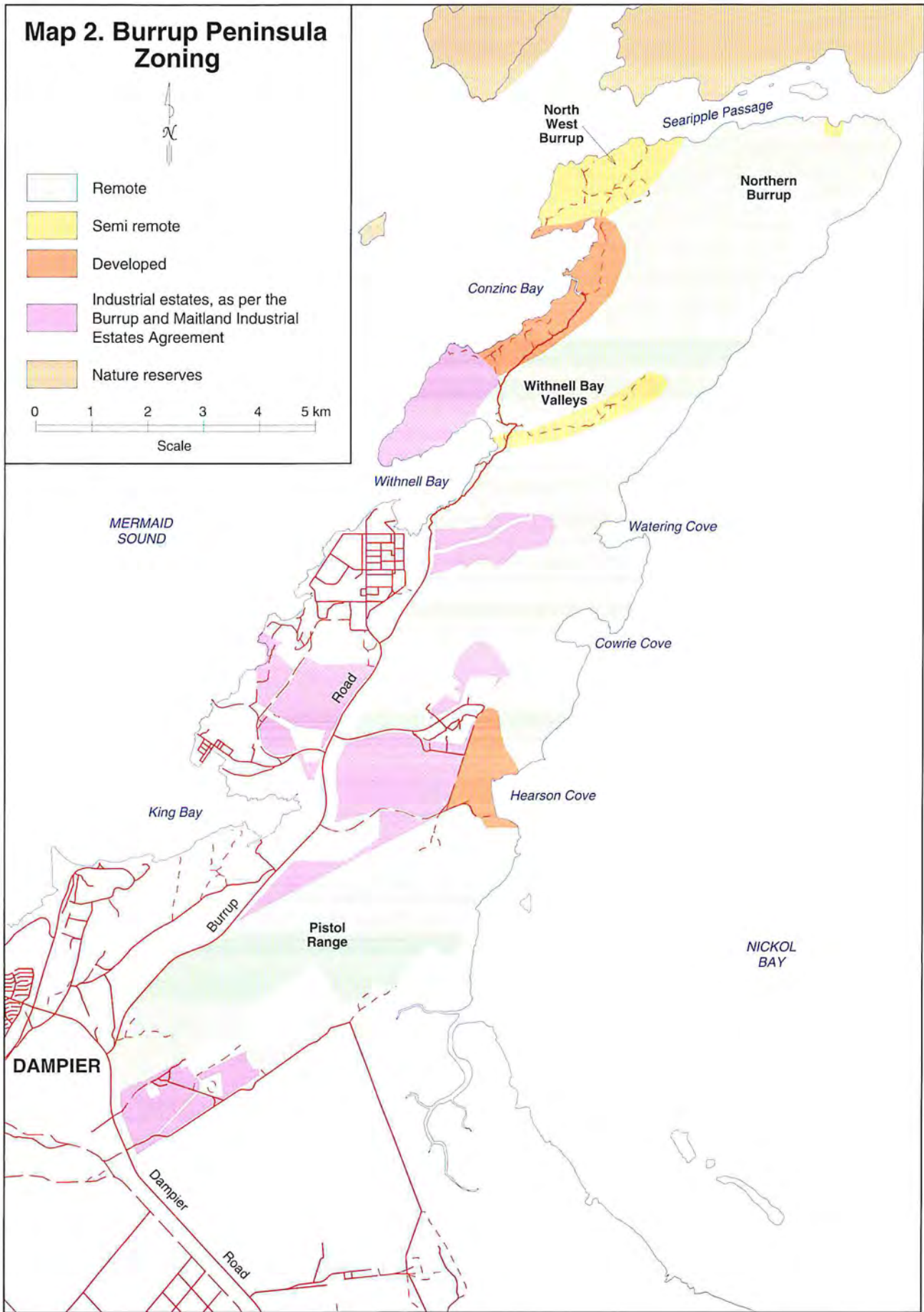
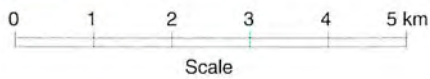
Regular and open dialogue between reserve management and industry neighbours on the Burrup Peninsula needs to be established at both a formal and informal level. At the formal level, the management council needs to develop a cooperative relationship with the Burrup Industrial Park Coordinating Committee and the Burrup Management Coordination Council. Each body should report to the other at regular intervals and consideration should be given to cross membership of the former two at least.

Staff employed to work on the proposed reserve should provide briefings on the objectives and values of the reserve for all employees and contractors engaged by industry as part of their induction/orientation.

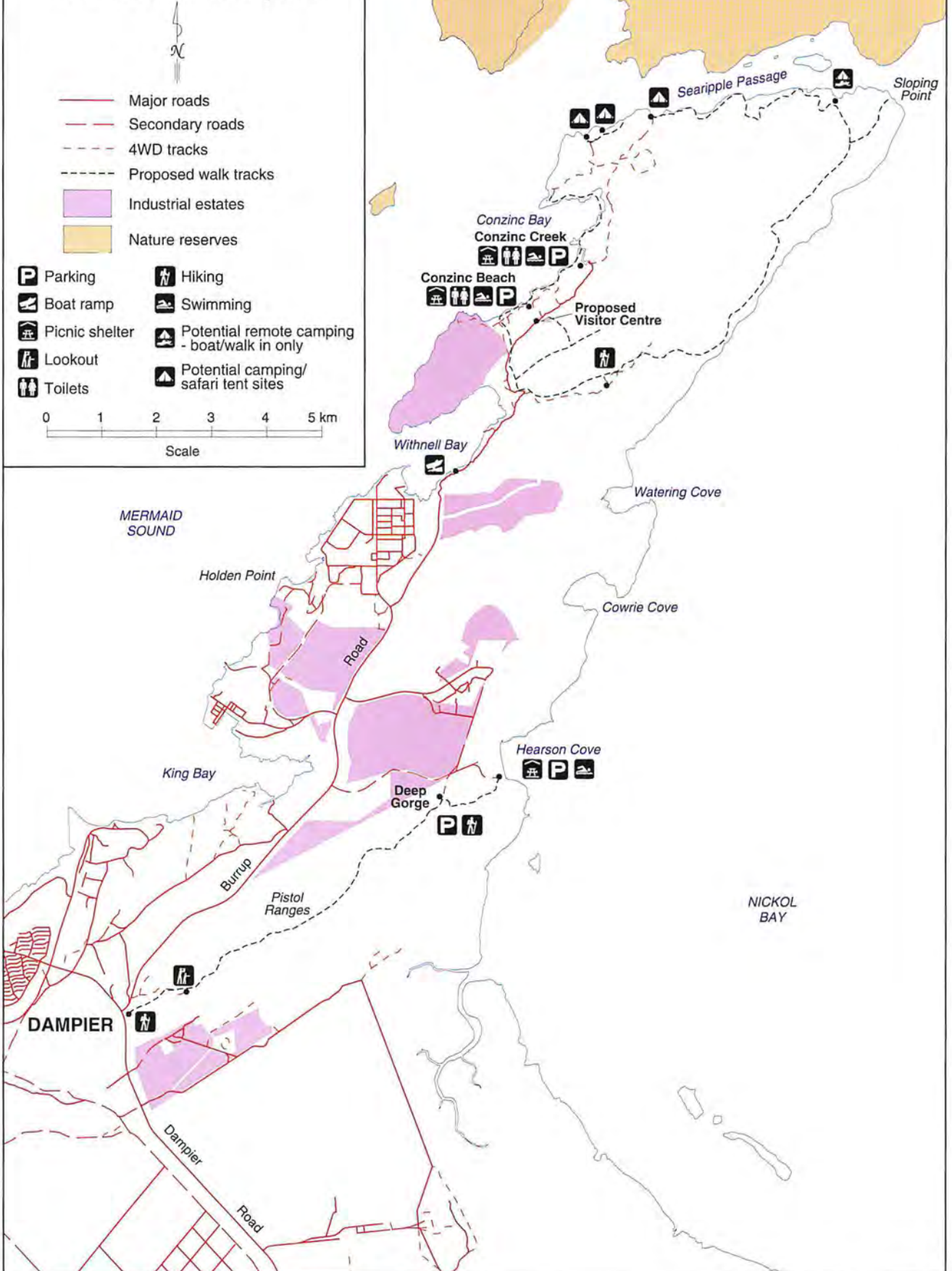
Map 2. Burrup Peninsula Zoning



- Remote
- Semi remote
- Developed
- Industrial estates, as per the Burrup and Maitland Industrial Estates Agreement
- Nature reserves



Map 3. Burrup Peninsula Recreation Masterplan





Definitions

DEC	The Western Australian Department of Environment and Conservation.	Protection and Biodiversity Conservation Act 1999.
CALM	The Western Australian Department of Conservation and Land Management which merged with the Department of Environment on 1 July 2006 to become the Department of Environment and Conservation.	Aboriginal site For the purposes of the AHA is contained in section 5 as follows:
Ngarda-ngarli	The name Aboriginal people call themselves in this part of the Pilbara.	a) any place of importance and significance where persons of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made or adapted for use for, any purpose connected with traditional cultural life of the Aboriginal people, past or present;
Interpretation	Explanations of natural and cultural features of the reserve.	b) any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent;
Petroglyphs	Images carved, pecked or scraped into a rock surface.	c) any place which, in the opinion of the Committee, is or was associated with the Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State; and
Igneous	Formed by the action of great heat within the earth.	d) any place where objects to which this Act applies are traditionally stored, or to which, under the provisions of this Act, such objects have been taken or removed.
Biodiversity	The number and variety of organisms living within a particular geographic area.	
NES	National Environmental Significance – as defined under the Commonwealth Environment	



Below: An edible mollusc.

Photo - Laurina Bullen, DEC

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Below: One of the Burrup's many rock piles.
Photo – Laurina Bullen, DEC



Appendix 1.

Excerpt from the Burrup and Maitland Industrial Estates Agreement Implementation Deed

4.5 Management Plan

- (a) The State will expend an amount of \$500,000 for the preparation of the draft management plan in accordance with this clause 4.5 (including the costs of the Consultant). The State and the Contracting Parties agree that Mr. Stephen Szabo (or if Mr Szabo is unavailable, another person agreed between the State and the Contracting Parties) will be engaged by the State, as soon as practicable, in consultation with the Contracting Parties, as an independent consultant to prepare a draft management plan intended to be the first management plan under the Management Agreement (“**Consultant**”).
- (b) The State and the Contracting Parties agree that the Consultant will be required to:
- (i) prepare a draft management plan in accordance with clause 4.5(c);
 - (ii) consult with the State, the Native Title Parties, the community, the relevant local government and any other relevant authorities including, but not limited to, the Conservation Commission;
 - (iii) provide an opportunity for the views of the State, the Native Title Parties, the community, the relevant local government and any other relevant authorities including, but not limited to, the Conservation Commission, to be formally submitted to the Consultant for his consideration;
 - (iv) in the preparation of the draft management plan, take into account the views of the State, the Native Title Parties, the community, the relevant local government and any other relevant authorities including, but not limited to, the Conservation Commission;
 - (v) have regard to the views of the members of the advisory committee established under clause 4.5(d); and
 - (vi) do all things reasonably necessary to allow the advisory committee established under clause 4.5(d) to perform its functions.
- (c) The State and the Contracting Parties agree that the draft management plan will provide for the following matters having regard to any national and international heritage and environmental agreements which bind the State, treaties which bind the State, all laws and Government policies, the terms of the Lease, and the Deed of Covenant or the conditions referred to in clause 4.4A(b)(vi), as the case may be:
- (i) the preservation and promotion of the Aboriginal cultural and heritage values of the Burrup Non-Industrial Land;
 - (ii) the preservation and promotion of the natural and environmental values of the Burrup Non-Industrial Land, including indigenous flora and fauna;
 - (iii) the preservation and promotion of the archaeological values of the Burrup Non-Industrial Land;
 - (iv) the provision of public recreational facilities and the facilitation of recreational activities on the Burrup Non-Industrial Land, to fulfill so much of the demand for recreation by members of the public as is fitting taking account of the matters set out in clauses 4.5(c)(i), (ii), (iii) and (vi);
 - (v) the regulation of public access having regard to the matters set out in clauses 4.5(c)(i), (ii), (iii) (iv) and (vi);
 - (vi) the use of the Burrup Non-Industrial Land by the Approved Body Corporate and its members from time to time in accordance with traditional laws and customs acknowledged and observed by the members of the Approved Body Corporate;
 - (vii) the use of the Burrup Non-Industrial Land by the Approved Body Corporate and its members from time to time consistent with the matters set out in clauses 4.5(c)(i) to (v);

- (viii) employment and training opportunities for the Approved Body Corporate and its members within and in relation to the Burrup Non-Industrial Land;
 - (ix) commercial opportunities for the Approved Body Corporate and its members within the Burrup Non-Industrial Land;
 - (x) the provision and construction of the Burrup Non-Industrial Land Buildings and the Burrup Non-Industrial Land Infrastructure;
 - (xi) provision of fencing;
 - (xii) creation of vehicular tracks and roads, and walking and cycling trails and pathways;
 - (xiii) provision of firebreaks, fire control and carrying out of prescribed burning;
 - (xiv) erection of signage;
 - (xv) construction of public conveniences and other public facilities;
 - (xvi) weed and feral animal control;
 - (xvii) restriction or prohibition of access for protection of culturally significant sites, or for safety, cultural or conservation purposes;
 - (xviii) the intended term of the management plan which may include provisions relating to the renewal or extension of the term;
 - (xix) the periodical review of the management plan;
 - (xx) the identification of management strategies relating to the use and management of the Burrup Non-Industrial Land;
 - (xxi) the respective management roles of the Approved Body Corporate and CALM in relation to the Burrup Non-Industrial Land in accordance with the principles of joint management as set out in the Management Agreement; and
 - (xxii) such other matters as the Contracting Parties and CALM may agree.
- (d) The State must establish an advisory committee within forty-five (45) days after the engagement of the Consultant under clause 4.5(a), in accordance with this clause
- (i) the advisory committee will consist of members as agreed between the State and the Contracting Parties;
 - (ii) the members of the advisory committee will have the following functions:
 - (A) review all information provided by the Consultant in relation to the draft management plan;
 - (B) provide the advisory committee members' views to the Consultant in respect of the information provided by the Consultant and in respect of such other matters as the advisory committee members consider relevant; and
 - (C) assist the Consultant in the preparation of the draft management plan;
 - (iii) each member is entitled to provide his or her views to the Consultant and no consensus is required;
 - (iv) no quorum is required for any meeting of the members of the advisory committee; and
 - (v) the advisory committee must meet with the Consultant from time to time but not less than once every three (3) months.
- (e) Unless the State and the Contracting Parties otherwise agree, the draft management plan must be completed and provided to the State and the Contracting Parties within eighteen (18) months of the date of appointment of the Consultant.
- (f) The State and the Contracting Parties shall endeavor to agree the terms of a management plan based on the draft management plan prepared by the Consultant.
- (g) If the State and the Contracting Parties are unable to agree the terms of the management plan within three (3) months of the date the draft management plan is provided in accordance with clause 4.5(e), then the Minister for Environment and Heritage shall, in consultation with the Minister for Indigenous Affairs, determine the terms of the management plan.

Appendix 2.

Management Agreement

THIS AGREEMENT is made the
day of 2002

BETWEEN

THE STATE OF WESTERN AUSTRALIA (State)

AND

THE APPROVED BODY CORPORATE (ABC)

AND

THE EXECUTIVE DIRECTOR of the
DEPARTMENT OF CONSERVATION AND
LAND MANAGEMENT (Executive Director)

RECITALS

- A. The ABC is the registered proprietor of the Land and lessor of the Land under the Lease.
- B. The State is the lessee of the Land under the Lease.
- C. Under section 16 of the *Conservation and Land Management Act 1984* (WA), the Executive Director may enter into agreements with the owner, lessee or licensee of any land for the management of that land by the Department of Conservation and Land Management as a State forest, timber reserve, national park, conservation park or a nature reserve or as part of a marine reserve, or for some other public purpose.
- D. The ABC and the State have agreed by the Lease for the Land to be leased by the ABC to the State, and for the Land to be managed jointly by the ABC and the Department of Conservation and Land Management on the terms and conditions contained in this Agreement.
- E. The members of the ABC aspire to assume sole responsibility for management of the Land in the long term for the Executive Director. The State supports and encourages that aspiration through the management capabilities and experience that will be acquired by the ABC under this Agreement.

THIS AGREEMENT WITNESSES

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement unless the contrary intention appears:

Agreement means this Agreement as may be varied or replaced from time to time.

Authority means Federal, State or local government, government department, instrumentality or authority, statutory body or agency, Court, tribunal, official acting under any written law, or other public body or authority of any kind.

Burrup Non-Industrial Land has the meaning as that term is defined under the Section 31 Agreement.

Business Day means any day not being a Saturday, Sunday or public holiday in Western Australia.

CALM Act means the *Conservation and Land Management Act 1984* (WA).

Conservation Commission has the same meaning as in the CALM Act.

Contracting Parties means the persons who are defined as such in the Section 31 Agreement.

Council members means the members of the Management Council from time to time.

Covenants means the Deed of Covenant and any other restrictive or positive covenants registered on the certificate of title to the Land from time to time that are consented to by the State as lessee of the Land.

Deed of Covenant means the Deed of Covenant between the Lessor as registered proprietor of the Land and the Minister for Lands dated on or about the date of this Lease and which is to be registered on the certificate of title to the Land before the registration of this Lease.

Department has the same meaning as in the CALM Act.

Industrial Estate has the meaning given to that term under the Section 31 Agreement.

Land means the Burrup Non-Industrial Land.

Lease means the lease of the Land by the ABC as lessor to the State as lessee made on or about the same date as this Agreement.

local government has the same meaning as in the *Interpretation Act 1984* (WA).

Management Council means the Management Council comprised from time to time under clause 6.

Management Plan means the Management Plan current from time to time in respect of the Land under clause 5.

Minister for Environment and Heritage means the Minister for the time being responsible for the administration of the Conservation and Land Management Act 1984 (WA).

Minister for Indigenous Affairs means the Minister for the time being responsible for the administration of the *Aboriginal Heritage Act 1972* (WA).

Party means a party to this Agreement and Parties means all of them.

Section 31 Agreement means a deed entitled Burrup and Maitland Industrial Estates Agreement dated [XX] 2002, entered into by the State of Western Australia, the Contracting Parties and others, which has been adopted by the ABC by deed dated [XX].

Term means the term of this Agreement specified in clause 3.1, as may be extended or renewed from time to time, under clause 3.2.

1.2 Interpretation

In this Agreement, unless the contrary intention appears -

- (a) words importing the singular include the plural and vice versa;
- (b) words importing any gender include the other genders;
- (c) references to persons include corporations;
- (d) references to a person include the legal personal representatives, successors and assigns of that person;
- (e) a reference to a statute, ordinance, code, or other law includes regulations, by-laws, rules and other statutory instruments under it for the time being in force and consolidations, amendments, re-enactments, or replacements of any of them (whether of the same or any other legislative authority having jurisdiction);
- (f) references to this Agreement or any other instrument include this Agreement or other instrument as varied or replaced, and notwithstanding any change in the identity of the parties;
- (g) references to writing include any mode of representing or reproducing words in tangible and permanently visible form, and include e-mail and facsimile transmissions;
- (h) an obligation of two or more persons binds them jointly and severally;
- (i) an obligation incurred in favour of two or more persons is enforceable by them jointly and severally;
- (j) if a word or phrase is defined, other parts of speech and grammatical forms of that word or phrase have corresponding meanings;
- (k) references to a person or body which has been reconstituted, amalgamated, reconstructed or merged, or which has ceased to exist and the

functions of which have become exercisable by any other person or body in its place, are deemed to refer to the person or body as so reconstituted, amalgamated, reconstructed or merged, or the person or body by which its functions have become exercisable;

- (l) references to this Agreement include its recitals, schedules and annexures (if any);
- (m) headings are inserted for ease of reference only and are to be ignored in construing this Agreement;
- (n) references to time are to local time in Perth, Western Australia;
- (o) where time is to be reckoned from a day or event, that day or the day of that event is to be excluded;
- (p) references to currency are to Australian currency unless stated otherwise;
- (q) no rule of construction applies to the disadvantage of a party on the basis that that party put forward this Agreement or any part of this Agreement;
- (r) a reference to any thing (including, without limitation, any amount) is a reference to the whole and each part of it, and a reference to a group of persons is a reference to all of them collectively, to any two or more of them collectively and to each of them individually; and
- (s) when the day or last day for doing an act is not a Business Day in the place where that act is to be done, then the day or last day for doing the act will be the next following Business Day in the place where that act is to be done.

2. MANAGEMENT OF THE LAND

- 2.1 The ABC and the State agree with the Executive Director that the Land shall be jointly managed by the Department and the ABC via the Management Council established in accordance with this Agreement, but at all times subject to the Covenants, in accordance with this Agreement and the Management Plan.

- 2.2 Throughout the Term the Parties may, by agreement, add to or subtract from the land the subject of this Agreement, provided that at all times the land the subject of this Agreement includes all Land the subject of the Lease.

- 2.3 Throughout the Term the Parties may, by agreement in writing, revise, amend or vary this Agreement or replace this Agreement with a substitute agreement from time to time.

The State, as lessee of the Land, agrees that the Lease and the right to use and occupy the Land and the other rights granted under it may be relied on by any party to this Agreement if and to the extent necessary to give effect to this Agreement and the Management Plan.

The State, as lessee of the Land, agrees that the ABC and its members have the right to go on to and use the Land in accordance with traditional laws and customs acknowledged and observed by the members of the Approved Body Corporate, in a manner not inconsistent with the Management Plan.

- 2.6 The State, as lessee of the Land, the ABC and the Executive Director will not do anything under this Agreement that would prevent development and use of the land within the Industrial Estate.

3. TERM AND TERMINATION

- 3.1 The Term of this Agreement is the period of ninety nine years (99) years, commencing on the date of commencement of the Lease.

- 3.2 If the Lease is renewed, this Agreement shall be automatically renewed for a further period of ninety-nine (99) years, commencing immediately after the expiry of the initial Term of ninety-nine (99) years.

- 3.3 Where an area of the Land is removed from the operation of this Agreement, this Agreement shall cease to apply in respect of that area of the Land but shall continue to apply in respect of the whole of the remaining area of the Land.

3.4 This Agreement may only be terminated by the agreement in writing of the Parties.

3.5 The Parties agree that no breach of the terms of this Agreement will give to any other Party the right to terminate or rescind this Agreement, but that Party may exercise any right or remedy otherwise available to in it respect of such breach.

4. MANAGEMENT PRINCIPLES

4.1 The ABC and the Executive Director shall jointly manage the Land via the Management Council established for the public purposes set out in the following objectives:

- (a) the preservation and promotion of the Aboriginal cultural and heritage values of the Land;
- (b) the preservation and promotion of the natural and environmental values of the Land, including indigenous flora and fauna;
- (c) the preservation and promotion of the archaeological values of the Land;
- (d) the provision of recreational facilities and facilitation of recreational activities on the Land, including the regulation of public access to the Land to fulfil so much of the demand for recreation by members of the public as is fitting having regard to the matters set out in clauses 4.1(a), (b), (c) and (e);
- (e) the use of the Land by the ABC and its members from time to time in accordance with traditional laws and customs acknowledged and observed by the members of the Approved Body Corporate;
- (f) the use of the Land by the ABC and its members from time to time consistent with the matters set out in clauses 4.1(a) to (e);
- (g) employment and training opportunities for the members of the ABC within the Land;
- (h) commercial opportunities for the ABC within the Land;

(i) the implementation, monitoring, assessment and audit of the effectiveness of the Management Plan; and

(j) the provision, construction, repair, maintenance and replacement of buildings and infrastructure on the Land for any of the foregoing purposes.

4.2 In managing the Land, the ABC and the Department will consider the need for any or all of the following:

- (a) provision of fencing;
- (b) creation of vehicular tracks and roads, and walking and cycling trails and pathways;
- (c) provision of firebreaks, fire control and carrying out of prescribed burning;
- (d) erection of signage;
- (e) construction of public conveniences and other public facilities;
- (f) weed and feral animal control; and
- (g) restriction or prohibition of access for protection of culturally significant sites, or for safety, cultural or conservation purposes.

5. MANAGEMENT PLAN

5.1 The Parties will use their best endeavours to ensure a Management Plan is current in respect of the Land at all times during the Term.

5.2 The Management Plan must set out how the Land is to be managed for the period of that Management Plan by the ABC and the Department. Without limiting the foregoing, the Management Plan is to deal with the following matters, having regard to any national and international heritage and environmental agreements which bind the State, treaties which bind the State, all laws and Government policies:

- (a) the matters listed in clause 4.1;
- (b) the term of the Management Plan, which may include provisions relating to the renewal or extension of the term;

- (c) the periodical review of the Management Plan;
 - (d) the identification of management strategies relating to the use and management of the Land;
 - (e) the respective management roles of the ABC and the Department in relation to the Land; and
 - (f) such other matters as the ABC and the Executive Director may agree.
- 5.3 The Management Plan must be prepared in consultation with the community, the relevant local government, the Conservation Commission and any other relevant Authorities in a manner similar to that which applies under the CALM Act in respect of management plans prepared under that Act, as determined by the Management Council.
- 5.4 The Management Plan as prepared, completed, finalised and agreed or determined in accordance with the Section 31 Agreement, is the first Management Plan for the purposes of this Agreement.
- 5.5 The Management Plan must be reviewed in accordance with clause 5.6 by the Parties, with the review being initiated before the expiry of ten (10) years from the commencement date of this Agreement or completion of the last review, as the case requires. Until the revised Management Plan or replacement Management Plan is registered on the certificate of title under clause 4.2 of the Lease, the last current Management Plan shall continue to apply.
- 5.6 The Management Plan will be reviewed, and if necessary a revised or a replacement Management Plan will be prepared, in the following manner:
- (a) the Management Council will determine the manner in which the Management Plan will be reviewed, which must include taking into account the views of the relevant local government, the Conservation Commission and any other relevant Authorities as to the manner of the review (including whether or not a formal review should be undertaken); and
 - (b) if the Management Council determines that a formal review of Management Plan is to be undertaken with a view to a revision or replacement of the current Management Plan (**Review**), it will also determine:
 - (i) the appointment of a person to undertake the Review and the terms of that person's appointment;
 - (ii) the terms of reference of the Review;
 - (iii) the period for completion of the Review;
 - (iv) the procedure for the Parties, the relevant local government, relevant Authorities and the community to make submissions on the Review; and
 - (v) the procedure for the Parties and any other persons to comment on a draft of the proposed revised or replacement Management Plan.
- 5.7 The reviewed, revised or replacement Management Plan must be:
- (a) agreed by the Management Council or determined in accordance with clause 6; and
 - (b) registered on the certificate of title to the Land pursuant to the Lease.
- ## 6. MANAGEMENT COUNCIL
- 6.1 The management of the Land under this Agreement will be administered by a Management Council, which will comprise:
- (a) three (3) representatives of the Department nominated from time to time by the Executive Director and advised in writing to the ABC (CALM representatives);
 - (b) four (4) representatives of the ABC nominated from time to time by the ABC and advised in writing to the Executive Director (ABC representatives);

- (c) one (1) person appointed from time to time by the Minister for Indigenous Affairs; and
- (d) any other persons agreed to be appointed by the ABC and the Executive Director.

6.2 The Management Council shall conduct its business in the following manner:

- (a) the Council members shall elect a chairman from among their number on each anniversary of the commencement date of this Agreement;
- (b) the quorum for a meeting of the Management Council shall be at least two (2) CALM representatives and two (2) ABC representatives;
- (c) each Council member (including any person not a CALM representative nor an ABC representative) shall have one vote and may vote at a meeting of the Management Council in person or by proxy given in writing to the Chairman or any other Council member who is present in person at the meeting;
- (d) if a motion of the Council is circulated in writing to all Council members and all of them agree in writing to that motion, then that is deemed to be a resolution of the Council duly made on the day that the last Council member indicates his or her agreement in writing;
- (e) if, on a vote on a motion, there is one dissenting vote then the motion is lost, subject to clause 6.4(b);
- (f) the Management Council shall meet regularly at such intervals as it considers necessary, but in any event at least three (3) times per year;
- (g) the Council members shall be given at least twenty-one (21) days notice in writing of meetings of the Management Council;
- (h) the Executive Director must convene a meeting of the Management Council within forty-five (45) days after a meeting being called by notice in writing signed by:

- (i) the Chairman; or
- (ii) at least three (3) Council members, being given to the Executive Director, to consider the business specified in the notice calling the meeting;

- (i) the Management Council shall adopt such rules and procedures as it considers necessary to enable it to carry out its functions under this Agreement, but subject to the provisions of this Agreement;
- (j) the Management Council may invite other persons (not being a Council member) to attend at meetings of the Management Council or to advise it on any matter it thinks fit; and
- (k) the Management Council may appoint committees (comprising Council members and other persons) to investigate, consider, and advise or recommend such matters to the Management Council as it thinks fit.

6.3 The Management Council shall make decisions, in accordance with clause 6.2, that are consistent with the provisions of this Agreement and the Management Plan.

6.4 If:

- (a) there are less than two (2) ABC representatives present at two (2) consecutive meetings of the Management Council, then clause 6.5 applies;
- (b) a motion is lost at three (3) consecutive meetings of the Management Council, but at the last meeting the motion was voted in favour by at least two (2) CALM representatives and three (3) ABC representatives, then the motion is deemed to be carried and to be a resolution of the Management Council duly made; and
- (c) a motion is lost at three (3) consecutive meetings of the Management Council and paragraph (b) does not apply, then clause 6.5 applies.

6.5 If clause 6.4(a) or (c) applies then:

- (a) the business which was proposed to be discussed at the meeting for which there were less than two (2) ABC representatives present; or
- (b) the business which was the subject of the motion which has been lost at the three (3) consecutive meetings,

as the case requires (**Undetermined Business**), shall be referred to the Minister for Environment and Heritage, by either the Executive Director or the ABC.

The Minister for Environment and Heritage shall, in consultation with the Minister for Indigenous Affairs, in respect of the Undetermined Business:

- (c) decide as to how the Undetermined Business is to be determined;
- (d) make a determination on the Undetermined Business; or
- (e) a combination of both paragraphs (c) and (d).

A determination of the Undetermined Business by the Minister for the Environment and Heritage shall be final and binding on the Management Council and the Parties.

6.6 The Management Council will inspect the accounts relating to the expenditure of funds provided under the Section 31 Agreement and thereafter.

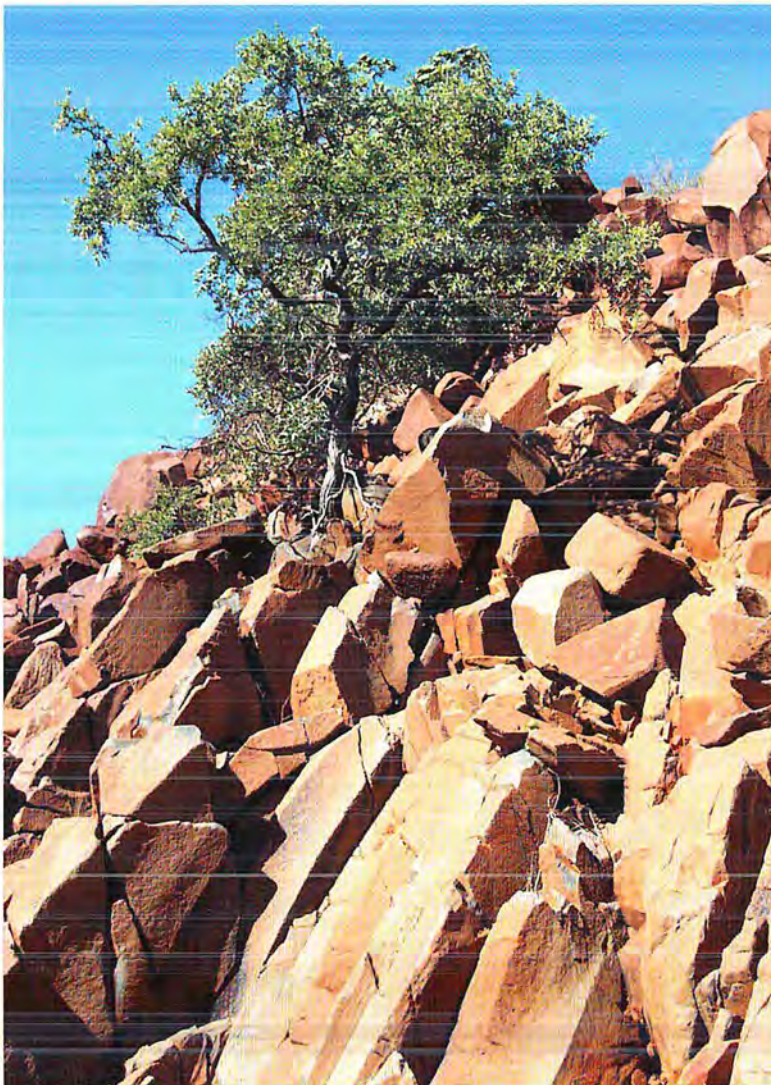
6.7 The Department shall provide administrative and secretarial support for the Management Council.

6.8 For the period covered by the Section 31 Agreement, funding support shall be provided by the State, through the Department or any other relevant department, under the Section 31 Agreement, for:

- (a) the joint management of the Land under this Agreement (including by implementation of the Management Plan);
- (b) the provision of resources, including suitably qualified Departmental staff and trainees;
- (c) the provision of the Burrup Non-Industrial Land Buildings and Burrup Non-Industrial Land Infrastructure, as those terms are defined in the Section 31 Agreement;
- (d) the administration and operation of the Management Council; and
- (e) the costs of Council members attending meetings of the Management Council and meeting attendance fees for the Council members as determined by the Minister for Environment and Heritage.

The Parties will review the administrative and funding arrangements at five (5) yearly intervals or at such other times agreed by the Parties.

Below: A *terminalia supranitifolia* tree clings to a Burrup rock face.
Photo – Laurina Bullen, DEC



6.9 If the first Management Plan has not been completed, finalised and agreed or determined in accordance with the Section 31 Agreement before the commencement of this Agreement, the Management Council will manage the Land in accordance with the other applicable provisions of this Agreement (including clause 4.1) and any interim management guidelines determined by the Management Council.

7. INDEMNITY

7.1 The State agrees to indemnify and keep indemnified the ABC against all proceedings actions suits claims demands costs and losses (Losses) suffered or incurred by the ABC to the extent such Losses are incurred by the ABC or any of its employees, agents or contractors, as a result of the negligent or other tortious act or omission of the State, the Executive Director or any of either of their officers, employees, agents, or contractors in the purported exercise of its or their rights or obligations under this Management Agreement or the Management Plan.

7.2 The ABC agrees to indemnify and keep indemnified the State and the Executive Director against all proceedings actions suits claims demands costs and losses (Losses) suffered or incurred by the State or the Executive Director or both of them to the extent such Losses are incurred by the State or the Executive Director or both of them or any of either of their employees, agents or contractors, as a result of the negligent or other tortious act or omission of the ABC or any of its officers, employees, agents, or contractors in the purported exercise of its or their rights or obligations under this Management Agreement or the Management Plan.

8. NOTICES

8.1 Notices under this Agreement shall be in writing and may be delivered by hand delivery, pre-paid post or facsimile transmission.

8.2 Notice shall be deemed to be received:

- (a) in the case of hand delivery, on delivery to the address of the Party set out below or as otherwise notified from time to time;
- (b) in the case of pre-paid post, three (3) Business Days after posting; and
- (c) in the case of facsimile transmission, upon receipt by the sender of a transmission form indicating successful transmission of the entire facsimile.

8.3 Notices to be given to:

- (a) the State shall be addressed to:
Facsimile No:
- (b) the ABC shall be addressed to:
Facsimile No:
- (c) the Executive Director shall be addressed to:

9. NO PARTNERSHIP ETC

Nothing in this Agreement shall be taken to constitute a partnership, agency, joint venture or any other form of legal relationship between the Parties by which the ABC may bind the other Parties or the ABC may be bound by the other Parties to contracts, agreements, deeds or any other document creating binding legal obligations. Without limiting the foregoing, neither the ABC nor the other Parties may enter into any employment contract or contract for the provision of works, materials or services on or in respect of the Land purporting to bind the other Parties or the ABC respectively.

10. GOVERNING LAW

This Agreement is governed by the law in force in the State of Western Australia and the Parties agree to submit to the non-exclusive jurisdiction of the Courts of Western Australia and the appeal Courts from those Courts.

Appendix 3.

Animals of the Burrup Peninsula

Birds

The first table indicates bird species known from, or expected to occur within the Burrup Peninsula Conservation Reserve. Note that additional vagrant species will certainly be encountered. The superscripts J and C refer to birds listed under the Japan Australia Migratory Bird Agreement (JAMBA) and China Australia Migratory Bird Agreement (CAMBA) respectively. Only one feral species is believed to occur in the area (Domestic Pigeon), indicated by the superscript F.

Birds of the Burrup Peninsula				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
CASUARIDAE				
<i>Dromaius novaehollandiae</i>	Emu			•
PHASIANIDAE				
<i>Coturnix pectoralis</i>	Stubble quail			•
<i>Coturnix ypsilophora</i>	Brown quail			•
ANATIDAE				
<i>Dendrocygna eytoni</i>	Plumed whistling duck		•	
<i>Cygnus atratus</i>	Black swan		•	
<i>Tadorna tadornoides</i>	Australian shelduck		•	
<i>Chenonetta jubata</i>	Australian wood duck		•	
<i>Anas gracilis</i>	Grey teal		•	
<i>Anas superciliosa</i>	Pacific black duck		•	
<i>Malacorhynchus membranaceus</i>	Pink-eared duck		•	
<i>Aythya australis</i>	Hardhead		•	
PODICIPEDIDAE				
<i>Poliiocephalus poliocephalus</i>	Hoary-headed grebe		•	
PROCELLARIIDAE				
<i>Puffinus pacificus</i> ^J	Wedge-tailed shearwater			•
HYDROBATIDAE				
<i>Oceanites oceanicus</i> ^J	Wilson's storm petrel		•	
<i>Oceanodroma matsudariae</i>	Matsudaira's storm petrel		•	
SULIDAE				
<i>Sula leucogaster plotus</i> ^{J, C}	Brown booby		•	
ANHINGIDAE				
<i>Anhinga melanogaster</i>	Darter	•		
PHALACROCORACIDAE				
<i>Phalacrocorax varius</i>	Pied cormorant	•		
<i>Phalacrocorax melanoleucos</i>	Little pied cormorant	•	•	
<i>Phalacrocorax sulcirostris</i>	Little black cormorant			
PELICANIDAE				
<i>Pelecanus conspicillatus</i>	Australian pelican	•		

Birds of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
FREGATIDAE				
<i>Fregata ariel</i> J, C	Lesser frigatebird		•	
ARDEIDAE				
<i>Ardea pacificus</i>	White-necked heron		•	
<i>Ardea novaehollandiae</i>	White-faced heron	•		
<i>Ardea alba</i> J, C	Great egret	•		
<i>Ardea garzetta</i>	Little egret	•		
<i>Ardea sacra</i> C	Eastern reef heron	•		
<i>Butorides striatus</i>	Striated heron	•		
<i>Nycticorax caledonicus</i>	Rufous night heron	•		
THRESKIORNITHIDAE				
<i>Threskiornis molucca</i>	Australian white ibis		•	
<i>Threskiornis spinicollis</i>	Straw-necked ibis		•	
CICONIIDAE				
<i>Ephippiorhynchus asiaticus australis</i>	Black-necked stork	•		
ACCIPITRIDAE				
<i>Pandion haliaetus</i>	Osprey	•		
<i>Elanus caeruleus axillaris</i>	Black-shouldered kite		•	
<i>Elanus scriptus</i>	Letter-winged kite		•	
<i>Hamirostra melanosternon</i>	Black-breasted buzzard	•		
<i>Milvus migrans</i>	Black kite		•	
<i>Haliastur sphenurus</i>	Whistling kite	•		
<i>Haliastur indus girrenera</i>	Brahminy kite	•		
<i>Accipiter fasciatus fasciatus</i>	Brown goshawk	•		
<i>Accipiter cirrocephalus cirrocephalus</i>	Collared sparrowhawk			•
<i>Aquila morphnoides</i>	Little eagle	•		
<i>Aquila audax</i>	Wedge-tailed eagle	•		
<i>Haliaeetus leucogaster</i> C	White-bellied sea-eagle	•		
<i>Circus assimilis</i>	Spotted harrier	•		
<i>Circus approximans</i>	Swamp harrier			•
FALCONIDAE				
<i>Falco berigora berigora</i>	Brown falcon	•		
<i>Falco cenchroides cenchroides</i>	Australian kestrel	•		
<i>Falco longipennis longipennis</i>	Australian hobby	•		
<i>Falco peregrinus</i>	Peregrine falcon			•
RALLIDAE				
<i>Gallirallus philippensis</i>	Buff-banded rail		•	
<i>Porzana fluminea</i>	Australian spotless crane		•	
OTIDIDAE				
<i>Ardeotis australis</i>	Australian bustard		•	
TURNICIDAE				
<i>Turnix velox</i>	Little button-quail	•		

Birds of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
SCOLOPACIDAE				
<i>Gallinago stenura</i> J, C	Pin-tailed snipe		•	
<i>Limosa limosa melanuroides</i> J, C	Black-tailed godwit	•		
<i>Limosa lapponica menzbieri</i> J, C	Bar-tailed godwit	•		
<i>Numenius minutus</i> J	Little curlew		•	
<i>Numenius phaeopus variegatus</i> J, C	Whimbrel	•		
<i>Numenius madagascariensis</i> J, C	Eastern curlew	•		
<i>Tringa stagnatilis</i> J, C	Marsh sandpiper		•	
<i>Tringa nebularia</i> J, C	Common greenshank	•		
<i>Tringa cinerea</i> J, C	Terek sandpiper	•		
<i>Tringa hypoleucos</i> J, C	Common sandpiper	•		
<i>Tringa brevipes</i> J, C	Grey-tailed tattler	•		
<i>Arenaria interpres interpres</i> J, C	Ruddy turnstone	•		
<i>Calidris canutus rogersi</i> J, C	Red knot			•
<i>Calidris tenuirostris</i> J, C	Great knot	•		
<i>Calidris alba</i> J, C	Sanderling		•	
<i>Calidris ruficollis</i> J, C	Red-necked stint	•		
<i>Calidris subminuta</i> J, C	Long-toed stint	•		
<i>Calidris acuminata</i> J, C	Sharp-tailed sandpiper	•		
<i>Calidris ferruginea</i> J, C	Curlew sandpiper	•		
<i>Limicola falcinellus</i> J, C	Broad-billed sandpiper		•	
<i>Phalaropus lobatus</i> J, C	Red-necked phalarope		•	
BURHINIDAE				
<i>Burhinus grallarius</i>	Bush stone-curlew		•	
<i>Esacus neglectus</i>	Beach stone-curlew		•	
HAEMATOPODIDAE				
<i>Haematopus longirostris</i>	Pied oystercatcher	•		
<i>Haematopus fuliginosus ophthalmicus</i>	Sooty oystercatcher	•		
RECURVIROSTRIDAE				
<i>Himantopus himantopus leucocephalus</i>	Black-winged stilt	•		
<i>Cladorhynchus leucocephalus</i>	Banded stilt		•	
<i>Recurvirostra novaehollandiae</i>	Red-necked avocet	•		
CHARADRIIDAE				
<i>Vanellus tricolour</i>	Banded lapwing		•	
<i>Pluvialis squatarola</i> J, C	Grey plover		•	
<i>Pluvialis fulva</i>	Pacific golden plover		•	
<i>Charadrius ruficapillus</i>	Red-capped plover	•		
<i>Charadrius mongolus</i> J, C	Lesser sand plover	•		
<i>Charadrius l. leschenaultii</i> J, C	Great sand plover	•		
<i>Charadrius melanops</i>	Black-fronted dotterel	•		
GLAREOLIDAE				
<i>Stiltia isabella</i>	Australian pratincole		•	
<i>Glareola maldivarum</i> J, C	Oriental pratincole			•

Birds of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
LARIDAE				
<i>Larus novaehollandiae novaehollandia</i>	Silver gull	•		
<i>Sterna nilotica macrotarsa</i>	Gull-billed tern	•		
<i>Sterna caspia</i> ^C	Caspian tern	•		
<i>Sterna bengalensis</i> ^C	Lesser crested tern	•		
<i>Sterna bergii</i> ^J	Crested tern	•		
<i>Sterna dougallii</i>	Roseate tern	•		
<i>Sterna hirundo</i> ^{J, C}	Common tern	•		
<i>Sterna nereis</i>	Fairy tern	•		
<i>Sterna leucoptera</i> ^{J, C}	White-winged black tern	•		
<i>Sterna sinensis</i>	White-shafted little tern	•		
<i>Sterna anaethetus</i> ^{J, C}	Bridled tern	•		
<i>Sterna hybrida</i>	Whiskered tern	•		
COLUMBIDAE				
<i>Columba livia</i> ^F	Domestic pigeon	•		
<i>Phaps chalcoptera</i>	Common bronzewing	•		
<i>Ocyphaps lophotes</i>	Crested pigeon	•		
<i>Geophaps plumifera</i>	Spinifex pigeon	•		
<i>Geopelia cuneata</i>	Diamond dove	•		
<i>Geopelia striata placida</i>	Peaceful dove	•		
<i>Geopelia humeralis</i>	Bar-shouldered dove	•		
PSITTACIDAE				
<i>Cacatua roseicapilla assimilis</i>	Galah	•		
<i>Cacatua sanguinea westralensis</i>	Little corella	•		
<i>Nymphicus hollandicus</i>	Cockatiel			•
<i>Platycercus zonarius zonarius</i>	Ring-necked parrot	•		
<i>Melopsittacus undulatus</i>	Budgerigar	•		
CUCULIDAE				
<i>Cuculus saturatus optatus</i> ^{J, C}	Oriental cuckoo		•	
<i>Cuculus pallidus</i>	Pallid cuckoo	•		
<i>Chrysococcyx osculans</i>	Black-eared cuckoo		•	
<i>Chrysococcyx basalis</i>	Horsfield's bronze cuckoo	•		
CENTROPODIDAE				
<i>Centropus phasianinus</i>	Pheasant coucal	•		
STRIGIDAE				
<i>Ninox novaeseelandiae boobook</i>	Boobook owl		•	
TYTONIDAE				
<i>Tyto alba delicatula</i>	Barn owl		•	
PODARGIDAE				
<i>Podargus strigoides</i>	Tawny frogmouth	•		
CAPRIMULGIDAE				
<i>Eurostopodus argus</i>	Spotted nightjar	•		

Birds of the Burrup Peninsula (continued)

Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
AEGOTHELIDAE				
<i>Aegotheles cristatus</i>	Australian owl-nightjar	•		
APODIDAE				
<i>Apus pacificus pacificus</i> J. C.	Fork-tailed swift		•	
HALCYONIDAE				
<i>Dacelo leachii leachii</i>	Blue-winged kookaburra		•	
<i>Todiramphus pyrrhopygia</i>	Red-backed kingfisher	•		
<i>Todiramphus sanctus sanctus</i>	Sacred kingfisher	•		
<i>Todiramphus chloris pilbara</i>	Collared kingfisher	•		
MEROPIIDAE				
<i>Merops ornatus</i>	Rainbow bee-eater	•		
MALURIDAE				
<i>Malurus lamberti assimilis</i>	Variiegated fairy-wren	•		
<i>Malurus leucopterus leuconotus</i>	White-winged fairy-wren	•		
PARDALOTIDAE				
<i>Pardalotus rubricatus</i>	Red-browed pardalote	•		
<i>Pardalotus striatus murchisoni</i>	Striated pardalote	•		
MELIPHAGIDAE				
<i>Smicrornis brevirostris</i>	Weebill	•		
<i>Gerygone tenebrosa</i>	Dusky gerygone	•		
<i>Lichmera indistincta indistincta</i>	Brown honeyeater	•		
<i>Lichenostomus virescens</i>	Singing honeyeater	•		
<i>Lichenostomus keartlandi</i>	Grey-headed honeyeater	•		
<i>Lichenostomus penicillatus</i>	White-plumed honeyeater	•		
<i>Manorina flavigula</i>	Yellow-throated miner	•		
<i>Acanthagenys rufogularis</i>	Spiny-cheeked honeyeater	•		
<i>Epthianura aurifrons</i>	Orange chat			•
<i>Epthianura tricolor</i>	Crimson chat		•	
PETROICIDAE				
<i>Eopsaltria pulverulenta</i>	Mangrove robin	•		
PACHYCEPHALIDAE				
<i>Pachycephala melanura melanura</i>	Mangrove golden whistler	•		
<i>Pachycephala rufiventris</i>	Rufous whistler	•		
<i>Pachycephala lanioides</i>	White-breasted whistler	•		
<i>Colluricincla harmonica</i>	Grey shrike-thrush	•		
DICRURIDAE				
<i>Rhipidura phasiana</i>	Mangrove grey fantail	•		
<i>Rhipidura leucophrys</i>	Willie wagtail	•		
<i>Grallina cyanoleuca</i>	Magpie lark	•		
CAMPEPHAGIDAE				
<i>Coracina novaehollandiae</i>	Black-faced cuckoo-shrike	•		
<i>Lalage tricolor</i>	White-winged triller	•		

Birds of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
ARTAMIDAE				
<i>Artamus leucorhynchus leucopygialis</i>	White-breasted woodswallow	•		
<i>Artamus personatus</i>	Masked woodswallow	•		
<i>Artamus cinereus melanops</i>	Black-faced woodswallow	•		
<i>Artamus minor</i>	Little woodswallow	•		
CRACTICIDAE				
<i>Cracticus nigrogularis</i>	Pied butcherbird	•		
<i>Cracticus tibicen tibicen</i>	Australian magpie		•	
CORVIDAE				
<i>Corvus orru ceciliae</i>	Western (torresian) crow	•		
<i>Corvus bennetti</i>	Little crow	•		
PTILONORHYNCHIDAE				
<i>Ptilonorhynchus maculatus guttatus</i>	Western bowerbird	•		
HIRUNDINIDAE				
<i>Hirundo rustica gutturalis</i> J	Barn swallow			•
<i>Hirundo neoxena</i>	Welcome swallow	•		
<i>Hirundo nigricans nigricans</i>	Tree martin	•		
<i>Hirundo ariel</i>	Fairy martin	•		
ZOSTEROPIDAE				
<i>Zosterops luteus</i>	Yellow white-eye	•		
SYLVIIDAE				
<i>Eremiornis carteri</i>	Spinifex-bird	•		
<i>Cincloramphus mathewsi</i>	Rufous songlark		•	
<i>Cincloramphus cruralis</i>	Brown songlark		•	
ALAUDIDAE				
<i>Mirafrja javanica horsfieldii</i>	Singing bushlark	•		
DICAEDIDAE				
<i>Dicaeum h. hirundinaceum</i>	Mistletoebird	•		
PASSERIDAE				
<i>Taeniopygia guttata castanotis</i>	Zebra finch	•		
<i>Emblema pictum</i>	Painted finch	•		
MOTACILLIDAE				
<i>Anthus australis</i>	Australian pipit	•		

Mike Craig and Stephen van Leeuwen provided most of the bird records included in this report, and Mike Craig and Philip Brace provided comments on the final bird list.

Mammals

This table lists the Mammal species known or likely to occur on the Burrup Peninsula and within the Burrup Peninsula Conservation Reserve, and the occurrence of these species on both the adjacent mainland and islands of the Dampier Archipelago. Superscript F indicates a naturalised feral species. Bat species listed are those believed to be present on a regular basis on the Burrup Peninsula (based upon the revised distribution maps of McKenzie, Burbidge and Baynes (unpublished). Due to their ability to fly, these species are assumed to occur on both the adjacent mainland and at least some of the islands of the Dampier Archipelago, particularly Dolphin, Angel and Gidley Islands.

Mammals of the Burrup Peninsula				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
TACHYGLOSSIDAE				
<i>Tachyglossus aculeatus</i>	Echidna	•		
DASYURIDAE				
<i>Dasykaluta rosamondae</i>	Little red kaluta	•	•	
<i>Dasyurus hallucatus</i>	Northern quoll	•	•	•
<i>Ningaiu timealeyi</i>	Pilbara ningai	•	•	
<i>Planigale sp.</i>	Pilbara planigale	•	•	
<i>Pseudantechinus roryi</i>	Rory's pseudantechinus	•	•	
<i>Pseudantechinus woolleyae</i>	Woolley's pseudantechinus		•	
MACROPODIDAE				
<i>Macropus robustus</i>	Euro or hill kangaroo	•	•	•
<i>Macropus rufus</i>	Red kangaroo	•		
<i>Petrogale rothschildi</i>	Rothschild's rock wallaby	•	•	•
PTEROPODIDAE				
<i>Pteropus alecto</i>	Black flying fox	•	•	•
<i>Pteropus scapulatus</i>	Little red flying fox	•	•	•
EMBALLONURIDAE				
<i>Saccolaimus flaviventris</i>	Yellow-bellied sheath-tailed bat	•	•	•
<i>Taphozous georgeanus</i>	Common sheath-tailed bat	•	•	•
MEGADERMATIDAE				
<i>Macroderma gigas</i>	Ghost bat	?	•	
VESPRTLIONIDAE				
<i>Chalinolobus gouldii</i>	Gould's wattled bat	•	•	•
<i>Nyctophilus arnhemensis</i>	Arnhem land long-eared bat	•	•	•
<i>Nyctophilus bifax daedalus</i>	Northwestern long-eared bat	•	•	•
<i>Nyctophilus geoffroyi</i>	Lesser long-eared bat	•	•	•
<i>Scotorepens greyii</i>	Little broad-nosed bat	•	•	•
<i>Vespadalus finlaysoni</i>	Finlayson's cave bat	•	•	•
MOLLOSSIDAE				
<i>Chaerophon jobensis</i>	Northern free-tailed bat	•	•	•
<i>Mormopterus beccarii</i>	Beccari's free-tailed bat	•	•	•
<i>Mormopterus loriae</i>	Little northern free-tailed bat	•	•	•
<i>Tadarida australis</i>	White-striped free-tailed bat	•	•	•

Mammals of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
MURIDAE				
<i>Hydromys chrysogaster</i>	Water rat	•	•	•
<i>Mus musculus</i> ^F	House mouse	•	•	
<i>Pseudomys chapmani</i> ^E	Pebble-mound mouse		•	
<i>Pseudomys delicatulus</i>	Delicate mouse	•	•	
<i>Pseudomys hermannsburgensis</i>	Sandy inland mouse	•	•	•
<i>Rattus rattus</i> ^F	Black rat	•	•	•
<i>Rattus tunneyi</i> ^E	Tunney's rat		•	•
<i>Zyzomys argurus</i>	Northern rock rat	•	•	•
CANIDAE				
<i>Canis lupus dingo</i> ^E	Dingo	•	•	
<i>Vulpes vulpes</i> ^F	Fox	•	•	•
FELIDAE				
<i>Felis catus</i> ^F	Cat	•	•	•

Reptiles and amphibians

This table lists the reptiles and amphibians known to occur on the Burrup Peninsula, or species which may occur on the basis of their currently known distribution.

Reptiles and amphibians of the Burrup Peninsula				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
AGAMIDAE				
<i>Ctenophorus c. caudicintus</i>	Ring-tailed dragon	•	•	•
<i>Ctenophorus isolepis isolepis</i>	Military dragon	•	•	•
<i>Ctenophorus nuchalis</i>	Central netted dragon		•	
<i>Lophognathus gilberti gilberti</i>	Ta-ta lizard	•	•	•
<i>Lophognathus longirostris</i>			•	
<i>Pogona minor minor</i>	Western bearded dragon	•	•	
<i>Tympanocryptis cephalo</i>			•	
GEKKONIDAE				
<i>Crenodactylus ocellatus horni</i>	Clawless gecko	•	•	•
<i>Diplodactylus conspicillatus</i>	Fat-tailed gecko	•	•	•
<i>Diplodactylus savagei</i>		•	•	
<i>Diplodactylus stenodactylus</i>		•	•	•
<i>Gehyra pilbara</i>		•	•	•
<i>Gehyra punctata</i>	Spotted dtella	•	•	•
<i>Gehyra purpurascens</i>			•	
<i>Gehyra variegata</i>	Tree dtella	•	•	•
<i>Heteronotia binoei</i>	Bynoe's gecko	•	•	•
<i>Nephurus levis pilbaraensis</i>	Smooth knob-tailed gecko		•	
<i>Oedura marmorata</i>	Marbled velvet gecko	•		•
<i>Strophurus ciliaris aberans</i>		•	•	
<i>Strophurus elderi</i>	Jewelled gecko	•	•	•
PYGOPODIDAE				
<i>Delma borca</i>		•	?	•
<i>Delma nasuta</i>			•	
<i>Delma pax</i>		•	•	•
<i>Delma tincta</i>		•	•	
<i>Lialis burtonis</i>	Burton's snake-lizard	•	•	•
SCINCIDAE				
<i>Carlia munda</i>		•	•	
<i>Carlia triacantha</i>		•	•	•
<i>Cryptoblepharus carnabyi</i>		•		
<i>Cryptoblepharus plagiocephalus</i>		•	•	•
<i>Ctenotus duricola</i>			•	
<i>Ctenotus grandis titan</i>		•	•	
<i>Ctenotus helenae</i>			•	
<i>Ctenotus leonhardii</i>		•		
<i>Ctenotus pantherinus ocellifera</i>		•	•	•
<i>Ctenotus robustus</i>			•	
<i>Ctenotus rubicundus</i>		•		
<i>Ctenotus saxatilis</i>		•	•	•

Reptiles and amphibians of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
SCINCIDAE (continued)				
<i>Ctenotus serventyi</i>		•	•	•
<i>Cyclodomorphus melanops</i>		•	•	•
<i>Egernia depressa</i>	Pygmy spiny-tailed skink	•	•	
<i>Egernia pilbaraensis</i>		•	•	•
<i>Egernia striata</i>	Night skink		•	
<i>Glaphyromorphus isolepis</i>		•	•	•
<i>Lerista bipes</i>		•	•	•
<i>Lerista muelleri</i> (includes at least 2 spp)		•	•	•
<i>Menetia greyii</i>		•	•	
<i>Menetia surda surda</i>			•	•
<i>Morethia ruficauda exquisita</i>		•	•	•
<i>Notoscincus butleri</i>			•	
<i>Notoscincus ornatus ornatus</i>			•	
<i>Teliuqua multifasciata</i>	Centralian blue-tongue		•	
VARANIDAE				
<i>Varanus acanthurus</i>	Spiny-tailed monitor	•	•	•
<i>Varanus brevicauda</i>	Short-tailed monitor		•	
<i>Varanus eremius</i>	Desert pygmy monitor	•	•	
<i>Varanus giganteus</i>	Perenty	•	•	
<i>Varanus gouldii</i>	Sand monitor	•	•	•
<i>Varanus panoptes rubidus</i>			•	•
<i>Varanus pilbaraensis</i>	Pilbara rock monitor	•		
<i>Varanus tristis tristis</i>	Black-headed monitor	•		•
TYPHLOPIDAE				
<i>Ramphotyphlops australis</i>		•		
<i>Ramphotyphlops ammodytes</i>		•	•	•
<i>Ramphotyphlops braminus</i>			•	
<i>Ramphotyphlops grypus</i>		•	•	
<i>Ramphotyphlops hamatus</i>			•	
BOIDAE				
<i>Antaresia perthensis</i>	Pygmy python	•	•	•
<i>Antaresia stimsoni</i>	Stimson's python	•	•	•
<i>Aspidites melanocephalus</i>	Black-headed python	•		
<i>Liasis olivaceus barroni</i>	Pilbara olive python	•	•	•
ELAPIDAE (Terrestrial)				
<i>Acanthophis wellsi</i>	Pilbara death adder	•	•	
<i>Brachyuropsis approximans</i>	Northern shovel-nosed snake		•	
<i>Demansia psammophis</i>	Yellow-faced whip snake	•	•	
<i>Demansia rufescens</i>	Rufous whip snake	•	•	•
<i>Furina ornata</i>	Moon snake	•	•	
<i>Parasuta monarchus</i>	Monk snake		•	

Reptiles and amphibians of the Burrup Peninsula (continued)				
Scientific name (family/species)	Common name	Burrup resident or regular visitor	Seasonal or occasional visitor	Known from nearby only
ELAPIDAE (Terrestrial) (continued)				
<i>Pseudechis australis</i>	Mulga snake	•	•	•
<i>Pseudonaja modesta</i>	Ringed brown snake		•	
<i>Pseudonaja nuchalis</i>	Brown snake	•	•	
<i>Suta fasciata</i>	Rosen's snake		•	
<i>Suta punctata</i>	Spotted snake	•	•	
COLUBRIDAE				
<i>Fordonia leucobalia</i>	White-bellied mangrove snake	•	•	•
HYLIDAE				
<i>Cyclorana australis</i>	Giant frog		•	
<i>Cyclorana maini</i>	Main's frog	•	•	•
<i>Litoria caerulea</i>	Green tree frog		•	
<i>Litoria rubella</i>	Desert tree frog	•	•	•
MYOBATRACHIDAE				
<i>Notaden nicholli</i>	Desert spadefoot	?	•	

Appendix 4.

Environmental Weeds

Environmental weeds of the Burrup Peninsula		
Species	Common name	Rating
<i>Cenchrus ciliaris</i>	Buffel grass	high
<i>Cenchrus setigerus</i>	Birdwood grass	high
<i>Rumex vesicarius</i>	Ruby dock	high
<i>Aerva javanica</i>	Kapok bush	high
<i>Passiflora foetida</i>	Stinking passion flower	high
<i>Euphorbia hirta</i>	Asthma plant	moderate
<i>Malvastrum americanum</i>	Spiked malvastrum	moderate
<i>Solanum nigrum</i>	Black berry nightshade	moderate
<i>Stylosanthes hamata</i>	Verano stylo	mild
<i>Pennisetum setaceum</i>	Fountain grass	mild
<i>Cenchrus echinatus</i>	Burrgrass	low
<i>Chlorus barbata</i>	Purpletop chloris	low
<i>Achyranthes aspera</i>	Chaff flower	not listed in strategy
<i>Bidens bipinnata</i>	Bipinnate beggartick	to be advised (unrated)

Rating from the *Environmental Weed Strategy for Western Australia*

High	priority for control and/or research
Moderate	control or research efforts should be directed to it if funds are available in addition to reasonably high level of monitoring
Mild	monitoring and control where appropriate
Low	low level of monitoring

None of these weeds are currently listed as 'declared species' under the *Agriculture and Related Resources Protection Act 1976*.

1 DOIR have since advised that a condition of any development on the Conzinc South Industrial Land will be that it does not impact on the viewshed from the proposed Visitor Centre site.