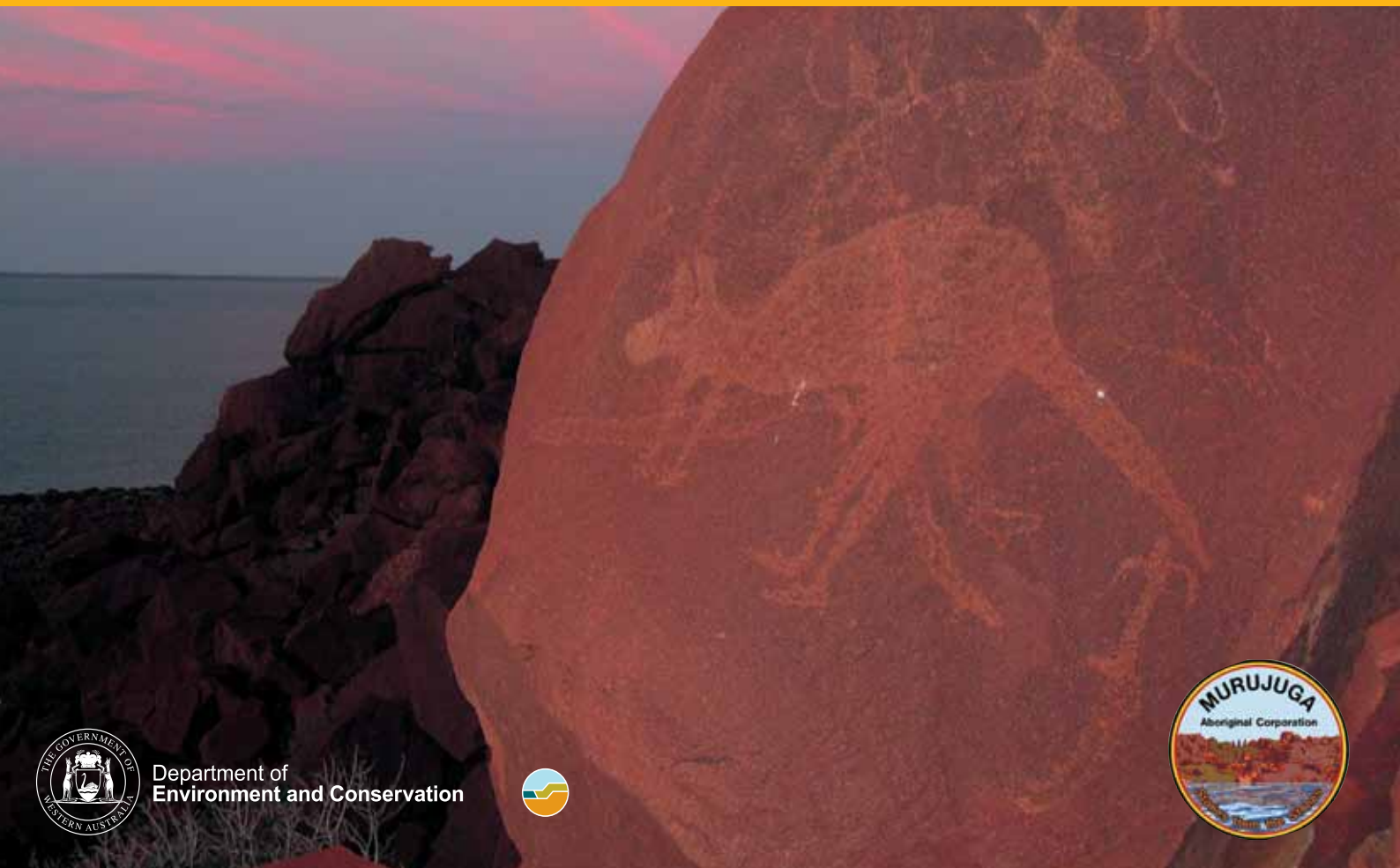




**Murujuga National Park**  
management plan 78  
2013



Department of  
Environment and Conservation



Department of Environment and Conservation  
168 St Georges Terrace  
Perth WA 6000

Phone: (08) 6467 5000  
Fax: (08) 6467 5562  
www.dec.wa.gov.au

© Government of Western Australia 2013  
January 2013

ISSN 2200-9965 (print)  
ISSN 2200-9973 (online)

This work is copyright. You may download, display, print and reproduce this material in unaltered form (retaining this notice) for your personal, non-commercial use or use within your organisation. Apart from any use as permitted under the *Copyright Act 1968*, all other rights are reserved. Requests and enquiries concerning reproduction and rights should be addressed to the Department of Environment and Conservation.

This management plan was prepared by the Department of Environment and Conservation's Planning Unit on behalf of the Murujuga Park Council.

Questions regarding this plan should be directed to:

Planning Unit  
Department of Environment and Conservation  
17 Dick Perry Avenue Kensington WA 6151  
Locked Bag 104 Bentley Delivery Centre WA 6983  
Phone: (08) 9443 0333  
Email: [planning@dec.wa.gov.au](mailto:planning@dec.wa.gov.au)

The recommended reference for this publication is:  
Department of Environment and Conservation 2013, *Murujuga National Park management plan 78 2013*, Department of Environment and Conservation, Perth.

This document is available in alternative formats on request.

Front cover photos

Top: North-west Burrup Peninsula beach. Photo – Laurina Bullen/DEC

Bottom: An engraving of a kangaroo. Photo – Mike Bodsworth/DEC

# 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.*

## Flying fox Dreaming

In the Dreaming times, a large number of *Waramurrungkas* (flying foxes) came out of the sea and travelled southwards along the Burrup Peninsula, across the salt flats and coastal plains and over the range of hills near Mt Leopold. A line of dark rocks on the hills marks the spots where the flying foxes crossed the range. From there the *Waramurrungkas* travelled up the course of the Fortescue River to Millstream.

Rocks at the highest point of the southern peninsula are the metamorphosed bodies of the ancestral flying foxes that were turned into stone there by a vengeful spirit.

An exposed dolerite rock outcrop running down the face of the hill south of Karratha forms part of the mythical path of the *Waramurrungkas* as they passed from the Burrup Peninsula to the Fortescue River during the Dreaming times.

## The Law in stone

Aboriginal people throughout the Pilbara believe that rock engravings are the work of creation spirit-beings known as *Marrga* who during the Dreaming times formulated the rules of social conduct for human beings to follow.

The *Marrga* left the engravings behind as permanent visual reminders of how the Law should be followed. As well as being a constant reminder of the Law, they were also places of continuing spiritual power. Some were associated with thalu rituals or other totemic ceremonies, others perhaps with initiation rites or other ceremonies.

# Vision

The vision for Murujuga National Park is that:

*Murujuga National Park is recognised internationally as an outstanding example of human expression, innovation and survival. A lasting partnership between Aboriginal people and the broader community that balances the protection of its ancient and living heritage with the sustainable use of the region's natural resources.*

Aboriginal people have occupied, used and managed the Burrup Peninsula for hundreds of generations. This is recorded on country, its special places and rich archaeology. This long history of occupation, ownership and management was broken by European colonisation, and for over 150 years local Aboriginal 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.



Watering rock engraving. Photo – DEC

# Foreword

This final management plan is the result of a native title settlement between the Government of Western Australia and the Traditional Custodians of Murujuga, and is intended to guide management of the important Aboriginal heritage and biodiversity values of the area.

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

The proposal to establish a jointly managed national park marks a significant development in the management of protected areas in Western Australia. The recognition of ongoing Aboriginal interests and responsibilities for managing country is at the core of this innovative and inclusive approach, and the final management plan provides for joint management between the Department of

Environment and Conservation and the Murujuga Aboriginal Corporation. Collaborative approaches outlined in this plan between government agencies (federal, state and local), the Murujuga Aboriginal Corporation and industry partners aim to set a new benchmark for the protection and promotion of cultural values and Aboriginal recognition of country at the state and national level.

The plan describes how the National Heritage listed values will be protected, how research can be conducted, and how access and facilities for visitors, tourism opportunities, education and interpretation of the magnificent cultural values can be provided.

Bill Marmion MLA  
Minister for Environment



Steve Szabo with members of the Ngarda-ngarli community. Photo – Norm Williams

# Acknowledgments

The first version of the draft management plan was prepared by the late Steve Szabo. 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 the management plan. The Burrup Peninsula Conservation Reserve Advisory Committee 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
Mr Ranger ( <i>deceased</i> )	Mr Solomon ( <i>deceased</i> )
Michelle Adams	Wilfred Hicks
Tim Douglas	Robert Hicks
Mr Barker ( <i>deceased</i> )	Mr Richards ( <i>deceased</i> )
Mr Daniel ( <i>deceased</i> )	Daryl Moncrieff
Chris Muller	Warren Fish
John McGowan	

Several government agencies contributed, notably the Department of Environment and Conservation (DEC), the Department of Premier and Cabinet's Native Title Unit (formerly the



An engraving of a kangaroo. Photo – Mike Bodsworth/DEC

Office of Native Title), the Department of Indigenous Affairs and the Department of State Development (formerly the Department of Industry and Resources). Within these organisations the efforts of the following stood out: Peter Sharp, Ian Walker, Bill Carr, Peter Kendrick, Stephen Van Leeuwen, Cliff Winfield, Keith Hockey, Portia Brown, Simon Choo, Tracy Shea, Alex Bowlay, Allisdair MacDonald and Laurina Bullen from DEC; Mark Miley and Warren Fish from Department of Industry and Resources. The close involvement of the late Norm Williams was a great support and 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. Ron Critchley, Chief Executive Officer of the Murujuga Aboriginal Corporation, and the Murujuga Aboriginal Corporation Board of Directors played an invaluable role in finalising the management plan.

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 (*deceased*) from Australian Interaction Consultants should be acknowledged.

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 the vision and commitment to country of those people.

The photographs that appear in this management plan have been approved for inclusion by the Murujuga Aboriginal Corporation.

# Contents

Dedication .....	i
Flying fox Dreaming.....	i
The Law in stone.....	i
Vision.....	ii
Foreword .....	iii
Acknowledgments .....	iv
Summary.....	viii
Introduction .....	1
1. Brief overview.....	1
2. Regional context .....	1
3. Establishment of Murujuga National Park .....	3
4. Planning area .....	4
5. Key values.....	4
Management directions.....	8
6. Working together – joint management of Murujuga National Park .....	8
7. Ngarda-ngarli employment and training.....	12
8. Legislative framework.....	13
9. The management planning process.....	18
10. Review .....	21
11. Term of the plan.....	21
Caring for country: cultural heritage .....	22
12. Ngarda-ngarli cultural heritage.....	22
13. Archaeological sites .....	26
14. Following European settlement .....	30
Caring for country: natural environment .....	34
15. Climate.....	34
16. Geology, landforms and soils .....	34
17. Hydrology.....	36
18. Vegetation and flora.....	37
19. Fauna .....	42
20. Fire.....	47
Caring for country: managing visitors .....	49
21. Visitor opportunities, public access and recreation.....	49
22. Management for public use.....	51



23. Visitor access .....	53
24. Visitor activities .....	57
25. Visitor services .....	60
26. Commercial opportunities for Ngarda-ngarli.....	61
27. Commercial operations.....	61
28. Firearms.....	64
29. Pets .....	64
30. Visitor safety.....	64
31. Visual landscape .....	65
Caring for country: resource use .....	68
32. Use of the park by Ngarda-ngarli .....	68
33. Working with neighbours.....	70
34. Mineral and petroleum exploration and development.....	72
35. Rehabilitation .....	73
36. Utilities and services.....	78
Caring for country: involving the community and research .....	77
37. Community education .....	77
38. Interpretation and cultural facilities.....	79
39. Research and monitoring.....	80
Appendices .....	82
Acronyms and abbreviations.....	91
Glossary .....	92
References.....	97
Appendices	
Appendix 1: Excerpt – Burrup and Maitland Industrial Estates Agreement Implementation Deed 2002.....	82
Appendix 2: Management agreement.....	85
Appendix 3: National Heritage values.....	XX
Appendix 4: National Heritage management.....	XX
Appendix 5: Obligations and agreements .....	XX
Maps	
Map 1: Locality, tenure and land use.....	3
Map 2: National Heritage place.....	5

# Summary

Murujuga National Park is freehold land on the Burrup Peninsula owned by the Murujuga Aboriginal Corporation (MAC), comprising members of the three ‘contracting parties’ (referred to from here on as the Traditional Custodians)—the Ngarluma Yindjibarndi, the Yaburara Mardudhunera and the Wong-goo-tt-oo—registered on the *Burrup and Maitland Industrial Estates Agreement Implementation Deed 2002*. The Aboriginal freehold land is leased back to the state at a peppercorn rent and is to be jointly managed by the representatives of MAC and the Department of Environment and Conservation (DEC) as the Murujuga National Park (formerly known as the proposed Burrup Peninsula Conservation Reserve).

The granting of title to the non-industrial lands of the Burrup Peninsula is a result of the Burrup and Maitland Industrial Estates Agreement (BMIEA) between the Traditional Custodians and the state which was concluded in January 2003.

While the non-industrial lands of the Burrup Peninsula will remain freehold Aboriginal land, the area will be managed as a national park with formal protection under the *Conservation and Land Management Act 1984* (CALM Act). This arrangement has been achieved through a joint management agreement between MAC and DEC.

The establishment of a jointly managed national park marks a significant development in the management of protected areas in Western Australia. The recognition of ongoing Aboriginal interests and responsibilities for managing country is at the core of this innovative and inclusive approach. Day-to-day management responsibility for Murujuga National Park will rest with DEC, which may contract the services of MAC; however, park planning and strategic management will be the responsibility of the Murujuga Park Council (MPC) that comprises at least 50 per cent Aboriginal membership representing MAC.

The preparation of this management plan is a requirement of the BMIEA (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 Aboriginal members but also included representatives of the former Department of Conservation and Land Management (CALM, now DEC), the Department of Indigenous Affairs (DIA) 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. MPC is the responsible body under the CALM Act for preparing management plans for Murujuga National Park, through the agency of DEC.

The advisory committee first called for community input into the preparation of the draft management plan in August 2003. The consultant also contacted interested parties including state and federal government agencies, local government, industrial and commercial interests and non-government conservation organisations. A particular emphasis was put on consultations with local Aboriginal people (or Ngarda-ngarli) to ensure that the management plan for their freehold land reflected their views and aspirations. Much of this work was on-site and their input was both comprehensive and generous.

The advisory committee then sought public comments on the draft document over a two month submission period. Fifty-nine submissions were received, analysed and considered in finalising this management plan.

When the draft of the plan was released for public comment, the non-industrial area was referred to as the proposed Burrup Peninsula Conservation Reserve. In recognition of the area’s significance to Aboriginal people, it will be known as Murujuga and in recognition of its international importance, national heritage significance and a place for people to understand and appreciate it will be managed as a national park.

The area was assessed by the Australian Heritage Council subsequent to the release of the draft management plan and was found

to meet five of the eight criteria for National Heritage listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This management plan aligns with the principles and requirements associated with the management of a National Heritage listed place.

The central objective and challenge for the management plan is to achieve a sustainable coexistence of conservation and industrial development and Aboriginal and other Australian land ownership and use. This plan advocates protection of the area's internationally important and National Heritage listed values, while recognising the economic and social benefits the Burrup Peninsula industries bring to the people of Western Australia.

This management plan is principally concerned with the freehold Aboriginal lands that form Murujuga National Park. Nevertheless, the protection of the cultural and natural values of the park will be affected by what happens in the adjacent 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. It is the intent of this plan to provide a blueprint for a coordinated management effort.



North Burrup gorge. Photo – Stewart Caves

# Introduction

## 1. Brief overview

Murujuga National Park covers an area of 4,913 hectares within the Burrup Peninsula on the Pilbara coast of Western Australia. It is privately owned by the Murujuga Aboriginal Corporation and jointly managed with the Department of Environment and Conservation.

The Aboriginal culture of the country is diverse, with contemporary Aboriginal interests including sites, the maintenance of Aboriginal culture and social and economic connections to the whole landscape. The value of the extensive rock art and associated archaeological materials has been recognised by the National Heritage listing of the park, as well as adjacent lands and islands.

The park is also ecologically and biologically diverse. Major landforms and habitats within the park include steep scree strewn granophyre and gabbro hills, narrow valleys, sandy and rocky shores, mangroves, mudflats and sea cliffs. *Triodia pungens* hummock grasslands predominate but there are a large number of other vegetation communities of limited distribution. A number of threatened and migratory species are known to frequent the area and are protected under state and national environmental laws.

This management plan for Murujuga National Park is required by the BMIEA (see Appendix 1). The plan provides direction and strategies for the management operations proposed to be undertaken over the next 10 years until otherwise amended or superseded by a new management plan. Its implementation will be administered by the Murujuga Park Council, comprising representatives of MAC (in which the freehold title of the land is held), DEC and the Minister for Indigenous Affairs.

The focus of the plan is to ensure protection and awareness of the remarkable cultural values of the area. As an important component in achieving this, the plan identifies opportunities on Murujuga National Park that will provide for ongoing employment and business development for Ngarda-ngarli. This includes work in managing the land to protect

its cultural and natural values, and also in developing tourism opportunities.

Significant collaborative research and inventory of the cultural values is proposed to increase the base knowledge, build research capacity and provide employment and training opportunities.

## 2. Regional context

The Burrup Peninsula is located in the north-west of Western Australia at latitude 20° 35' S and longitude 116° 50' E. This area is within DEC's Pilbara Region and it is also part of the Western Australian Planning Commission's Pilbara Region.

Aboriginal people have been living in the Pilbara for over 30,000 years and, by 4,000 years ago, much of the region was either inhabited or traversed. There are more than 30 Aboriginal languages in the Pilbara Region, with between two and five dialects for many of these languages (Wangka Maya 2008). The predominant Aboriginal languages spoken on the Burrup Peninsula and Dampier Archipelago were Yaburara and in the south-west, Mardudhunera.

The Pilbara has the richest array of rock engravings in Australia. Distinct style regions exist at Port Hedland, the Upper Yule River (Woodstock-Abydos), Cooya Pooya (including the Fortescue River) and in the eastern Hamersley and Ophthalmia ranges area. Depuch Island may be another style province and the Burrup Peninsula and Dampier Archipelago provide a spectacular array of engraved art (McDonald 2005). The cultural heritage of the Burrup Peninsula is internationally acknowledged and it has been included on the National Heritage List based on its diverse and abundant rock art and associated archaeological materials.

The Pilbara has a variety of natural features, from escarpments and plateaus, alluvial, granite and basalt plains to offshore islands. Hummock grasslands, acacia forests and woodlands dominate the vegetation of the region and there are smaller areas of acacia

shrublands, tussock grasslands, salt marshes, mangroves and eucalypt woodlands along water courses. Murujuga National Park falls within the Roebourne subregion of the Pilbara Craton bioregion (Environment Australia 2001).

The Pilbara Region comprises four local government areas—the shires of Ashburton, East Pilbara and Roebourne and the Town of Port Hedland. The park is within the Shire of Roebourne, which had an estimated resident population of 19,143 in 2010 (Australian Bureau of Statistics). The shire includes the towns of Dampier, Karratha, Point Samson, Roebourne and Wickham. Dampier and Karratha are the nearest towns to the park, the former approximately five kilometres to the west and 12 kilometres by road, and the latter approximately 25 kilometres to the south by road (see Map 1).

Land use around Murujuga National Park is diverse, with the most significant industries being iron ore, solar salt, natural gas, liquefied natural gas (LNG), liquefied petroleum gas (LPG), and ammonia production. The region produces gold and other minerals and contains Australia's largest ports, longest private railways and largest iron ore and petroleum production facilities. Other uses in the region include pastoralism, tourism and Aboriginal

lands. The coastal waters sustain both a commercial fishing industry (the Nickol Bay and Exmouth Bay prawn fishery) and a high level of recreational fishing.

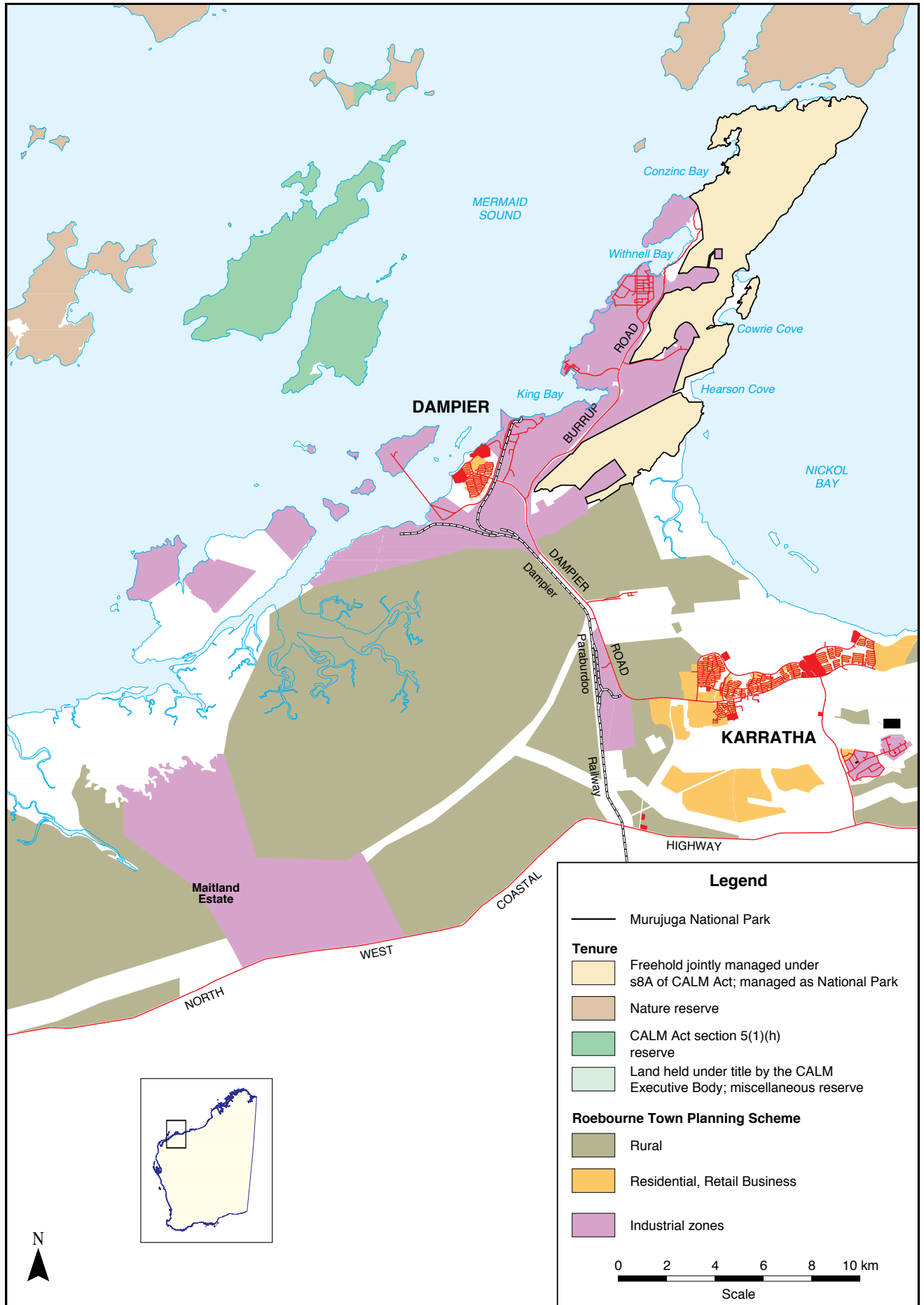
The major resource enterprises coexist with Western Australia's largest and second largest national parks (Karlamilyi and Karijini national parks), Australia's largest fringing reef at Ningaloo Marine Park, the Montebello and Barrow islands and the Dampier Archipelago. Twenty-eight islands of the Dampier Archipelago are also managed by DEC. The coastal waters surrounding the Burrup Peninsula are rich in marine life and are proposed to be protected within the proposed Dampier Archipelago Marine Park.

The region offers a variety of tourism opportunities. Currently, the major nature-based attractions in the region are Millstream-Chichester and Karijini national parks, Nickol Bay to the east and Mermaid Sound to the west of the Burrup Peninsula. The mining industry in the region has created a tourist attraction in itself, with people visiting the port in Dampier, the gas project on the Burrup Peninsula and the iron ore mines at Newman and Tom Price. The towns of Cossack, Roebourne and Marble Bar have an interesting cultural heritage, while Dampier Archipelago is used



Burrup Peninsula from the air. Photo – Bill Carr

Map 1. Burrup Peninsula locality, tenure and land use



by visitors for fishing, diving and camping. The abundance and diversity of petroglyphs on the Burrup Peninsula also attracts many visitors. Recreational activities in the region have a strong nature-based and remote focus. The national parks offer numerous hiking and overnight trekking opportunities. These national parks also promote Aboriginal cultural activities, which have great potential for expansion (Western Australian Tourism Commission 2002).

There is good access to the region, with regular daily flights into Karratha, Port Hedland, Paraburdoo and Newman. The North West Coastal Highway and the Great Northern Highway provide road access into the region for independent travellers and those travelling by bus and on coach tours. The 'Warlu Way' (see Section 37 Community education) is an 1800km tourist route interpreting Aboriginal cultural heritage and the natural and landscape values of the Pilbara. It links the Murujuga National Park to other destinations such as Broome and Ningaloo Marine Park. This driving trail provides visitors with access to these destinations, as well as providing business and employment opportunities for Aboriginal people.

### 3. Establishment of Murujuga National Park

The *Burrup Peninsula land use plan and management strategy* (Burrup Peninsula Management Advisory Board 1996) provided the overarching Government of Western Australian policy for land-use planning on the Burrup Peninsula. This strategy addressed uncommitted land north of the Dampier road and proposed two broad land use categories:

- a conservation, heritage and recreation area
- an industrial area.

The boundaries recommended by the strategy were incorporated into the *Shire of Roebourne town planning scheme no. 8* (April 2003). This provides the statutory basis for land development in the area.

The BMIEA, signed in 2003 with the native title claimants for the area, further defined the areas to which industry was restricted and confirmed the boundary of the 'Burrup non-industrial land' which was to become the Murujuga National Park.



Conzinc Bay. Photo – Bill Carr

The BMIEA reflected the provisions of the *Shire of Roebourne Town Planning Scheme No. 8*, and freehold title to the non-industrial lands of the Burrup Peninsula was granted to MAC. On creation of the private land, it was leased to DEC and is jointly managed with the Ngarda ngarli through MPC.

## 4. Planning area

This plan covers Murujuga National Park which extends over 4,913 hectares (44 per cent) of the Burrup Peninsula. It occupies all of the northern and most of the eastern part of the peninsula. Much of the remaining peninsula has been allocated for future industrial development and associated infrastructure corridors that are required to service these industries (see Map 1). Murujuga National Park comprises 86 per cent of the Dampier Archipelago National Heritage place that has been gazetted on the Burrup Peninsula (see Map 2).

Where appropriate, the plan considers possible management, by MPC via DEC referral, of unmanaged areas adjacent to Murujuga National Park, as well as working with adjacent land managers.

## 5. Key values

Maintaining the key values of Murujuga National Park will be the major focus of this management plan. Some of the key values of the park are:

### Cultural values

- a very high density of Aboriginal heritage sites with highly significant heritage values
- some of the most significant petroglyph sites in Australia with associated cultural and mythological values and archaeological material
- demonstration of a successful joint management arrangement through MPC.

### Natural values

- significant vegetation communities

including mangals, pockets of tall dense vegetation, coastal grasslands, samphire communities, rock pile vegetation patches and seasonally wet areas and watercourses

- diverse terrestrial fauna attributable to the range of habitats available on the peninsula (for example, rocky outcrops, rock piles, rocky scree slopes, valleys and drainage gullies, grasslands, disturbed habitats, saline and supratidal flats, and coastal fringe).

### Recreational values

- outstanding scenic landscapes of great contrast (the red rocky scree slopes and rock piles, narrow valleys, and extensive vistas provided by the ranges with adjacent bright blue coastal waters)
- accessible rock art panels and cultural heritage sites, as approved by MPC on advice from the Traditional Custodians
- terrestrial and adjacent marine environments that offer remote and natural nature-based recreational and tourism opportunities
- terrestrial and adjacent marine environments that provide opportunities for viewing a diverse range of native flora and fauna.

### Commercial values

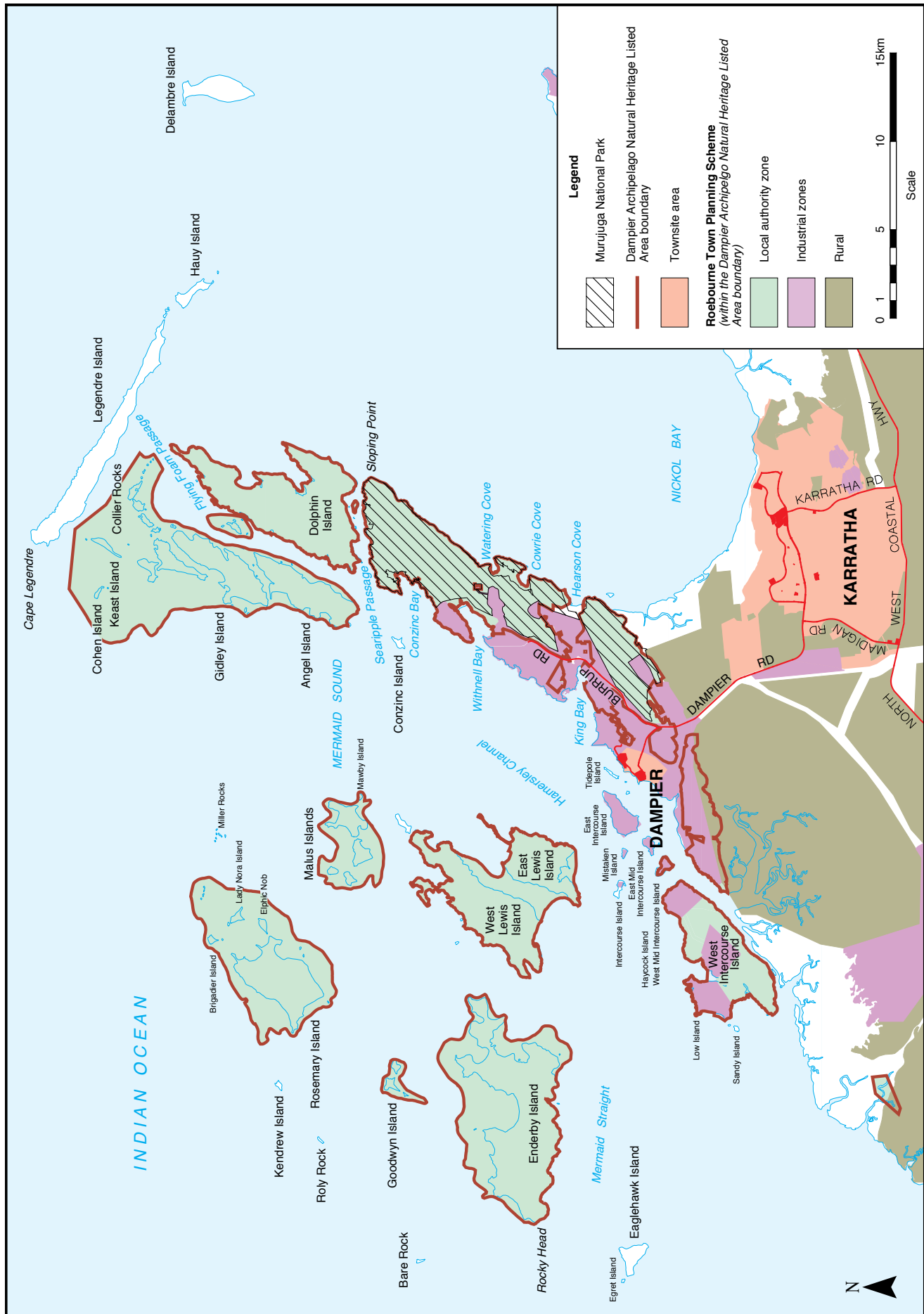
- cultural and natural values which attract Aboriginal heritage and nature-based tourism and contribute to regional expenditure.

### Educational and research values

- research opportunities to increase knowledge associated with the petroglyphs and other archaeological material of the area
- ecological studies associated with the range of habitats and animals
- geological and geomorphological research associated with the range of rock types and topography.

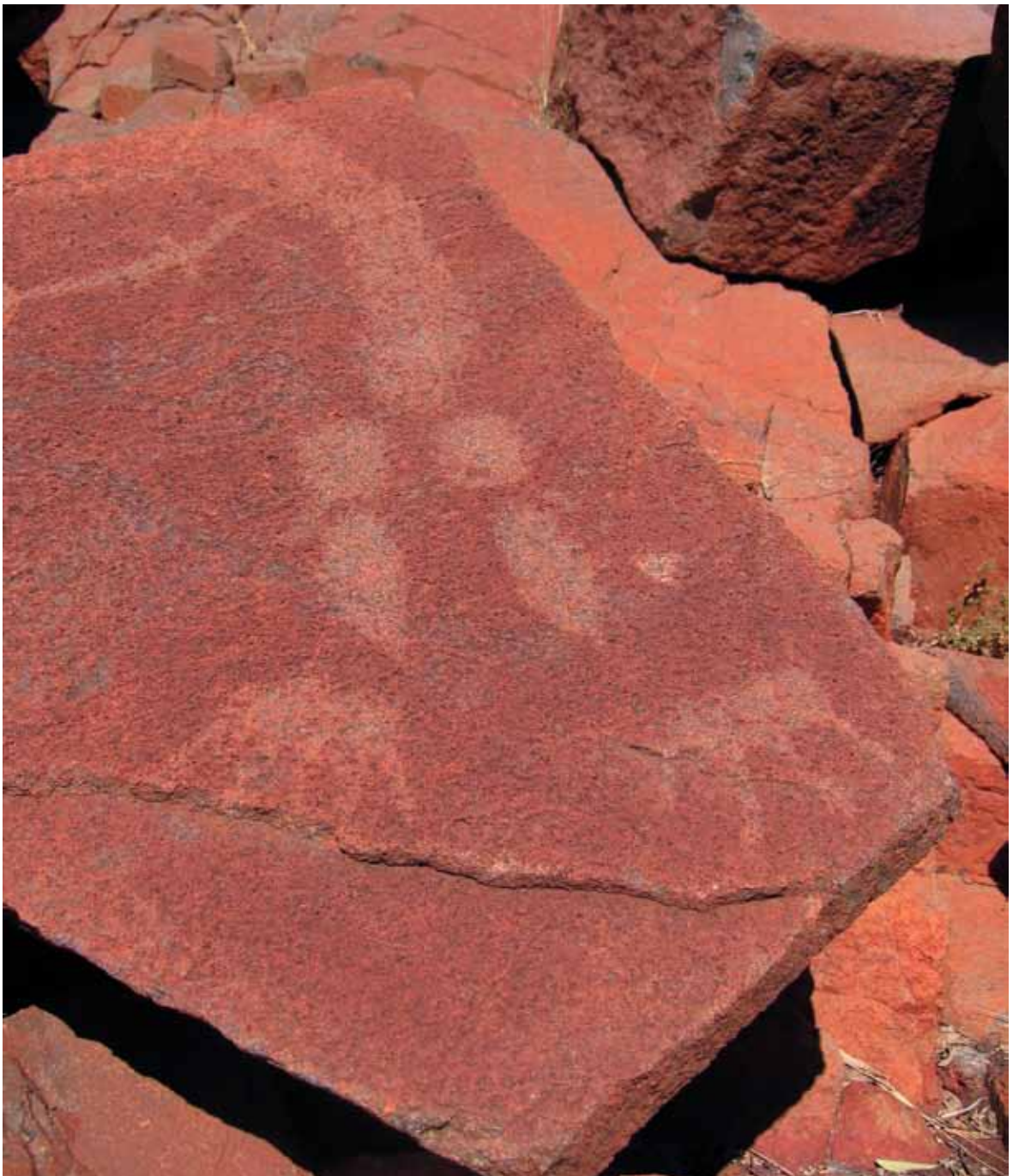


Map 2. Dampier Archipelago National Heritage place



## Community values

- an opportunity for Aboriginal people to fulfil their aspirations to manage the park and to participate meaningfully with DEC and DIA in joint management of the area
- opportunities to interpret the values of the park and to educate the community about their significance
- opportunities to work with the community and stakeholders to encourage greater involvement in the management of the park
- opportunities for Ngarda-ngarli to gain income, employment and satisfaction from engagement with management of the park.



Engraving of a kangaroo paw.

# Management directions

## 6. Working together – joint management of Murujuga National Park

The state government entered the BMIEA implementation deed with the Ngarluma Yindjibarndi, Yaburara Mardudhunera and Wong-goo-tt-oo native title parties on 16 January 2003. The BMIEA allows for the possibility of industrial development to progress across the southern parts of the Burrup Peninsula while at the same time providing for the granting of freehold title to the non-industrial lands of the Burrup Peninsula to the contracting parties through MAC.

The ownership of the Murujuga National Park land was transferred to MAC following the proclamation of amendments to the *Conservation and Land Management Act 1984* (CALM Act) that enabled joint management of Aboriginal owned land with DEC. At the same time that the land was transferred, it was leased to DEC in accordance with the BMIEA.

Murujuga National Park is owned by MAC and jointly managed with DEC in accordance with a management agreement and this management plan. This involves working together, solving problems together, sharing decision-making responsibilities and exchanging knowledge, skills and information. The joint management arrangements will conserve, protect and promote the Aboriginal cultural and archaeological values and natural values, and provide for managed access and recreation on the Burrup Peninsula. Important objectives of joint management are to make sure that traditional skills and knowledge associated with looking after culture and country, and Ngarla-ngarli cultural rules on how decisions should be made, continue to be respected and maintained. It is also important that contemporary park management skills are available to enable the joint management partners to look after Murujuga National Park in line with current best management practices. The long-term objective is that Ngarla-ngarli will wholly manage the park.

Importantly, the agreement establishes a joint decision-making structure—MPC—which has strong Aboriginal representation and enables Aboriginal people to reassert their values and culture in the ongoing management of the area, and draws on the expertise of DEC in the management of national parks.

### Murujuga Aboriginal Corporation

The benefits to Aboriginal people arising from the BMIEA are to be spread among all the contracting parties. Its successful implementation depends on the effective operation of a single, legally constituted corporate body—MAC. MAC holds the title to the non-industrial lands, represents Aboriginal interests in dealings related to the BMIEA and manages the funds and other benefits and responsibilities arising from it.

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

The state has provided funds for both the establishment of MAC and for its first four years of operation. MAC is responsible for seeing that the benefits arising from the BMIEA are distributed equitably among the members of the contracting claim groups. It has the power of attorney, or the ability 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. MAC has 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.

### Management agreement

The management agreement outlines how decisions will be made in relation to the Murujuga National Park (see Appendix 2). It commits the state and Aboriginal parties to joint management of Murujuga National Park and requires that the parties work through a

formal partnership to protect the values of the park under the CALM Act. The management agreement clarifies decision-making processes and sets out the structure through which decisions consistent with the management plan can be made.

### Murujuga Park Council

Management of Murujuga National Park is administered by DEC in accordance with the policy direction provided by MPC (see Appendix 2, Clause 7). The council comprises:

- six representatives of MAC (two from each of the contracting parties)
- three representatives of DEC
- one representative appointed from time to time by the Minister for Indigenous affairs.

The functions and responsibilities of MPC 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.
- MPC will aim to reach decisions by unanimity; however, failing unanimity a majority of MAC representatives and a majority of department representatives is required.

- MPC will meet regularly and as required but no less than three times per year.
- MPC can invite other persons to meetings, especially where specialist advice or technical information is required to inform decision-making.
- MPC may occasionally appoint committees comprising its own members or others to investigate and advise on matters as it sees fit.
- MPC can only make decisions that are consistent with the management plan.

The Karratha office of DEC will provide secretariat services for MPC.

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.

Funding for operating MPC and management of the park will be provided by the state through DEC or any other relevant department. Funding will be managed by MPC in accordance with the management agreement.

### Role of DEC

The State of Western Australia is the lessee and DEC is a joint manager of Murujuga National



MAC Ranger Development Coordinator Brad Rowe and MAC rangers at Deep Gorge giving DEC Pilbara staff a welcome to country and insights into the Aboriginal cultural heritage of Murujuga National Park. Photo – Alex Bowlay/DEC

Park, which is owned by MAC. DEC will work with MAC to undertake the day-to-day management and implement the management plan. It is intended that officers employed by MAC will have powers under the CALM Act to enforce all relevant laws and regulations to ensure the protection of the significant values of the park. DEC will facilitate the delegation of the powers once MAC officers have the training in the use of the powers.

Funding agreed under the BMIEA for management of the park, staffing, and the development of infrastructure will be managed by MPC in accordance with the management agreement. DEC will have a significant role in training MAC staff in all aspects of management of the park.

Along with the roles identified above, DEC is also responsible for:

- biodiversity conservation, including threatened species listed under the EPBC Act
- management of marine parks, national parks and other protected areas across the state
- environmental regulation of industry, in particular industry emissions
- supporting the processes undertaken by the Environmental Protection Authority.

DEC coordinates and participates in a number of forums with industry, both formally and informally, and will involve representation from MPC on an 'as needs' basis.

DEC works with the Dampier Port Authority in a number of areas, particularly oil spill response. DEC will coordinate responses with officers of MAC on a needs basis.

### Role of other parties

Maintaining good relations with other government and private sector organisations in the region, and with the broader community, is a high priority for park management. This approach will foster a sense of ownership and shared responsibility across the community for



Conservation Commission members examine engravings on rocks.  
Photo – Laurina Bullen/DEC

the effective protection of the unique values of Murujuga National Park.

The Conservation Commission of Western Australia (Conservation Commission) is normally the vesting body for conservation reserves in Western Australia, including many of the islands of the Dampier Archipelago. The functions of the Conservation 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
- to advise the Minister on the management of flora and fauna.

Although not having a statutory role as a 'responsible body' for preparing this management plan, the Conservation Commission 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. Through amendments recently made to the CALM Act the Conservation Commission may be consulted on the development of further management plans and the Minister may request a written report about the management plan when submitted.

The Shire of Roebourne has been very supportive of the establishment of Murujuga National Park, Aboriginal ownership and joint management. The shire may provide a range of services that will contribute to the management, access and enjoyment of Murujuga National Park. For example, the nearby 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.

From time to time the Shire of Roebourne may also be engaged to undertake specific works within the park, such as track maintenance and other infrastructure projects.

DIA will provide training, advice and, if necessary, enforcement capability in the area of Aboriginal heritage protection. DIA advise on appropriate protection of heritage sites, such as through signage and erection of barriers in such areas. They will also provide a link between the heritage management issues within the park and similar issues in the adjacent industrial lands. Relevant and appropriate powers vested in DIA for the protection of heritage sites will need to be transferred to the rangers employed to maintain Murujuga National Park.

The Minister for Indigenous Affairs will nominate a representative to MPC.

Regular and open dialogue between park management and industry neighbours on the

Burrup Peninsula needs to be established at both a formal and informal level. Staff employed to work on the park should provide briefings on the objectives and values of the park for all employees and contractors engaged by industry as part of their induction /orientation. MPC will work with industry neighbours in relation to safety training over their sites and to enable access for MAC, MPC, DIA or DEC representatives to conduct regular audits of petroglyphs and other heritage material that are located within their respective leases.

## Objectives

1. Murujuga National Park will be managed to the highest standards that meet the expectations of the Australian community for protection of cultural, heritage and natural values.
2. Cultural, heritage and natural values will be conserved, protected and promoted.
3. Ngarda-ngarli will meet their obligations to country and satisfy their people's aspirations for benefits from land ownership.
4. Members of MPC will together make shared, informed, consistent, transparent and accountable decisions.

## Strategies

1. MPC will work with relevant stakeholders to develop partnerships and other ways of increasing benefits for Ngarda-ngarli related to implementation of this plan. This may involve linking Ngarda-ngarli with, and providing support for, people who can provide relevant skills development, advice and appropriate development opportunities.
2. MPC will seek specialist input from the relevant experts concerning interpretation of cultural values, survey of heritage values and recording of information.
3. MPC will seek to engage as many Ngarda-ngarli as possible to implement this plan with the goal of all services being provided

by Ngarda-ngarli. Ways to do this will include but not be limited to:

- providing Ngarda-ngarli with a range of permanent, contract and flexible employment opportunities and associated learning and development support
- designing jobs to incorporate Ngarda-ngarli land management skills and knowledge
- regularly reviewing the delivery of park management services with a view to contracting services to Ngarda-ngarli
- encouraging external contractors to employ Ngarda-ngarli, including providing apprenticeships where practicable
- where practicable, and subject to DEC's and MPC's legal obligations, engaging Ngarda-ngarli organisations to provide services in and in relation to the park
- developing learning and development strategies linked to implementing this plan. This may include:
  - accredited training and studies
  - developing literacy and numeracy
  - developing customary land management skills
  - ongoing career development, mentoring and coaching
  - learning and development opportunities for potential Ngarda-ngarli employees
  - working with stakeholders to help support Ngarda-ngarli enterprises.
- developing and implementing programs that teach young Ngarda-ngarli about culture, country and park management, and where possible working with other organisations to achieve this.

4. During day-to-day management of the park, DEC staff will work with MAC staff in ways that help them to develop their capacity to progressively assume more responsibilities related to the administration, control and management of the park.

## 7. Ngarda-ngarli employment and training

Direct Ngarda-ngarli employment in the management and protection of Murujuga National Park is a central element of joint management and one of the benefits Ngarda-ngarli negotiated under the BMIEA.

The Aboriginal owners of the park place the highest value on full-time permanent positions with the conditions, security and authority associated with employment. Funding for park management, including associated staffing by Ngarda-ngarli trainees and DEC was negotiated as part of the BMIEA. A key principle underlying the BMIEA is that all parties should be working towards full Ngarda-ngarli control and management of the park over time. MPC will have the ability to source other funding in order to pursue these objectives.

There may be a limit to the number of permanent positions available in the park, at least during the establishment phase. Much of the work associated with the park is also seasonal and reliant on commercial development, such as in the area of tourism and visitor services. Other work opportunities will be outsourced as contracts for construction or environmental projects in accordance with this management plan. In accordance with the BMIEA, it is the intention of this plan to direct employment opportunities to Ngarda-ngarli individuals and enterprises (see Section 26 *Commercial opportunities for Ngarda-ngarli*).

### Objectives

1. To maximise the employment and training opportunities for Ngarda-ngarli arising from the ownership and joint management of Murujuga National Park.

2. To encourage and support Ngarda-ngarli enterprises through visitor and tourism services.

### Strategies

1. Develop a recruitment policy and selection criteria tailored to the requirement of maximising Ngarda-ngarli employment (for example, take into account flexibility, part-time, seasonal and contract work).
2. Ensure that MAC has a proactive role in selecting staff for all positions in the park, including those funded through the BMIEA.
3. Encourage Ngarda-ngarli individuals and companies to tender for contracts arising from the implementation of this plan.
4. Ensure that all contractors working in the park demonstrate a sensitivity to, and awareness of, Aboriginal cultural values associated with the park, or are willing to undertake such training at their own expense, by making it part of the selection criteria.
5. Liaise with the employment service provider to identify employment and enterprise opportunities and link these to training needs.
6. Work with partners to provide training to Ngarda-ngarli to assist in the development of business opportunities including site identification and the Steps Towards Sustainable Tourism Program.
7. Support the development of a young Aboriginal leadership program.
8. Maintain a close liaison with government departments and agencies as well as other organisations to facilitate the delivery of cultural surveys of Murujuga National Park. This may include training MAC staff in archaeological methods to appropriately document new sites and ensure coordinated management of the area.

## 8. Legislative framework

### Aboriginal Heritage Act 1972

DIA administers the *Aboriginal Heritage Act 1972* (Aboriginal Heritage Act). The Aboriginal Heritage Act protects and preserves Aboriginal heritage and culture throughout Western Australia, including any site or object whether they have been previously recorded or not. It is an offence under section 17 of the Aboriginal Heritage Act 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 Aboriginal Affairs (section 18). In accordance with section 15, there is an obligation placed on persons to report to the registrar the location of anything to which they might reasonably expect the Aboriginal Heritage Act to apply.

The Aboriginal Cultural Material Committee is the primary advisory body for Aboriginal heritage matters in Western Australia and is established under section 28 of the Aboriginal Heritage Act. 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
- 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, 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. DIA prefers that Aboriginal sites be avoided in the process of any development. Where this is not possible, an owner may seek the consent of the Minister for Indigenous Affairs to use the land.

The Aboriginal Heritage Act contains provisions (sections 19 and 20) for the declaration and gazettal of protected areas, which are sites that are, in the opinion of the Aboriginal Cultural Material Committee, of 'outstanding importance'. Once an area has become a protected area, regulations may be made that control use and access to the site. At present, there are two section 19 protected areas on the Burrup Peninsula—the 'Climbing Men' site and the Burrup Peninsula North area (see Section 13 *Archaeological sites – significance*). The exclusive right to the occupation and use of protected areas is vested in the Minister for Indigenous Affairs on behalf of the Crown. Consent can be

sought in accordance with regulation 10 of the Aboriginal Heritage Regulations 1974 by the Minister for Indigenous Affairs or the registrar to undertake certain activities within a protected area.

Section 50 of the Aboriginal Heritage Act allows for the appointment of honorary wardens who are authorised to protect registered sites. Wardens have powers to question and remove people in some circumstances. These provisions may enable certain management activities to take place within the protected areas. It is envisaged that relevant staff will be appointed as honorary wardens under this section.



The Southern Burrup landscape. Photo – Stewart Caves

## Conservation and Land Management Act 1984

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

Murujuga National Park is owned by MAC and managed by MPC through a partnership arrangement that operates under the provisions of the CALM Act. These provisions and Conservation and Land Management Regulations 2002 enable the proper protection of the park's values under statutory law. National parks are managed under the CALM Act as areas of national or international significance for their biological, scenic and cultural values. Commercial exploitation of flora and fauna is not permitted and only recreational pursuits that do not adversely affect ecosystems and landscapes are permitted.

DEC and its predecessor, CALM, have been engaged for more than two decades in various cooperative management approaches with Aboriginal people. The comprehensive joint management negotiated for the Burrup Peninsula is a major advance enabled by amendments to the CALM Act in 2012 to allow for joint management of Aboriginal land by DEC. These amendments have also added a management objective for DEC-managed lands to conserve and protect the value of the land to the culture and heritage of Aboriginal persons, and will enable them to undertake certain activities for customary purposes on the DEC-managed lands and waters.

Section 8A of the CALM Act includes options for DEC to enter into agreements with the owner, lessee or licensee of any land to jointly manage that land as if the land were

a State forest, timber reserve, national park, conservation park, nature reserve, or for a public purpose consistent with the CALM Act. In this case the park is owned by MAC and will be managed by MPC as a national park.

## Wildlife Conservation Act 1950

Under the *Wildlife Conservation Act 1950* (Wildlife Conservation Act) and subsidiary legislation, all native flora and fauna within Western Australia is protected. This includes all listed threatened species and listed migratory species under the EPBC Act. Under the Wildlife Conservation Act and CALM Act, DEC is responsible for:

- the conservation and protection of flora and fauna throughout the state
- carrying out studies related to the conservation and protection of flora and fauna
- the management of conservation lands and waters
- approvals to take declared rare flora and fauna
- approvals to carry out activities that affect threatened ecological communities.

## Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) contains provisions relating to the protection and management of nationally listed threatened species and ecological communities, listing of key threatening processes and national heritage.

Matters of national environmental significance are defined under the EPBC Act as the protection of, among other things, World Heritage and National Heritage Places. The National Heritage List contains places of outstanding heritage value to the nation.

Since the draft management plan was released, the majority of the park has been included on the National Heritage List (Dampier Archipelago (including Burrup Peninsula) see Appendix 3 and Map 2). Therefore, this

management plan addresses management of the National Heritage values. In addition a strategic management framework will summarise how the Dampier Archipelago National Heritage values will be identified, protected, conserved, presented and transmitted to all generations throughout the Burrup Peninsula and Dampier Archipelago. The principles for management of National Heritage places are set out in Schedule 5B of the EPBC Act Regulations 2000 (see Appendix 4).

The National Heritage listing means that a development proposal that may have a significant impact on the National Heritage values of Murujuga National Park should be referred to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities to decide whether there is a need for formal environmental impact assessment. It also means that if there is any heritage disturbance reported to DIA in or near



An engraving of a turtle with eggs. Photo – Mike Bodsworth/DEC

the National Heritage place the Commonwealth may also investigate and/or prosecute. DIA is developing protocols for reporting heritage disturbance which will describe the roles of the state and the Commonwealth.

The *Register of the National Estate* contains a list of places with national estate values and is maintained as a record of important natural, cultural and Aboriginal heritage places. This list was closed in 2007 and offers no statutory protection, but provides a publicly available archive and educational resource. There are three sites still listed on the *Register of the National Estate* (the northern portion of Burrup—Place ID 10096, the ‘Climbing Men’ site—Place ID 10097 and an area of about 1,500 hectares in the Burrup’s south west—Place ID 10087). This includes the large concentrations of petroglyphs and evidence of occupation at Gum Tree and Skew valleys.

## Heritage of Western Australia Act 1990

The *Heritage of Western Australia Act 1990* provides for the registering and protection of sites of historic interest as ‘heritage places’ (Table 1). These sites are registered on the Western Australian *Register of heritage places* database. Sites listed on this register are afforded statutory protection and must not be damaged or altered unless a permit to do so has been granted by the Heritage Council of Western Australia. The Heritage of Western Australia Act also requires local government authorities to maintain an inventory, referred to as the ‘municipal inventory’, of places of heritage significance in their area. This should be the initial register consulted by managers as it may contain sites which are not registered on the *Register of heritage places*, but which MPC should consider in management. Local government may also include these registered heritage places on

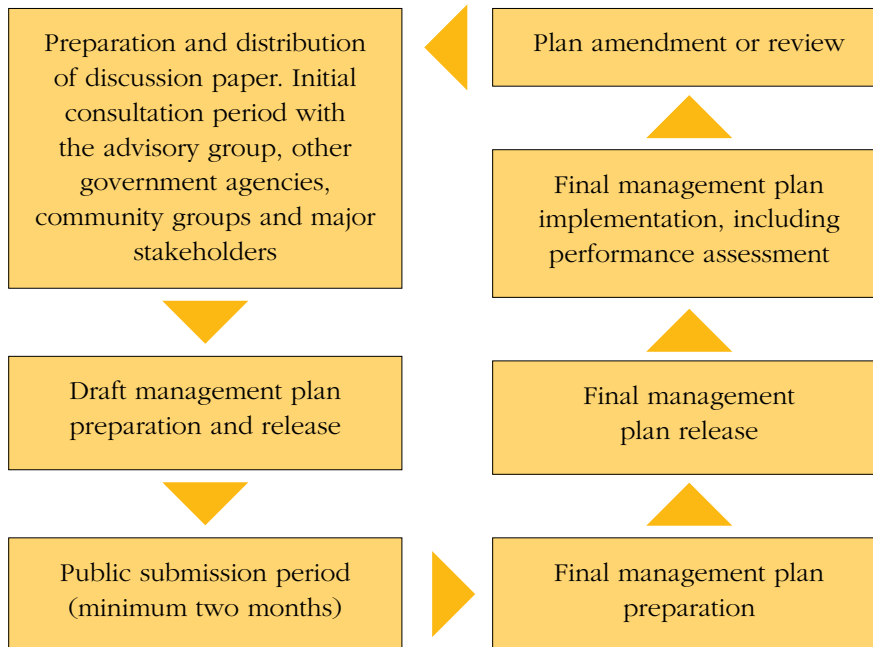
Table 1. Other heritage listed places within the Dampier Archipelago area

(in addition to DIA registered Aboriginal heritage sites and the National Heritage place)

Place	Heritage listing	Place type
Black Hawke Bay, Gidley Island	<ul style="list-style-type: none"> <li>• Municipal inventory</li> <li>• Town planning scheme</li> </ul>	Historic site
Burrup Peninsula, Hearson Cove	<ul style="list-style-type: none"> <li>• Municipal inventory</li> <li>• Town planning scheme</li> </ul>	Landscape
Dolphin Island grave site	<ul style="list-style-type: none"> <li>• Municipal inventory</li> <li>• Town planning scheme</li> </ul>	Historic site
Enderby Island	<ul style="list-style-type: none"> <li>• Municipal inventory</li> <li>• Town planning scheme</li> </ul>	Landscape
Legendre Island lighthouse	<ul style="list-style-type: none"> <li>• Lighthouses survey</li> <li>• Commonwealth list</li> </ul>	Other built type
Malus Island whaling site	<ul style="list-style-type: none"> <li>• Municipal inventory</li> <li>• Town planning scheme</li> </ul>	Other structure
West Lewis Island pastoral settlement ruins	<ul style="list-style-type: none"> <li>• Register of the National Estate</li> <li>• Municipal inventory</li> <li>• Town planning scheme</li> </ul>	Historic site

Source: Heritage Council of Western Australia (2008)

Figure 1. Management planning process



their town planning schemes (planning laws created by local government), to ensure that future developments under local government control do not impact on the cultural values of the area.

### Obligations and agreements

Australia is a participant in or signatory to a number of international conservation agreements, some of which influence management of Murujuga National Park. They include the following:

- Australian International Council on Monuments and Sites charter for the conservation of places of cultural significance (Burra Charter)
- Bonn Convention
- Convention on biological diversity (the Rio Convention)
- Japan–Australia Migratory Bird Agreement (JAMBA), China–Australia Migratory Bird Agreement (CAMBA) and Republic of Korea–Australia Bird Agreement (ROKAMBA).

See Appendix 5 for further detail.

## 9. The management planning process

The requirement for a management plan is set out in Section 4.5 of the BMIEA (see Appendix 1). The BMIEA specifies that the plan must be prepared in consultation with the community, the relevant local government authority, the Conservation Commission and any other relevant authorities. This provides the opportunity for the public to have formal input in to the plan by commenting on the draft plan. The planning process is shown 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 Aboriginal members but also included representatives from CALM (now DEC), DIA and the Shire of Roebourne.

The final plan was prepared following an analysis of the submissions to the draft and in consultation and agreement with MAC.

The management agreement (Appendix 2) in conjunction with the CALM Act specifies the process to be followed when reviewing and amending the management plan.



North Burrup country. Photo – DEC

The draft plan was released for a two-month comment period from 11 July to 11 September 2006. Comments were still being received until mid November 2006.

Fifty-eight separate submissions were received from:

- 26 individuals

- 13 community groups and peak bodies
- 9 state government departments
- 4 businesses
- 4 internal (within DEC)
- 1 federal government department
- 1 local government.

The submissions were assessed against a set of criteria and a decision taken to modify the plan or not. Comments mainly focused on two topics:

- Aboriginal cultural heritage
- access, recreation and visitor facilities.

Comments regarding cultural heritage included:

- The draft plan should include more information about the area's cultural heritage values.
- We need to make sure that the rock art and other cultural heritage values are protected and managed properly.
- It needs to be clearer that Murujuga National Park is truly going to be jointly managed by Aboriginal people and DEC.
- The plan itself should have more of an Aboriginal identity to reflect this joint management.
- The area should be placed on the National Heritage List (proposed at the time).
- Management needs to be consistent across the whole of the Dampier Archipelago.

As a result of the comments on cultural heritage, the plan now:

- includes more detailed information about the Aboriginal cultural heritage values of the area
- has more strategies to conserve and protect cultural heritage and clearly explains processes of joint management with Aboriginal people



North Burrup country. Photo – DEC

- considers cultural heritage values in the management of all other park values
- incorporates specific information on the National Heritage listed values and how these must be cared for.

Public comments regarding access, recreation and visitor facilities included:

- The proposed extension of the two-wheel-drive road to Conzinc Beach and Conzinc Creek should not go ahead.
- Visitors should not be allowed better access to the northern Burrup past the ‘jump-up’—people want the area preserved as it is.
- Visitor infrastructure such as car parks, toilets, picnic areas and camp grounds should not be developed on the Burrup Peninsula.
- The Burrup Peninsula probably cannot sustain a cultural centre, and if there is to be one it should not be on the northern Burrup Peninsula.

As a result of the comments on access, recreation and visitor facilities the plan now:

- recognises that more information is required about the area’s cultural heritage before decisions can be made on access, recreation and facilities
- has strategies to provide for more flexibility in changing decisions about access, recreation and visitor facilities
- recommends that more consideration and planning go into whether there should be a cultural centre and where that should be built.

Other comments were about:

- current and potential impacts of neighbouring industry—existing and proposed developments
- coordinated management of the park in the context of the wider Dampier Archipelago
- the level of detailed information about the park’s values included in the plan.

## 10. Review

In accordance with the management agreement MPC will need to review the management plan within 10 years of the commencement of the agreement. The review will need to be consistent with provisions of the CALM Act which provides for the preparation of management plans and review of expiring plans by MPC. The review should also take into account the views of other relevant authorities such as the Shire of Roebourne. The management agreement envisages that a formal review would include receiving submissions on the performance of the current plan and public comments on a subsequent new draft management plan.

Any reviewed or replacement management plan once agreed by MPC and the Minister for Environment would be registered on the certificate of title for the land.

## 11. Term of the plan

Murujuga National Park management plan will guide management of the national park for a period of 10 years from the date the plan is gazetted, or until replaced by a new management plan. The management agreement specifies that a review of the plan must be initiated within 10 years from the commencement of the agreement. However, amendments to the plan may be made if there is a need, in which case the proposed changes would be released for public comment. The management plan may be reviewed before the end of the 10 years and a new management plan prepared. If the plan is not reviewed and replaced by the end of the 10-year period, the plan will remain in force in its original form until a new plan is approved.



# Caring for country: cultural heritage

## 12. Ngarda-ngarli cultural heritage

Murujuga National Park's petroglyphs 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 as it is rare to find art associated with organic material that can be directly dated. Analysis of the surrounding environment, the subjects depicted in the petroglyphs and knowledge from nearby or similar locations give some indication to their age. It is clear that the area has been occupied for a long time. There is archaeological evidence for occupation over the last 9,000 years, possibly stretching back to at least 30,000 years ago when there is evidence for colonisation of arid and semi-arid Australia (Bird & Hallam 2006).

Veth (1993b) has described a sequence of dates ranging from 27,000 to 7,000 before present for occupation sites on the Montebello Islands to the west of the Dampier Archipelago, at a

time that they and the Dampier Archipelago were part of the mainland due to lower sea levels. The oldest date demonstrating human occupation within the Dampier Archipelago region itself is 18,510 before present, from dating a portion of a trumpet shell (*Syrinx aruanus*) from the Gum Tree Valley site near Dampier (Lorblanchet 1992). A collation of age data suggests that the main occupation in Murujuga National Park may have occurred once sea level stabilised some 7,000 years ago with a decline in the last 1,000 years.

At the time of European settlement, the area is understood to have been inhabited by three different Aboriginal language groups. The Yaburara people inhabited Nickol Bay, the Burrup Peninsula and islands of the Dampier Archipelago. Early European records indicate that they were a relatively small group whose language was a dialect closely related to their Ngarluma neighbours. The traditional lands of the Ngarluma people are to the east of Yaburara country and the lands of the



MAC Senior Cultural Ranger Geoffrey Togo leading DEC Pilbara staff on a tour of Deep Gorge, Murujuga National Park.  
Photo – Alex Bowlay/DEC

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, and for social, economic and ceremonial purposes.

The Yaburara of the Burrup Peninsula had to be a resilient people, surviving major environmental, sea level and climatic changes over tens of thousands of years. 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 to truly manage their land in a sustainable way. 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.

While the pressures of European settlement 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 country.

Although Yindjibarndi has become the dominant Aboriginal language spoken in Roebourne, people identify themselves on the basis of their parents' and/or grandparents' tribal affiliations such as Ngarluma, Yaburara, Mardudhunera, Wong-goo-tt-oo or otherwise (Veth *et al.* 1993) and refer to themselves generally as Ngarda-ngarli.

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. These living cultural values were described by Vinnicombe (2002: 23) as follows:

*According to the local Aboriginal belief system, petroglyphs are permanent signs left by ancestral beings. As the initiators of Aboriginal Law, these ancestral beings left designs in the rocks as records both of their own existence and as evidence of the Law they formulated (Palmer 1977: 44; Gara in Veth et al. 1993: 152). The petroglyphs are a constant and unchanging reminder of the behavioural pattern set down for all Aboriginal people to follow and the motifs continue to embody spiritual power. The Law dictates that obligations to look after these places of special potency are handed down from one generation to the next and are therefore an inherited responsibility. Should they be damaged or treated without due respect, spiritual powers could be unleashed that would have a harmful effect on individuals and on the land itself. Like electrical power, spiritual power can be damaging if treated incorrectly.*

*The Ngarluma have songs and associated mythology for many of the subjects depicted in the petroglyphs, therefore the designs carry multiple cultural references in addition to the simple likenesses they bear to actual objects. It was clear from information given by Aboriginal elders who participated in the surveys that rock art performed an important role in initiation ceremonies and the education of the young.*

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. While the time may be insignificant, the passing down of its history has been severely curtailed since European settlement. It is the intention of this management plan to rectify this, so that future generations can carry on the cultural beliefs of former generations and not be lost. Most of the research into cultural heritage values has focused on physical evidence of Ngarda-ngarli use and occupation, rather than the knowledge and deeper associations between the people and the land.

Protection of these values is the highest priority for the Aboriginal owners of the area. Ngarda-ngarli are also willing to promote and share their country and culture with the

broader community and visitors to the area. In doing so they hope that non-Aboriginal 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 such as middens, grinding stones, sacred sites, stone arrangements and petroglyph sites. Just as important are the cultural elements that cannot be seen, such as knowledge, spiritual associations, beliefs, stories and language. The area's outstanding heritage values were formally recognised and protected with their inclusion on Australia's National Heritage List in July 2007. Descriptions of the heritage values according to the National Heritage List criteria are given in Appendix 3.

It is acknowledged that a greater understanding of the cultural heritage of the Burrup Peninsula is required by managers to effectively protect these values. 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 owners and managers 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 national park 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 ongoing task requiring a long-term commitment of people and resources for many years. Recording of knowledge and sites must 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 will be directly involved at all levels with support and training from heritage professionals and DIA.

Several projects funded by the Woodside Rock Art Foundation Committee are enabling the recording of cultural knowledge. The committee administers funding under the conservation agreement between Woodside

and the Commonwealth over the Dampier Archipelago National Heritage listed area.

A Connection to Country project has been funded for a partnership between the Ngarluma Aboriginal Corporation, DIA and DEC. This will involve visits to areas identified by DEC as being at risk from recreational users. Elders will be asked to contribute management advice for those areas, and any stories they may wish to share.

The Wong-goo-tt-oo group also received funding to record oral histories for their group. In addition, the National Trust has been funded to obtain oral histories from all of the groups.

Initiatives managed by MPC will work in with and complement these other programs.

Cultural heritage recording and protection will be a high priority for this management plan, and should run concurrently with similar work on the adjacent industrial lands as required under the BMIEA. Staff working in the park will be trained to recognise, protect and manage cultural heritage sites.

In recognition of the significance of the cultural values of the area, MPC will consult regularly with the elders to provide technical advice on managing the cultural values of the park and wider Dampier Archipelago.

## Objectives

1. To protect, conserve and promote Ngarda-ngarli cultural heritage values at the highest standard and in accordance with the wishes of Ngarda-ngarli.
2. To record Ngarda-ngarli knowledge and stories as a high priority.

## Strategies

1. Identify, protect and maintain cultural heritage values according to state and federal legislation and obligations including the Burra Charter.
2. Work with DIA to progress mechanisms through the Aboriginal Heritage Act, such as 'honorary wardens' under section 50 of the Aboriginal Heritage Act, to facilitate management of the protected areas.



Working together. Photo – DEC

3. As a priority, undertake an initial systematic inventory assessment of the cultural values of the national park to understand the distribution and extent of values, beginning with locations that are under particular public pressure.
4. Undertake an ongoing program to identify, record and protect Ngarda-ngarli cultural heritage. For example, work with community elders to record songs and stories of the area to maintain their connection to country.
5. Comply with the provisions of the Aboriginal Heritage Act prior to beginning any potentially damaging operations, and ensure that the necessary action is taken to prevent damage to culturally significant places and objects within the park.
6. Establish, as a subcommittee of MPC, a committee of elders to advise the council on Ngarda-ngarli cultural heritage matters, to direct the systematic recording of the Ngarda-ngarli cultural heritage of Murujuga National Park.
7. 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.
8. Ensure that the results of research and heritage surveys are considered in the management of cultural heritage values.
9. Use Ngarda-ngarli language names for locations, wildlife and concepts in promotional and interpretive material where practicable.
10. Identify culturally restricted sites and prohibit public access where necessary.
11. Develop and implement a track rationalisation program to provide improved access to visitor sites, and close tracks to protect cultural and natural values.
12. Develop and implement a sign plan throughout the park and where applicable extend to areas outside the park.

13. In consultation with DIA, ensure that heritage material previously removed from the Burrup Peninsula is repatriated or otherwise dealt with in accordance with the wishes of the Ngarda-ngarli.
14. Develop the technical capacity of MAC staff to take increasing responsibility for the protection and promotion of cultural heritage values.
15. Provide training for staff about cultural heritage values and their identification and management.
16. Work with industry partners, the federal government and other stakeholders to undertake collaborative work to implement the strategies above.

### 13. Archaeological sites

Archaeological sites in Murujuga National Park are material evidence of past habitation and use by Aboriginal people. The area contains a wide range of archaeological features such as shell middens, stone artefact scatters, quarries, stone arrangements, ceremonial and mythological sites, graves, and petroglyphs. Approximately 2,000 localities on the Burrup Peninsula are registered as 'sites'<sup>1</sup> in DIA's site register (DIA 2007a). A number of the sites on the register were included with poor survey control and the actual location needs to be verified. The majority of this data has been collected from current and proposed industrial areas and has primarily focused on petroglyphs. Conservative estimates by DIA (DIA 2007b) based on transect surveys of the northern Burrup by Veth *et al.* (1993a) indicate that there could be in excess of 6,000 sites on the Burrup Peninsula. However, it is expected that future heritage surveys will identify a higher density of sites than previously estimated (DIA 2007b). In a 2009 survey of Deep Gorge, 42 sites and over 3,215 motifs were identified in a 3.84 hectare area. There was a density of 837 motifs per hectare. Some have estimated that there may be up to a

million engravings in the Dampier Archipelago area.

Shell middens are accumulations of shells and other food remains, such as fish, crustaceans and land animals. Middens are often located near coastal zones—shorelines, mudflats or mangroves (Veth *et al.* 1993a). Shells may also be a component of surface artefact scatters, which are primarily composed of flaked and ground stone as waste from stone tool manufacture. The stone used for manufacturing tools was commonly quarried from locally occurring seams, boulders and outcrops of fine-grained granophyre. There are also small quantities of stone that have been quarried on the mainland and transported to the Burrup for tool manufacture (Bird & Hallam 2006).

Stone arrangements are one of the most common archaeological features of the area and are the result of intentional placement, although it can be difficult to distinguish between these and naturally occurring stone features. Standing stones, an example of a stone arrangement, are described as elongated stones that have been positioned upright in bedrock crevices or amongst boulders, often on ridges and other prominent places (Veth *et al.* 1993a). Some of these stone arrangements are known to be thalu or 'increase sites', which are believed to ensure an abundance of food if a ceremony is performed there (DIA 2007b).

Other ceremonial and mythological sites and places of particular importance or sensitivity to Ngarda-ngarli are situated throughout Murujuga National Park. These places may relate, for example, to religious beliefs, rituals, creation times, initiation ceremonies or birthing places. Some of the places may be dangerous to strangers and can only be approached in certain ways and by a few senior Aboriginal people. Access to sacred sites is dependent on knowledge and status within Ngarda-ngarli law, not on Aboriginality, and the location of some sacred sites is confidential. This increases the risk of accidental intrusion by bushwalkers or people working in the area, thus

<sup>1</sup>'Sites' range from single cultural components, such as isolated artefacts or individual petroglyphs, to large site complexes with a range of cultural components. Thus, 'sites' can vary in extent from perhaps a metre square to thousands of square metres.



A shell beach. Photo – DEC

highlighting the importance of managing visitor access within the park and of the caretaking responsibilities of Ngarda-ngarli for their sacred places and knowledge.

Petroglyphs are the area's most prevalent and visible archaeological feature, and are made by removing the outer weathered surface of the rock to reveal the paler-coloured weathered material or fresh rock beneath. Their abundance, density and variety of subject matter and styles are a large part of what makes the Burrup Peninsula remarkable. This has been recognised by the designation of protected areas under the Aboriginal Heritage Act and the area's inclusion on the National Heritage List.

### Significance

The importance of the Burrup Peninsula's cultural heritage values is widely acknowledged as being the largest 'gallery' of petroglyphs with the greatest abundance and highest concentration of any known site in the world. While it is recognised that the area is an enormous repository of archaeological

sites and an important record of human occupation, use and management, there is insufficient information to fully comprehend its scale and meaning. Research into the cultural heritage values of the Burrup Peninsula has historically been driven by proposed industrial development, resulting in a concentration of information being available for those areas. Transect studies have been conducted throughout the northern Burrup Peninsula (Veth *et al.* 1993) and a detailed heritage survey has been conducted at Deep Gorge near Hearson Cove.

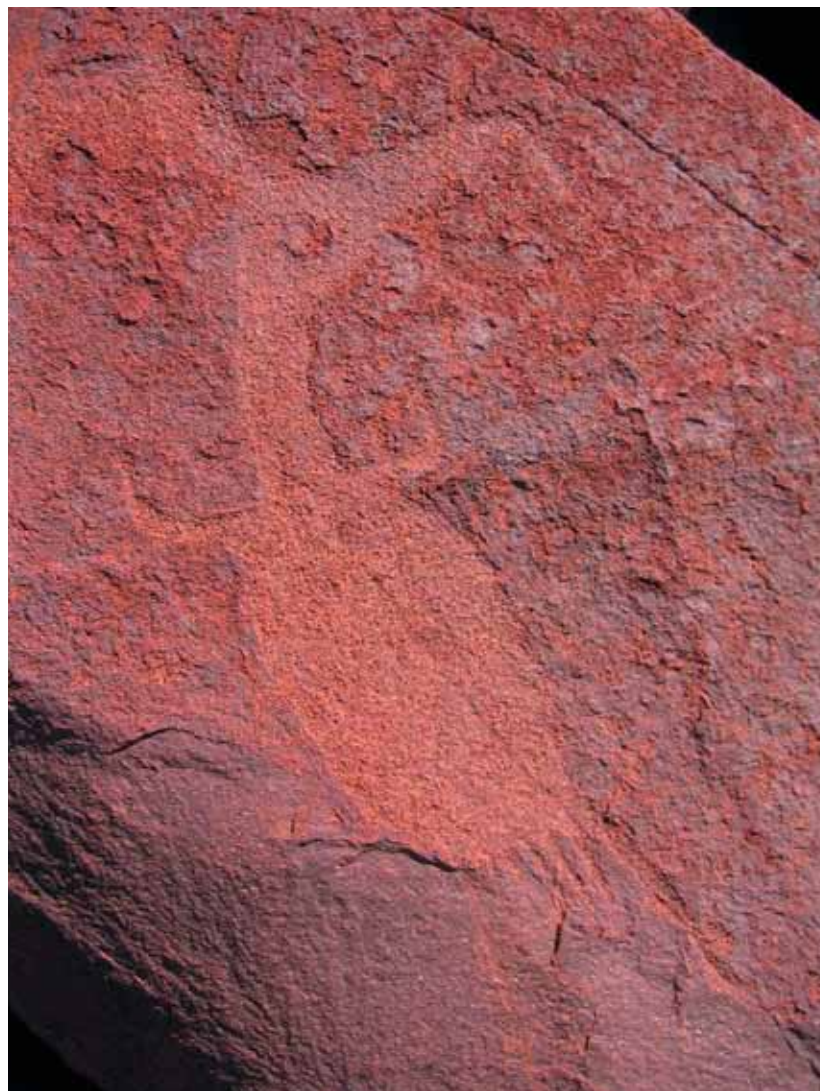
The heritage value of the Dampier Archipelago, including Burrup Peninsula, was assessed by the Australian Heritage Council and found to meet five of the eight National Heritage List criteria under the EPBC Act (see Appendix 3; Map 2). In July 2007, this resulted in almost all of Murujuga National Park and about 32,000 hectares of the surrounding peninsula and islands being registered on the National Heritage List, based on its outstanding cultural heritage values, including:

- significant, abundant and diverse petroglyphs
- petroglyphs that provide an unusual and outstanding visual record of human occupation and endeavour
- evidence of similar styles and motifs between the coastal and inland arid regions of Australia
- remarkably diverse styles, motifs and subject matter of the petroglyphs
- outstanding diversity and antiquity of petroglyphs with human forms and complex scenes showing human activity
- rare and exceptional concentration and diversity of stone arrangements
- the area's ability to contribute to the understanding of Australia's cultural history through the chronology of archaeological sites.

There are two areas within the park declared as protected areas under section 19 of the Aboriginal Heritage Act—the northern portion of the Burrup Peninsula (PA no. 43) and the 'Climbing Men' site (PA no. 56) near Withnell Bay. The exclusive right to the occupation and use of protected areas is vested in the Minister for Indigenous Affairs on behalf of the Crown. The protected area on the northern Burrup Peninsula covers about 1,200 hectares and includes extensive art, quarry sites and other evidence of occupation (Bird & Hallam 2006). According to the Australian Heritage Council (2007), the 'Climbing Men' site of some 4.5 hectares:

*“... 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.”*

During the life of the plan, management strategies for the protected areas will be developed. Section 50 of the Aboriginal



Engraving

Heritage Act allows for the appointment of 'honorary wardens' who are authorised to protect registered sites. Wardens have powers to question and remove people in some circumstances. These provisions may enable certain management activities to take place within the protected areas. MPC will work to develop strategies for the management and protection of protected areas that are consistent with the Aboriginal Heritage Act and CALM Act.

### Petroglyph management

Petroglyphs can readily be seen from many roads and tracks, beaches and picnic spots. Some have suffered deliberate damage from vandalism, some pieces have been

stolen, and others suffer incidental damage such as from 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. Visitors could find unrecorded sites. Accordingly there is a need for an on-ground management presence and guidelines on places visitors can and cannot go.

Adjacent to the park is the Western Australian Museum Compound which holds over 1,800 rock panels. The majority of these items were relocated to the compound from the North West Shelf Joint Venture lease areas during construction. A strategy for these displaced materials was prepared by the then Department of Industry and Resources, in partnership with the Traditional Custodians and DIA, in 2004. This strategy was reviewed in 2011 in consultation with the museum, DIA and the elders and a remediation strategy for the area is being finalised.

In order to assess whether industrial emissions were accelerating the natural weathering of petroglyphs, a rock art monitoring program was established in 2003 and completed its work in 2009. The program included:

- modelling of the distribution of gases arising from industry
- laboratory scale accelerated weathering of rock surfaces
- monitoring of ambient concentrations of air pollutants
- field assessment of the microbiology of rock surfaces
- an ongoing program of field measurement of colour contrast on specific locations on reference petroglyphs with an associated study of surface mineral characteristics.

The initial four-year study was completed in 2009 and the results of the study are available at [www.dsd.wa.gov.au/4868\\_6868.aspx](http://www.dsd.wa.gov.au/4868_6868.aspx). The study recommended that:

- the field measurements on the reference petroglyphs be continued for 10 years with

a review after five years

- monitoring of ambient air quality and rock microbiology be suspended
- monitoring of ambient air quality and rock microbiology only be restarted if warranted by a major increase in emissions or if new evidence indicates the need
- a technical working group administer the ongoing work
- MPC liaise with the technical group to obtain regular updates.

The petroglyphs are of great importance to Ngarda-ngarli and are of particular interest to visitors. For Ngarda-ngarli, petroglyphs provide a tangible link to stories, customs, knowledge of their land and resources. Petroglyphs play an important role in the education of each generation as they connect Ngarda-ngarli to the events and people of the past.

Ngarda-ngarli and others interested in protecting the heritage values of the Burrup Peninsula have noted some incidents of vandalism at rock art sites and there are anecdotal reports of heritage materials being stolen. Graffiti is a continuing concern. A recent study of Deep Gorge (McDonald 2009) identified vandal's initials, stick figures, smiling faces and numerous imitations of petroglyph subjects such as emu tracks and arrows.

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 may be developed in accordance with direction from MPC. McDonald's 2009 heritage survey of the Deep Gorge valley near Hearson Cove concluded that the area would be an appropriate location for the development of



interpretation with associated interpretive trails. Such development should use existing disturbed areas such as the current parking area. Visitors should be discouraged from climbing on the rocky slopes by the use of appropriate interpretation techniques. Decisions on opening up or closure of any area of Murujuga National Park will ultimately be decided by the Murujuga Park Council.

## Objectives

1. To record, protect and conserve petroglyphs and other archaeological features throughout the park as appropriate.
2. To facilitate the national and international recognition of Murujuga National Park for its cultural heritage values.

## Strategies

1. Identify, protect and maintain petroglyphs and other archaeological features according to state and federal legislation and the Burra Charter.
2. Develop a system for recording information about, and monitoring the condition of, petroglyphs and archaeological sites and for monitoring the effectiveness of maintenance programs. Maintain information on a centralised database, to be used to update the register of Aboriginal sites under the Aboriginal Heritage Act.
3. Manage visitor access to cultural heritage sites as advised by MPC.
4. Comply with the provisions of the Aboriginal Heritage Act prior to beginning any potentially damaging operations, and ensure that the necessary action is taken to prevent damage to culturally significant places and objects within the park.
5. Promote awareness and understanding of the living cultural heritage of the area and associated Ngarda-ngarli by developing interpretive material.
6. Develop management measures to minimise potential visitor impacts and other causes of damage to rock art and other archaeological

sites, taking into account state, national and international obligations and advice from relevant experts.

7. Consider the development of 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.
8. Provide opportunities to view rock art with appropriate interpretation.
9. Consider the development of at least one other high density petroglyph site with a more low key, self-guiding walking track.
10. Record and regularly monitor rock art and archaeological sites as part of the park's ongoing work program with the emphasis on areas subject to visitor pressure.
11. Develop a 'code of conduct' for visitors to encourage appropriate behaviour in and around cultural and archaeological heritage places and sacred sites. Include guidance on culturally appropriate protocols for photography of heritage sites.
12. Adopt appropriate strategies for managing graffiti.

## 14. Following European settlement

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 the situation would turn towards violence and chaos.

The Yaburara people, already a small group, declined in number following European settlement of the area. This was most probably due to introduced diseases and some displacement from traditional lands. The remaining people were decimated 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 after the 'taking' 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.* 1993b). Although it is more accurately recorded as a series of events at various locations rather than a single site, the event is now known as the Flying Foam Massacre. The Ngarda-ngarli feel strongly about seeking to have an area at King Bay registered as a protected area and recognition given to the events through a memorial and installing an interpretive plaque.

Apart from intermittent 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. In fact, the first form of formal tenure on the Burrup Peninsula was a pastoral lease granted to William McVean for a term from 1 July 1880 to 31 December 1893. It remained as a pastoral lease 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 participants

in their region's major industry. They were much less affected by social and health problems related to poverty, unemployment and boredom that characterises the more urban lifestyle of many Aboriginal 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 kilometres south-east of the Burrup Peninsula. Railways were constructed to deliver the ore to newly established port facilities on the coast, including at Dampier on the south-west of the peninsula. This period 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 a 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 mining boom. This era exacerbated many of the social, economic and health problems Ngarda-ngarli are still 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 North West Shelf Gas Project. Withnell Bay, on the western side of the Burrup Peninsula, was chosen as the site for Woodside's LNG processing plant. 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 focused directly on the Burrup Peninsula, which became the site for the town of Dampier and ports for iron ore, salt, LNG and ammonia. Major quarries have been established to support the industrial activities. Availability of a vast supply of energy, and an established



Woodside Energy on the Burrup Peninsula. Photo – DEC

infrastructure including shipping channels and a deep-water port has stimulated another phase of industrial expansion.

It was at this time that Woodside funded the Western Australian Museum to identify, document and relocate petroglyphs to what is now called the Western Australia Museum Compound.

During the development of the North West Shelf Gas Project an awareness and appreciation of the unique cultural values of the Burrup Peninsula began to emerge. Attitudes towards Aboriginal people and a growing environmental awareness led to stricter controls over industry with mandatory environmental impact assessment and cultural heritage surveys and clearances. Subsequent developments subject to these controls include the Pluto LNG project and Burrup Fertilisers ammonia production plant.

The BMIEA, signed by the Government of Western Australia and the Traditional Custodians, aims to balance the economic benefits of industrial development with the need to protect the cultural and environmental values of the area, and to ensure that these

benefits are shared equitably. It provides for the expansion of industrial development on the Burrup Peninsula on lands designated for that purpose but limits any further development outside those lands. Subsequent to the National Heritage listing it is unlikely that development proposals would be received for the proposed industrial lands within the National Heritage place. The granting of the remaining area of the Burrup Peninsula to Ngarda-ngarli, and the joint management of that land as a national park, 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 region. 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.

## Objectives

1. To record and protect the post-European contact heritage of the park.
2. To build understanding of the interaction

between the colonial heritage and culture and that of the original inhabitants.

## Strategies

1. Encourage and facilitate research into the early European contacts and activities in the area including whaling, fishing, pastoralism and mining, including oral histories.
2. In consultation with DIA and the relevant industrial landowner, investigate options to have the Flying Foam Massacre site registered 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 park.



A researcher studies the rock art on the north-east Burrup Peninsula. Photo – Stewart Caves

# Caring for country: natural environment

## 15. Climate

Murujuga National Park 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 maxima of 26°C at the nearest Bureau of Meteorology station at Dampier. 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 (Bureau of Meteorology 2007).

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 millimetres and there is great variation between years. February and March are the wettest months, while October and November are the driest. The annual evaporation rate is 3,500 millimetres. Occasionally, rains associated with winter weather patterns in the south of the state will drift north to the west Pilbara region. Rain is also associated with mid-level depressions. 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 kilometres per hour threaten the coastline almost every year.

## 16. Geology, landforms and soils

### Geology

Murujuga National Park is located within the Pilbara Craton, which geologically is one of the oldest regions in Australia. The Pilbara Craton has rocks 3,600 million years old that formed when the Earth was very young during the Archaean period. Due to their age, rocks in the Pilbara are of international significance and geologists from all over the world come to study the processes associated with the early history of the Earth (Copp 2005).

The Gidley Granophyre, which forms much of the Burrup Peninsula, is at least two kilometres thick and outcrops over 100 square kilometres. It consists of a basal gabbro and overlying granophyric rhyodacite. It was emplaced 2,725 million years ago, associated with volcanic activity (Hickman 2001). The geological features provided by the rock outcrops would provide excellent opportunities for interpretation of the Earth's history.

### Landforms and soils

The present landforms of the area are the result of very long periods of weathering and erosion. The Burrup Peninsula was formerly known as Dampier Island, but became a peninsula in the mid 1960s following the construction of a causeway from the mainland. Until then it formed part of the Dampier Archipelago as it was separated from the mainland by shallow tidal waters and mudflats. In 1979 the peninsula was renamed after Mt Burrup, a prominent hill on the peninsula which in turn took its name from Henry Burrup, a 19th century bank clerk in Roebourne.

Large outcrops and ranges of fractured red/brown gabbro and granophyre and spinifex covered boulder slopes dominate the rugged landscape of the Burrup Peninsula. 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 provide variety in the landscape and the vegetation communities it supports. This landscape is distinctive in its appearance and is restricted to the Burrup Peninsula and some nearby islands and adjacent mainland.

In overall morphology, the Burrup Peninsula is divided into two sections. Between Hearson Cove and King Bay, a low lying expanse of supratidal mud flat and sand dunes, between one and two kilometres wide, separate two elevated rocky sections of the peninsula. 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, and Watering Cove). The highest point on the peninsula is south of Hearson Cove (132

metres) while Mt Burrup (129 metres) and Mt Wongama (122 metres) are prominent on the northern Burrup Peninsula. The intervening 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.

The soils of the Burrup Peninsula are red-brown in colour. The soils are generally shallow but reach a maximum of two metres 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 south-eastern side of the peninsula.



Conzinc Bay. Photo – Laurina Bullen/DEC

## Objective

To protect and conserve the park's geological features, landforms and soils.

## Strategies

1. Identify and protect geological features, landforms and soil types vulnerable to environmental damage (such as cliff edges and sand dunes) (see also Section 35 *Rehabilitation*).
2. Consider the impact on geological features, landforms and soils in any decisions about siting and construction of facilities and infrastructure in the park.
3. Manage vehicle-based beach access and establish hardened parking areas with clearly delineated pedestrian beach access.
4. Manage 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.

## 17. Hydrology

As with much of the west Pilbara region, Murujuga National Park has limited surface fresh water. Freshwater flows are highly variable and are characterised by short periods of very high flow that coincide with major rainfall events usually associated with thunderstorms and tropical cyclones. This activity typically causes a marked increase in surface water flow from January to March, while the second increase from May to June is due to the passage of low pressure systems through the south of the state. 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. The driest period is between September and November (Bureau of Meteorology 2007).

Rainfall drains from elevated areas via ephemeral creeks, streams and rock fractures to temporary pools that form in rocky depressions, and fast flowing streams that form along the valleys. Surface run-off is relatively



One of the Burrup Peninsula's many rock piles. Photo – Laurina Bullen/DEC

high due to the impervious substrate of most of the study area. Areas of heavier alluvial soils become waterlogged or flooded after heavy rain.

There is little readily accessible groundwater on the Burrup Peninsula due to the inability of surface water to infiltrate through the dense igneous rocks. There is no evidence of successful harvesting of groundwater 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 subsurface water 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 limited surface water in the park 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 will also be attracted to freshwater creeks and pools in hot weather. While there are no pools in the park 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.

## Objective

To conserve the quality and quantity of water and to maintain hydrological regimes within the park.

## Strategies

1. Inform visitors of the scarcity of water in the park and the need for them to bring their own water supplies for the duration of their stay.
2. Ensure all visitor facilities use best practice water minimisation approaches, including recycling and reusing water on site.
3. Manage all waste discharges using best practices.
4. Ensure licence conditions for industrial wastewater emissions protect water quality of low lying areas of King Bay-Hearson Cove valley within the park.
5. Ensure that industry stormwater management protects the supratidal flats of the King Bay-Hearson Cove valley within the park.
6. Maintain surface water quality by preserving vegetation.
7. If necessary, discourage bathing in freshwater pools and creeks for ecological, safety and cultural reasons.

## 18. Vegetation and flora

Plant communities or vegetation types can be described in a number of different ways. Beard (1975) divided the state into botanical provinces, districts and subdistricts on the basis of ecological, climatic, geological and soil characteristics. The Burrup Peninsula forms part of the Roebourne Plain, one of eight physiographic units with distinctive vegetation located within the Fortescue Botanical District. The Roebourne 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.

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 Fabaceae (pea family, 44 species), Malvaceae (mallow family, 31 species) and Amaranthaceae (Amaranth family, 29 species) families. Of the native monocotyledons recorded, the most numerous is Poaceae (grass family, 45 species), followed by Cyperaceae (sedge family, 15 species).

Approximately 200 different vegetation associations have been described on the Burrup Peninsula, many with 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 Peninsula 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 environmental weeds below and Section 20 – *Fire*). Other factors



*Ptilotus exaltatus*. Photo – DEC

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

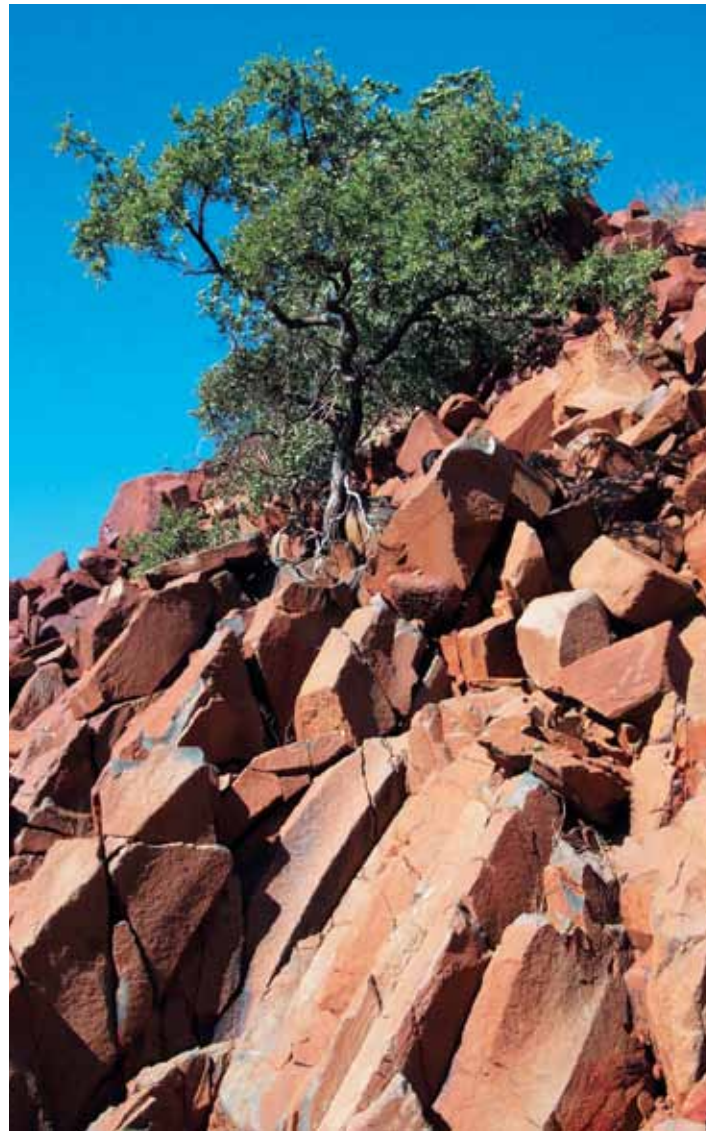
There are currently no known 'declared rare' (threatened) flora identified on the Burrup Peninsula. DEC also classifies flora into 'priority' categories. There are four Priority 3 species (*Terminalia supranitifolia*, *Vigna* sp. *rockpiles* (R Butcher *et al.* RB 1400), *Eragrostis surreyana* and *Schoenus punctatus*) and one Priority 4 species (*Rhynchosia bungarensis*) (DEC threatened and priority flora database and WA Herbarium 2012).

In addition to the 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
- 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.

*T. supranitifolia* has a geographically restricted distribution that consists of several disjunct



A *Terminalia supranitifolia* tree clings to a Burrup Peninsula rock face. Photo – Laurina Bullen/DEC

subpopulations that suggests the species was previously widespread. 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 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

Currently there are no known threatened ecological communities on the Burrup Peninsula. In 2008 two priority ecological communities were listed on the Burrup Peninsula. The 'Burrup Peninsula rock pile communities' are pockets of vegetation in the rock piles and outcrops. The rock piles in particular are important for providing fire

and evolutionary refuge for flora (Kendrick & Stanley 2001). The second priority ecological community is the 'Burrup Peninsula rock pool communities' which are described as calcareous tufa deposits with interesting aquatic snails.

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



Mangroves on the north-east Burrup Peninsula. Photo – Laurina Bullen/DEC

area of occurrence. For example, a *T. supranitifolia* shrubland was only found on one area of steep slopes on the eastern coast of the Burrup Peninsula (Trudgen 2002).

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 and Watering Cove (Kendrick & Stanley 2001).

## Environmental weeds

DEC has developed an invasive plant prioritisation process which is an integrated approach to weed management in Western Australia and replaces the statewide environmental weed species rankings of the *Environmental weed strategy for Western Australia* (CALM 1999). This process provides an updated ranking of the threat of each weed species on a DEC regional basis against specific criteria, and aims to consider both a 'species led' and an 'asset based' approach to controlling the threat of environmental weeds within Western Australia.

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, seven of these species have been rated as having 'high' potential ecological impact under the invasive plant prioritisation process. 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



Kapok bush, an environmental weed. Photo – Laurina Bullen/DEC

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 common on the peninsula in disturbed areas such as roadsides and where soils are disturbed by off-road driving (for example coastal sands). Trudgen (2002) noted that it was not a problem in rock piles at that time, but required monitoring due to its potential to invade such sensitive areas under favourable conditions. 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

To conserve the diversity and distribution of native flora and vegetation communities.

## Strategies

1. Support surveys on native flora and vegetation communities, focusing on the identification of those that may require special protection from threatening processes such as erosion, environmental weeds, introduced animals and fire.

2. Implement those strategies related to fire management to protect fire-sensitive flora and vegetation against inappropriate fire regimes (for example 'Kimberley' species found in rock piles).
3. Identify and control occurrences of weeds rated as 'high' according to the environmental invasive plant prioritisation process, with a particular emphasis on new weed populations and those invading rock piles.
4. Liaise with neighbouring land managers to promote compatible management on adjoining lands.
5. Ensure that off-road vehicle access is controlled to prevent disturbance to vegetation and proliferation of weed invasion.
6. Rehabilitate severely disturbed areas, especially where natural regeneration is less likely to occur.

## 19. Fauna

There are a number of fauna species that have been recorded on the Burrup Peninsula that are of conservation significance (DEC threatened fauna database 2012). These are:

- the Pilbara olive python (*Liasis olivaceus barroni*) is listed as 'fauna that is rare, or likely to become extinct' under the Wildlife Conservation Act and is listed as vulnerable under the EPBC Act
- 10 species of migratory birds are listed under Schedule 3 of the Wildlife Conservation Act as 'specially protected fauna' (birds protected under international agreement) with many of these being protected under the EPBC Act
- the peregrine falcon (*Falco peregrines*) is listed as specially protected fauna under the Wildlife Conservation Act
- the little north-western mastiff bat (*Mormopterus loriae* subsp. *cobourgiana*) is listed as a Priority 1 species. Priority 1

taxa are generally poorly known and are a priority for surveys and evaluation of conservation status

- the ghost bat (*Macroderma gigas*) and the bush stone-curlew (*Burbinus grallarius*) are listed as Priority 4 species.

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.

Based on the current knowledge, Murujuga National Park supports approximately 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 species.

Like the rest of the arid and semi-arid zone, the west Pilbara has experienced a wave of extinction since European settlement, affecting mainly mammals in the 35 grams to eight kilograms critical weight range. Predation by foxes is thought to be the principle cause. This extinction has affected the bandicoots, smaller macropods and rodents of the region, but there is no evidence that the reptile, bird



A northern quoll. Photo – Babs and Bert Wells/DEC

or smaller mammal fauna, including bats, have been affected. Visitors to Murujuga National Park will notice the larger species of reptile and many bird species, which are easily observed.

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

## Birds

The Burrup Peninsula has a rich bird fauna, attributed to its complex topography and consequent diversity of habitats, including intertidal 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 freshwater wetlands, the salt ponds 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 freshwater habitats are occasionally found as vagrants in such places, particularly in the rich shallows of the salt farm impoundments.

Ospreys (*Pandion haliaetus*) and sea eagles (*Haliaeetus leucogaster*) have shown they are vulnerable to the effects of human activity 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.

Although not large in a regional context, the intertidal flats surrounding the Burrup Peninsula attract a 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 migratory bird agreements and listed under the EPBC Act.

## 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 peninsula—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, although the bat fauna has not been comprehensively surveyed. Bats have a relatively wide distribution, and their mobility ensures that they are likely to be found throughout the local area, at least episodically. The ghost bat is known to occur on the adjacent mainland and it may occasionally forage on the peninsula.

The mammal fauna of the Burrup Peninsula is dominated by species with either northern



The rock rat which lives on the Burrup Peninsula. Photo – Babs and Bert Wells/DEC

distributions such as the northern quoll (*Dasyurus hallucatus*), delicate mouse (*Pseudomys delicatulus*) and common rock rat (*Zyzomys 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 Western Australia.

The mammal fauna of the peninsula 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 Peninsula—the western pebble mound mouse and Woolley's pseudantechinus (*P. woolleyae*). The water rat (*Hydromys chrysogaster*) is the only species known from the peninsula but not from the nearby mainland and was recorded from mangrove habitats on the northern peninsula in the late 1970s.

Of particular interest is the presence of Rothschild's rock wallaby and the undescribed

Planigale species. Rock wallabies persist on the Burrup Peninsula in low numbers only because of an ongoing fox baiting program, but they 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 Peninsula, and is extensively known across the Pilbara region 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 Western Australian Museum. Given the proximity of Cape Preston (50 kilometres south-east), it is possible that both species occur on the peninsula.

In addition to foxes, the cat, black rat and house mouse are now naturalised on the Burrup Peninsula. All are most common in the vicinity of Dampier, and around industrial areas such as King Bay and the port. Predation by both the red fox and the feral cat are listed as key threatening processes under the Commonwealth's EPBC Act. Other than baiting for foxes, no control of these species is currently undertaken.



An echidna (*Tachyglossus aculeatus*) on the Burrup Peninsula. Photo – Cliff Winfield/DEC

## Reptiles, frogs and fish

The reptile fauna of the Burrup Peninsula 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 peninsula 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 has been comparatively poor. In general, however, the Burrup Peninsula reptile fauna is similar to that of the mainland. Most of these species have broad distributions throughout the north of Western Australia 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 (*Ctenopus 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. 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 has been subject to behavioural and ecological studies on the Burrup Peninsula by DEC scientists and a local volunteer group (Pearson 2003). The peninsula is thought to support a healthy population of Pilbara olive pythons. These large animals

are highly vulnerable on roads, and road kills of large individuals of breeding age are fairly common.

The occurrence of fresh water in the park is seasonal and limited to temporary streams and pools following rainfall, the majority of which is associated with cyclones. Little is known as to whether freshwater fish species inhabit these water bodies, such as the fresh water rock pools that form on parts of the Burrup Peninsula.

## Fauna research

It is highly likely that short-range endemic species will be identified among the invertebrate fauna of the Burrup Peninsula. 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 Peninsula, 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 peninsula, 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.

## Introduced and problem animals

Four introduced species of mammal are now naturalised on the Burrup Peninsula (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 peninsula, but continually re-invade from the south. Fox baiting should be continued, following the regime currently applied under the *Western Shield* program (four times per year, twice from aircraft, twice from vehicle and foot traverse). This procedure may need to be varied as new information comes to light. The use of 1080 baits for cat control is currently being researched by DEC with the potential for broader application in the future. At present, however, the baiting of cats is complex as they are far more selective in their bait uptake.

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

### Objectives

1. To conserve the diversity of native fauna, particularly threatened or other priority species.
2. To minimise and, where possible, negate the adverse effects of introduced animals.

### Strategies

1. Support surveys on native fauna to establish baseline data.

2. Continue to control foxes, and pursue the implementation of a cat control program during the life of this management plan.
3. Encourage a cooperative approach to management of native and introduced fauna with neighbouring land managers.
4. Prohibit visitor access near bird and turtle nesting sites as required.
5. Involve industry, community and school groups in survey and monitoring programs.
6. Work with industry and other agencies to reduce interference with, and accidental deaths of, wildlife.
7. Work with industry and other agencies to ensure that fencing and other infrastructure works are planned and constructed so as to limit adverse effects on native fauna.
8. Work with industry to ensure that wildlife linkages are maintained when industry leases are fenced.
9. Consider the potential for successful re-introduction of native fauna once introduced animals have been controlled.
10. Continue to raise awareness of the faunal diversity and significance of the area and encourage further research where appropriate.



The feral cat and the European fox have been linked to the extinction of several native mammals. Photos – Babs and Bert Wells/DEC

## 20. 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. The pre-colonial fire regime depended on Ngarda-ngarli living and walking on their country making small fires as they went. As is the case in 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.

Studies in spinifex dominated communities such as the Burrup Peninsula have shown that 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 bushfires. 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 occur more frequently under severe fire conditions, or following high growth periods. Rainfall is the primary influence on growth rates

of spinifex grasslands and large, extensive bushfires 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 (that is, long unburnt) clumps of spinifex for its survival.

While the majority of plant species on the peninsula have characteristics that allow them to survive regular fire (for example 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 ciliaris*) burns readily when cured, rapidly regenerates after fire and may increase the frequency of bushfires in communities that are not adapted to fire or particular regimes (Tu 2002), leading to the loss of native species (Miller 2003). Regular bushfires 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 affects vegetation communities but also the fauna that use them for habitat and refuge.

Developing and implementing a fire management program for Murujuga National Park poses a particular challenge due to the need to protect the major investments of its neighbours who are involved in the production and utilisation of large volumes of highly volatile substances.

The only effective approach to fire management in Murujuga National Park is to adopt a 'whole-of-Burrup' approach involving all other Burrup Peninsula leaseholders and



North Burrup gorge. Photo – Stewart Caves

neighbours. Fire management and suppression needs to be coordinated across the entire peninsula.

Fire is a landscape-scale process that requires active management, to ensure that large areas of the peninsula are not lost to bushfire in single 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 Peninsula 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.

Observation and anecdotal information suggests that in recent years the area has been subject to intense, unplanned and uncontrolled burns. Following an uncontrolled bushfire 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 bushfires from campfire escapes could increase. This issue is addressed in Section 24 – *Visitor activities – open fires*.

Fire has the potential to damage petroglyphs. It is important that any program to control fire does not adversely impact on petroglyphs.

## Objectives

1. To maintain fire diversity and protect ecologically sensitive areas from inappropriate fire frequency or large and intense bushfire.
2. To protect life, property and assets from bushfire.

## Strategies

1. Develop and implement a fire management plan in collaboration with the shire and adjacent land managers that will include:
  - the use of prescribed fire for ecological purposes
  - bushfire preparedness
  - management strategies.
2. Apply prescribed fire to maintain a mosaic of vegetation age classes.
3. Protect fire-sensitive species from inappropriate fire, in particular species with 'Kimberley' affinities.
4. Investigate the relationship between fire and buffel grass and consider this information when planning fire management.
5. Discuss and coordinate fire management, suppression and evacuation planning for the entire peninsula with adjacent land managers.
6. Ensure that staff are trained in fire management, including suppression.
7. Ensure that programs to control fire do not adversely impact on petroglyphs.

# Caring for country: managing visitors

## 21. Visitor opportunities, public access and recreation

The Pilbara Region is renowned for its spectacular scenery and warm winter climate. The inland national parks—Karijini, Millstream-Chichester and now the coastal Murujuga National Park—provide landscape and adventure experiences for short-term visitors, while coastal reserves managed by local government are popular for extended stays. There is also an element of industrial tourism, with visitors interested in seeing the machinery of Australia's most resource rich region and its busy ports.

Tourism WA identified 'rugged outback experiences', 'Aboriginal experiences' and 'comfortable scenery experiences' as the iconic features of the north-west, but listed accommodation, amenities, attractions/activities (especially cultural products) and access as significant product and infrastructure gaps (Tourism WA 2004). Accommodation options in the Pilbara are limited to hotels/motels and caravan parks in Dampier, Point Sampson, Karratha and Wickham. However, business from the resources sector occupies most available beds year round. 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 access the islands' shacks for overnight stays. Because of these factors, niches in the accommodation market exist for shore-based camping and semi-permanent tented accommodation or cabins in a natural setting. However social, cultural, environmental and economic considerations of Murujuga National Park as a whole will need to be taken into consideration before any such facility is made available.

Due to its proximity to the towns of Karratha and Dampier and because of its significant natural and aesthetic qualities, 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, and this has increased the impact to the park from visitors. Recreation and tourism represent both opportunities and threats to the park, requiring new approaches to management, services and infrastructure. Pracsys (2007) advises that 70,000 people visit Karratha visitor centre per year with the peak season being May to September. The Woodside visitor centre on the Burrup Peninsula receives 30,000 people per year, between June and September. Visitor numbers to the northern peninsula are not known but access is limited due to difficulties in passing the 'jump-up'. However, anecdotal evidence suggests approximately 3,000 people a year visit the northern peninsula either for day visits, for fishing or to camp.

To date, protection of the park's environmental and cultural values from recreation has been limited, with little regulation of activities and location. The exceptions are Hearson Cove, which is fully maintained by the Shire



Hearson Cove. Photo – Laurina Bullen/DEC

of Roebourne, and Withnell Bay where the shire collects the rubbish and where signs have been installed about fishing and boating regulations. Although the *Burrup Peninsula Land Use Plan and Management Strategy* (1996) 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 signing of the BMIEA, and progress has been slow until the finalisation of this management plan.

### Current use of the area

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 Shire of Roebourne, especially Karratha and Dampier, are the major recreational users of the area. This use has been subject to little control or management. Industrial development and accompanying transport infrastructure have made public access and enjoyment of the southern end of the Burrup Peninsula easier.

The peninsula is a popular destination 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 of Roebourne, 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 prior to creation of the park.

Swimming, boating, camping, fishing and other social activities are the current uses of the area. Although outside the park, Hearson Cove has been the most popular destination for locals being easily accessible with good roads and one of the best available swimming beaches in the Karratha–Dampier area. The Shire of Roebourne 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. The area has been subject to graffiti on rocks near the beach. It is felt that this may increase the likelihood of graffiti at nearby rock art sites, as it is well known that ‘graffiti breeds more graffiti’. MPC will work with the shire to alleviate this problem.

Withnell Bay also experiences a high level of use 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) small boat access to the northern Burrup Peninsula and the Dampier Archipelago than the purpose built boat ramps in Dampier



Recreational fishing is a popular pastime. Photo – Ian Walker/DEC

and Karratha.

The Deep Gorge area near 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.

Road access to the northern section of Burrup Peninsula is restricted to four-wheel-drive vehicles. A section of the track north beyond Withnell Bay, known as the 'jump-up', is very challenging even for four-wheel-drive vehicles 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 four-wheel-drive vehicle enthusiasts and a small numbers of bushwalkers.

There are substantial risks inherent in visiting natural areas such as the Burrup Peninsula. Such risks include uneven, loose, rocky terrain (that is not suitable for elderly or people with poor mobility) and exposure to extreme weather conditions. Lower level risks may be associated with industrial incidents affecting air quality at adjacent recreation sites.

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.

The region around Karratha, including the Burrup Peninsula, is expected to continue the industrial, population and tourism growth it has experienced over 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.

## 22. Management for public use

Although the area of Murujuga National Park is large, the public use only a very small proportion of the land close to access routes and features of interest. It is recognised that as use of the park increases, conditions can change until the character of the area has been modified to a point where it no longer has the attributes that originally attracted people to the area. The initial visitors are then displaced by other people who are more tolerant of the changed conditions, with the process continuing until perhaps all the opportunities being provided within the natural area are of a similar developed nature. The potential for this 'recreational succession' is recognised and it is intended that the 'recreation opportunity spectrum' (Clark and Stankey 1979) will be applied to prevent such a succession occurring. Accordingly, the greatest range of recreational opportunities will be provided throughout the park, minimising the adverse effects of visitors by preventing, beyond a specific level, recreational succession at sites and incremental development of natural areas. The foremost consideration when opening up any 'recreational use' areas will be the impact upon cultural and heritage values of the park. Therefore it is imperative that MPC be empowered to prohibit any activities within the park that would severely challenge cultural sensitivities as well as the protection of heritage values.

The protection and conservation of the value of the land to the culture and heritage of Aboriginal people, the provision of access, recreational facilities and services, and the development of commercial opportunities for Ngarda-ngarli are key management objectives for the national park. These are among the principles behind the negotiation of the BMIEA, transfer of land ownership to Ngarda-ngarli and the establishment of the national park.

Over the life of this management plan, a range of high quality visitor facilities and services will need to be progressively established within Murujuga National Park, with the main focus being on the awareness of the cultural



A north-west Burrup camp site. Photo – Stewart Caves

sensitivities and the protection of heritage value. However, where it is possible without adversely affecting these, the following activities should be carried out:

- improve opportunities for visitors to appreciate the Aboriginal cultural heritage of the area
- develop more opportunities for Ngardangarli to be involved in providing visitor services, facilities and contribute towards enhancing visitor experiences
- develop visitor opportunities that protect important heritage areas such as Deep Gorge
- consolidate recreational and interpretive opportunities at existing sites and consider new developments where existing facilities are not likely to meet expected increases in demand.

These facilities and services will contribute to the safe enjoyment of the range of experiences the park has to offer while ensuring the protection and appreciation of the Burrup Peninsula's internationally significant cultural

heritage values. With this direction in mind, a visitor services plan will be developed by MPC, in consultation with other stakeholders, to guide future infrastructure, visitor facilities and experiences across the park. When planning visitor facilities in the park, MPC will take into account the following criteria:

- the effects on areas of cultural sensitivity
- the protection of heritage
- the effects on significant sites
- existing visitor use facilities
- the predicted patterns of use
- existing and future recreation opportunities
- visitor expectations
- visitor safety.

Site development plans will then be prepared for each recreation site. These will describe exactly what facilities are proposed at each site, and will include an assessment of the cultural and natural values.

Fees to access protected areas and cultural sites are common throughout the world, and in Western Australia DEC charges visitor fees and camping fees in many national parks. In the Pilbara fees are charged at Millstream-Chichester, Karijini and Cape Range national parks. Revenue from fees is used to fund a range of park management activities including visitor facilities.

It may be necessary in the future to introduce visitor fees for Murujuga National Park. This will depend on a number of factors including services and facilities provided, level of visitation and the associated management costs. Visitors to Hearson Cove and Withnell Bay and nominated/registered Ngarda-ngarli will be exempt.

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

## Objective

To progressively develop a range of public facilities and services while protecting the natural and cultural values of the park, maintaining a safe environment for visitors, and facilitating the recognition of Murujuga National Park as a significant regional tourist destination.

## Strategies

1. Develop a visitor service plan to guide decisions about park visitor facilities and experiences under direction from MPC.
2. Continue to investigate opportunities for development of revenue streams available to MAC. Criteria should include return on investment, desired visitor experiences, employment opportunities, and public acceptability. Development of guided Aboriginal cultural heritage tours to take visitors to designated sites approved by

MPC may be encouraged.

3. Adopt best practice standards in environmental sustainable design and construction for all facilities and infrastructure.
4. Undertake social research to assist in recreation planning and development.

## 23. Visitor access

Access in the park is determined by roads, four-wheel-drive tracks, walking tracks and boat landings. The demand for access therefore comes from a variety of people including:

- Ngarda-ngarli accessing their land
- visitors who require good quality access to their favourite areas
- recreational visitors wanting different recreational experiences
- utilities that require access to maintain infrastructure
- park managers who require access for management purposes.

While much of the northern Burrup Peninsula 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 camp sites has led to further vegetation loss and a build-up of litter. Vegetation cover has also been lost due to uncontrolled fires.

Effectively managing public access is an important objective of this management plan. Under the conditions of the BMIEA, the management plan must consider the provision of public recreational facilities and recreational activities in the park, 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.





Negotiating tracks in the north-west Burrup Peninsula. Photo – Stewart Caves

Access to the northern parts of the park will be reviewed as four-wheel drive, boat and pedestrian only access. Access may be restricted to designated tracks, with some track rationalisation and modification as necessary to protect the park's values.

### Vehicular access

Public vehicle access on Murujuga National Park is limited at present. There are a number of public and private roads on Burrup Peninsula managed by different agencies and organisations including the Shire of Roebourne, Main Roads Western Australia, Water Corporation, Dampier Salt, North West Shelf Joint Venture and MPC (within Murujuga National Park). The sealed Burrup Road provides access to the western margin of the park. Two-wheel-drive access is available to Deep Gorge and beyond the 'Climbing Men' site. There is difficult four-wheel-drive access to Conzinc Bay and the north-western tip of the peninsula as well as limited four-wheel-drive access to other parts of the peninsula. There is currently no intention to improve the access to the northern Burrup Peninsula across the 'jump-up'.

A vehicle access plan within the park will be considered to be developed. In consultation with Ngarda-ngarli elders and custodians, new tracks may be developed for management purposes (for example fire), camping, cultural or interpretive experiences. Other tracks may be closed to the public but maintained for management purposes (for example for fox baiting, weed control or servicing of remote visitor facilities).

The BMIEA Additional Deed provides that industrial development will not prevent continuing access to Cowrie Cove.

The access routes into the park can be closed to both two-wheel-drive and four-wheel-drive vehicles following heavy rain. Hence, the level and intensity of use of recreational sites is directly influenced by the type of road access available during different weather conditions.

All motor vehicles accessing the park need to be licensed under the *Road Traffic Act 1974* and must use existing tracks. Only registered off-road vehicles are allowed and they must use existing tracks. Access to restricted areas within Murujuga National Park will require a permit approved by MPC.

## Boat access

A small proportion of visitors access the park by boat. Information provided at boat launching areas outlining permitted activities will be crucial in managing these visitors. 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 currently maintains the Withnell Bay site.

Sea kayaks are used to reach remote northern parts of the park.

## Cycle access

Cycling, in particular mountain biking, has dramatically increased in popularity in recent years. Mountain bike access will be permitted on all roads within the park. Mountain bikes will not, however, be allowed on walking tracks. However, mountain and other bikes will be discouraged on other agreed areas and tracks due to the damage they may cause.

## Pedestrian access

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

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 management plan proposes the construction of several walking tracks including a long distance (overnight) walk around the north-eastern peninsula (Australian Standard Class 4 or 5), a walk into the 'Withnell Bay valleys', 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 park where there are no designated trails and there are no culturally sensitive sites. Final approval of walking tracks will rest with MPC and will be allowed only after the proposed plans have been cleared by the Traditional Custodians so that they do not impinge upon cultural sensitivities and heritage values.



Boat access to remote areas of the Burrup. Photo – Laurina Bullen/DEC

## Access for visitors with disabilities

The Australian Bureau of Statistics estimates that 18 per cent of the population has a disability. A disability can be defined as a condition which is attributable to an intellectual, psychiatric, cognitive, neurological, sensory or physical impairment. Catering for visits by people with disabilities will also have subsidiary benefits to the aged, parents with young children and the carers of people with disabilities.

The highest priority to provide universal accessibility is to the entrance to Deep Gorge. Over the life of the plan access to particular sites will be assessed to determine the possibility of encouraging greater access for disabled visitors.

## Management access

There is often a requirement for some access within natural areas to be closed to the public for management purposes. Temporary access restrictions may be applied at the discretion of management through section 62 of the CALM Act, 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 Peninsula coastline, often in conspicuous nests close to recreation beaches. These birds can be vulnerable to direct disturbance. Tracks and roads designated as management access will be signposted accordingly.

There will be a need to close the park or parts of it at least once per year to ensure that it remains private land and is not dedicated to public use under common law or other laws.

## Objective

To provide and maintain access which is consistent with the maintenance of natural, cultural and recreation values and which meets the diverse range of visitor needs.

## Strategies

1. Consider developing and implementing a vehicle access plan incorporating a track rationalisation program to provide improved access to visitor sites, and close tracks to protect cultural and natural values.
2. 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.
3. Liaise with Main Roads Western Australia and the Shire of Roebourne to support the appropriate management of regional roads and road development to and through Murujuga National Park.
4. Prohibit vehicles driving off established roads and tracks except by authorised persons in exceptional circumstances or subject to approval of MPC.
5. Ensure 'management vehicle only' tracks are effectively closed to the public and signposted accordingly.
6. Provide information to visitors on appropriate four-wheel-drive techniques, such as DEC's *Caring code for the bush* and codes of ethics supported by organisations such as the Western Australian Four Wheel Drive Association, Tread Lightly Australia and Leave No Trace.
7. Implement a monitoring system to determine visitor numbers using the four-wheel-drive access to the northern Burrup Peninsula and Cowrie Cove and the environmental conditions of the track. Depending on the outcomes of this, implement a permit system, limiting the number of vehicles accessing the area and ensuring environmental conditions remain stable.

8. Consider disabled visitors in the design of new facilities.
9. Ensure safe access for powered and non-powered boats is provided, in consultation with the Shire of Roebourne and the Port of Dampier.
10. Look at the feasibility of developing commercial tourist and hire operations to access remote areas of the park by boat.
11. Permit cycling only on public roads or other designated areas in the park.
12. Develop walking trails, ensuring they meet the appropriate Australian Standard.
13. Ensure that the appropriate safety standards are considered in the provision of all walk trails.
14. Develop a brochure on the walk trails that includes directions, safety advice and information about the natural and cultural attributes to be seen en route.
15. Provide information on boating, landing, marine reserve zoning, and anchoring at Withnell Bay and Dampier boat ramps.

## 24. Visitor activities

### Day use

Based on its size and its proximity to a range of visitor accommodation, it is expected that Murujuga National Park will primarily be a day trip destination. Deep Gorge may provide the primary site for day visits due to the abundance and accessibility of petroglyphs. This site is suitable for providing opportunities for guided tours and self-guided interpreted areas. Access to a universal standard may be established at this site and provide group access.

It is also expected that, at least in the foreseeable future, the majority of visits to the northern parts of the park will be by local people accessing the swimming beaches at Conzinc Bay, and fishing spots on the north-west shores. This will require a complete review of access to the northern part of Murujuga National Park.

Day-use sites on adjacent lands will complement those in the park. These include the shire managed area at Hearson Cove, the proposed site where the Flying Foam Massacre



Rock art trail. Photo – DEC

occurred, Picnic Creek, and the beaches of the Dampier Archipelago islands.

Hearson Cove is currently managed by the Shire of Roebourne and provides visitors and locals with a beach for swimming, fishing, walking and other recreational activities including dog walking. The location has several picnic, barbecue (wood) and toilet facilities. Vehicles drive directly on the beach for these activities.

DEC and the Shire of Roebourne have agreed that the location needs to be managed in a way that ensures that the values of the adjacent national park are not adversely affected.

Withnell Bay provides the closest boat launching facility to the park, an informal beach ramp. On good boating days, 30 vehicles and boat trailers can be parked at Withnell Bay. The site is managed by the Shire of Roebourne and has signs and rubbish bins.

## Overnight stays

Accommodation options in the region are limited due to the requirements of the resource industry expansion. Hotel and motel accommodation and caravan parks are available in Dampier, Point Samson, Karratha, Roebourne and Wickham. As a consequence, gaps exist in the tourist accommodation market, particularly as there are few opportunities in the region for tourists to stay overnight in the natural environment without local knowledge or access to a boat to reach camping areas on the Dampier islands.

At present, the economic cost and potential impact on values outweigh the development of safari tent accommodation in Murujuga National Park (as was proposed by the draft management plan). This follows an assessment subsequent to the draft management plan by potential investors and Tourism WA that found the development opportunity was not exclusive and that there was only limited supporting infrastructure and few commercial operators to make the operation viable and appealing to visitors at this time. Concerns were also raised by DIA that this type of development may have adverse effects on the

values of the area, particularly if management presence was limited. MAC also have concerns about the effects on cultural values of the area.

Currently camping occurs informally across the park, particularly along Sea Ripple Passage and at Conzinc Bay beach. Generally, people accessing these areas are in four-wheel-drive vehicles or boats and use tents or swags to camp for short periods of one to two nights. Visitors are generally accessing the area for camping, fishing and swimming and have only a limited appreciation of the cultural values of the area. Access will be reviewed by MPC in order to protect culturally sensitive and heritage values.

## Open fires

Campfires provide a focal point for social interaction, and for many visitors are an integral part of their camping experience. However, the collection of firewood and fire escaping 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 damaged by open fires and firewood collection can take many years to recover and regenerate. Consequently the collection of firewood within the park will be prohibited.

Gas barbecues can provide the facilities visitors need without the problems associated with campfires, and prevent the use of illegal campfires for cooking, including the illegal collection of firewood. However the ongoing maintenance costs are high and time consuming.

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

- where campfire rings are provided at serviced camping areas if developed (that is, not those on long distance walking trails)
- as part of an authorised guided tour where this is explicitly catered for

- in accordance with Ngarda-ngarli use of the park as proposed in Section 32 *Use of the park by Ngarda-ngarli*.

## Fishing

A separate management plan (the proposed Dampier Archipelago marine park management plan) will describe management arrangements for fishing in the waters surrounding Murujuga National Park. Fishing may be restricted in some areas adjacent to the national park.

Fishing by Ngarda-ngarli is addressed in Section 32 *Use of the park by Ngarda-ngarli*.

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

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

## Strategies

1. Consider providing a major day visitor site and interpretation, possibly at Deep Gorge.
2. Consider developing additional interpretive sites pending further surveys.
3. Consider establishing basic facilities, such as parking and information, at trailheads.
4. Determine the appropriateness of developing camp sites to cater for current and future demand.
5. Manage existing use to minimise impact on values.
6. Visitors to camping areas, if developed, will be required to bring their own gas or fuel barbeque.
7. Permit campfires in approved areas or in accordance with Ngarda-ngarli use of the park.
8. Ensure that visitors to the park are aware of the relevant fishing regulations by providing information at, for example, boat ramps, visitor centres and the Karratha DEC office.



A north-west Burrup Peninsula beach. Photo – Stewart Caves

## 25. Visitor services

### Rubbish collection

To date, visitors have been responsible for taking their own rubbish out with them and this will continue to be encouraged. If the number of visitors to the park increases dramatically, then this may need to be reviewed.

### Water supply

Water is a rare and precious commodity on the Burrup Peninsula (see Section 17 *Hydrology*). Water is provided to the major industries on the peninsula via mains or desalination plant. Other options for water supply include rainwater from catchment tanks and bore water (although the fractured rock aquifers on the peninsula are very localised systems with little regional flow).

The amount of water required will depend on the development and accommodation options chosen and their design. Whichever option is chosen, all facilities will be designed to achieve the highest level of water conservation.

### Objectives

1. To maintain the park free of rubbish.
2. To achieve the highest standards in water conservation in the design, construction and operation of all facilities and infrastructure.

### Strategies

1. Encourage all visitors to take their rubbish with them through the provision of information interpretation and education.
2. Review the need for rubbish bins in the park with the preference for no rubbish bins.
3. Ensure that the scarcity of water is mentioned in any information for the park, and inform day visitors of the need to bring their own water supplies for the duration of their stay.
4. Design all buildings and their surroundings to harvest rainwater and limit water

consumption with water efficient ablution systems (preferably using composting toilets).

5. Consider water supply options for the park once the level and type of facility development is known.

## 26. Commercial opportunities for Ngarda-ngarli

Awareness of Murujuga National Park will increase with active promotion, and with improved visitor access and services the park is likely to become a major tourist destination in the Pilbara. The Aboriginal ownership of the park 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 park and helping visitors to enjoy their stay.

The responsibility for identifying and developing enterprise opportunities rests with Ngarda-ngarli individuals, organisations and MPC. MPC has the responsibility to ensure commercial activities are consistent with management objectives and may, at times, be required to regulate or limit such activities.

The participation of Aboriginal people in promoting aspects of culture and lifestyle is of enormous interest to visitors. It provides an excellent opportunity for the Ngarda-ngarli to develop economic enterprises. Guided walks, activities, vehicle based tours, camping and nature study tours, including reference to Ngarda-ngarli languages, stories and songs, are just some examples of activities which can be run by the Ngarda-ngarli in partnership with DEC. Interpretation of the Murujuga National Park area from the Aboriginal perspective must take place in a manner agreed by MPC.

Enterprises that would be compatible with the objectives of Murujuga National Park include:

- cultural interpretation and tour guiding

- environmental protection and rehabilitation
- recreational equipment hire (for example sea kayaks, bikes)
- visitor fees
- local arts and crafts
- accommodation (for example 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 park.
2. To support and provide advice to Ngarda-ngarli commercial enterprises which are based on the sustainable use and enjoyment of Murujuga National Park.

## Strategies

1. Maximise opportunities for Ngarda-ngarli to apply for commercial contracts that may be periodically identified.
2. Encourage Ngarda-ngarli individuals and

groups to identify commercial opportunities through sustainable use of the park, and provide a forum for MPC to consider these ideas.

3. Encourage and support Ngarda-ngarli employment and enterprise in a wide range of opportunities including, but not limited to, tourist and visitor services.
4. Allow exclusive access for Ngarda-ngarli tour operators and guides to take visitors to more remote and sensitive areas.

## 27. Commercial operations

Commercial operations within Murujuga National Park, as for all other lands managed by DEC, will be regulated by way of licences or other agreements that provide appropriate services for visitors' use and enjoyment. Such concessions would only be granted following approval by MPC.

### Licences

Licences allow tourist operators to enter and use lands and waters managed by DEC. Activities carried out under a licence



Existing four-wheel-drive vehicle tracks. Photo – Stewart Caves



are generally itinerant and do not require substantial infrastructure. All private tour operators conducting commercial tourist activities on conservation reserves and State forest are required to obtain a licence in accordance with section 101 of the CALM Act. Licensing enables DEC to monitor and regulate access and use of lands and waters under its control, and ensure that the natural values of these areas are maintained.

Two types of licences are issued, depending on the nature of the activity, the security of the resource, and the risk to the participants. Restricted 'E Class' licences are issued where there are safety, environmental or management concerns, and hence the number of licences needs to be restricted. Generally 'E Class' licences are issued following a formal publicly advertised and competitive 'expression of interest' process. 'T Class' licences are issued where environmental and visitor management objectives can be met by having conditions attached to the licence, and most commonly apply to low impact, vehicle-based operations. 'T class' licences can be issued for one, three or five-year periods based on the level of registration with recognised accreditation tourism programs.

Conditions apply to all licences to minimise the impacts of activities, or to aid in management of the value being appreciated by the public. DEC considers the following factors, and will need to liaise with MPC, before issuing licences:

- infrastructure requirements of tour operations (for example adequate toilet facilities, access and parking for large vehicles)
- potential impacts to water quality
- visitor safety and competence of group leaders
- the potential for damage to sensitive areas and wildlife
- the appropriateness of retail concessions in particular natural environments.

## Leases

Leases are formal agreements issued when the activity involves significant infrastructure and/or retailing and require the exclusive use of the land. Leases may be up to 21 years with an option of a further lease up to 21 years, with the length of commercial leases (for tourism and recreation purposes) usually being proportional to the level of investment and the return on that investment. Other common lease uses include the provision of utilities, such as for communication towers. Under section 100 of the CALM Act, the CEO of DEC cannot grant a lease for section 8A CALM Act land. However, MAC may be able to issue a lease, subject to compliance with the DEC lease, management plan, joint management agreement, deeds of covenant and any restrictions on title.

In other national parks in Western Australia, leases have been issued for the provision of accommodation, cafes, shops, booking offices and the like (although these facilities would not necessarily be provided in Murujuga National Park). Public 'expressions of interest' for accommodation must meet sustainability goals for:

- the protection of the natural environment (for example maintenance of natural ecology, erosion, extent of soil loss, compaction and vegetation damage, volume of water used, amount of solid waste produced on site, amount of non-renewable energy consumed on site, reduced vehicle use for visitor trips, light spill and noise levels)
- the built environment (for example site design and layout, style and character, design form and function, waste water volume, quality and disposal methods, methods of energy production, fuel and chemical storage, handling and chemical spill procedures, toilet facility standards and operation and waste storage and disposal methods)
- the social environment (for example level of Aboriginal ownership and employment,

culturally sensitive behaviour, provision of interpretive materials, safety equipment and procedures, visitor feedback, content of marketing material, expenditure from local businesses and membership of local associations)

- the business environment (for example market demand study, cash flows and profit and loss forecasts, financial capacity, details of commercial activities to be conducted and relevant tourism accreditation).

## Objectives

1. To encourage and promote Ngarda-ngarli ownership of, and participation in commercial enterprises involving Aboriginal cultural heritage, and to ensure that the use of Aboriginal cultural material by commercial tour operators is appropriate.
  2. To ensure that commercial tourism activities are compatible with other management objectives and to extend the range of services and recreational opportunities available in Murujuga National Park through the involvement of private enterprise and the Ngarda-ngarli.
3. Promote Ngarda-ngarli participation in commercial activities within the park.
  4. Provide training and other support to enable the Ngarda-ngarli to meet service expectations and associated tourism operations.
  5. Ensure all commercial operations operate under a licence or other agreement with appropriate conditions that:
    - ensure the operation is consistent with other management objectives within Murujuga National Park
    - facilitate park management
    - provide a service or facility to visitors that DEC or MAC would not otherwise be able to provide.
  6. Encourage tour operators that operate in Murujuga National Park to acquire quality assurance through industry accreditation, qualification programs and to comply with any guidelines developed relating to

and encouraging appropriate Aboriginal commercial initiatives.

2. MPC will have to approve the development of interpretive material used by commercial tour operators.

3. Promote Ngarda-ngarli participation in commercial activities within the park.

4. Provide training and other support to enable the Ngarda-ngarli to meet service expectations and associated tourism operations.

5. Ensure all commercial operations operate under a licence or other agreement with appropriate conditions that:

- ensure the operation is consistent with other management objectives within Murujuga National Park
- facilitate park management
- provide a service or facility to visitors that DEC or MAC would not otherwise be able to provide.

6. Encourage tour operators that operate in Murujuga National Park to acquire quality assurance through industry accreditation, qualification programs and to comply with any guidelines developed relating to



Aerial view of the Burrup Peninsula. Photo – Cliff Winfield

their activities (for example Outdoors WA adventure activity standards).

7. Evaluate proposals for licences and other agreements according to DEC policy and final approval by MPC and permit their establishment where appropriate.
8. Include goals for natural environment, built environment, social environment and business environment in any public 'expression of interest' for the provision of tourism facilities.
9. Ensure better cost recovery associated with agreements to provide for utilities and services.
10. Do not provide concessions within the park if adequate facilities or services exist, or if they can be developed outside the park that meet visitor needs
11. Provide resources and training for the tourism industry in interpreting the role of MPC and Murujuga National Park's natural and cultural values.

## 28. Firearms

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

### Objective

To prevent the use of firearms on the park by members of the public.

### Strategies

1. Prohibit the use of firearms in the park by members of the public.
2. Provide information at appropriate points alerting visitors to the ban on firearms.

## 29. Pets

Pets will be not permitted within Murujuga National Park, particularly due to the potential adverse effects of domestic animals on native wildlife and visitors. There is also the potential for accidental poisoning since the 1080 bait

used to control foxes 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 guide and hearing dogs, specially trained dogs for search and rescue operations, and where individuals can verify they require a companion animal for medical/therapeutic reasons.

### Objective

To protect the park and visitors from the adverse effects of domestic animals.

### Strategies

1. Prohibit domestic animals within the park, except for:
  - guide and hearing dogs
  - specially trained dogs required for emergency search and rescue purposes.
2. Inform visitors about the adverse effects that domestic pets can have.

## 30. Visitor safety

DEC and MAC will have a legal responsibility to consider the safety and welfare of visitors to the park. DEC has developed *Policy Statement no. 53 – Visitor risk management* that provides for the carrying out of periodic safety audits of all recreation sites, facilities and visitor services. The visitor risk management process established across the state by DEC will be adopted in the park.

The main risks associated with recreation in the park are the lack of potable water, high temperatures, hazardous material spills, climbing on unstable boulders to view petroglyphs, and rocky and uneven terrain in general. Some degree of risk is also attached to the sharing of park traffic with vehicles servicing industrial sites. In addition, gaseous emissions associated with industrial incident may also create a safety issue which must be planned for, particularly by planning escape routes.

Live firing at the rifle range on the southern boundary of the park will need to be addressed in visitor planning to ensure that hazards are minimised.

### Objective

To minimise risks to public safety while maintaining a range of visitor experiences wherever possible.

### Strategies

1. Implement a visitor risk management program incorporating consideration of hazardous material spills, traffic management, live firing on the adjacent rifle range, and emergency response to fire or gas releases from industry.
2. Provide information to enable visitors to consider and cater for risks associated with their activities.
3. Install wildlife warning signs at appropriate locations.

## 31. Visual landscape

Landscape management is based on the premise that the visual quality of any landscape is a resource in its own right and can be assessed and managed in much the same way as other values such as fauna, flora, water and recreation. The role of landscape management is to ensure that all uses and activities are planned and implemented to complement rather than detract from the inherent visual quality of the environments in which they occur.

For many, a landscape's visual values are the most direct way they will experience an area and therefore are often the criteria by which land management practices are judged. The 'visual quality' refers to either the characteristics (qualities) of a landscape or the degree of excellence in terms of naturalness, distinction and public exposure/perception. This is determined by its context of geomorphology, hydrology, soils, vegetation, land use and cultural heritage values.



North Burrup Peninsula. Photo – Laurina Bullen/DEC

Murujuga National Park remains largely undeveloped and retains its outstanding and distinctive natural landscape values, the significance of which varies according to personal preference. The stark contrast between the neighbouring industrial landscape, which attracts visitors in its own right, and the natural and cultural landscape adds complexity to management and visitor perceptions of the area and provides unique interpretation opportunities.

Although 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 audible from many locations within the park. This industrial aspect may detract from cultural and natural landscape values, therefore, views from within the park will be protected from industry wherever possible. Companies have indicated

that they are not considering the development of industrial projects within the National Heritage place. Accordingly the industrial zoning of locations such as the Conzinc South and Withnell East industrial lands is under review.

The beaches and adjacent dunes, and areas with deeper alluvial soils and mudflats are most vulnerable to degradation. Vehicle traffic has been the major cause of soil erosion within the park, therefore a more proactive approach to management will be adopted (see Section 22 *Management for public use*).

Changes in the landscape outside Murujuga National Park have occurred since the establishment of the iron ore and salt industries in the 1960s and more recently with LNG and ammonia projects.

New industrial development will be largely limited to the south-west and southern third of the peninsula, particularly the Burrup Fertilisers site between Burrup Road and Hearson's Cove. Although the landscape in these industrial lands will have a very modern industrial look, the remaining land will retain much of its natural character. Developments on the industrial lands may affect the visual amenity of areas within the park.

*Policy statement no. 34 – Visual resource management of lands and waters managed by CALM* (CALM 1989) provides guidance for managing visual resources and should be adhered to in all aspects of land management, particularly the planning and constructing new facilities, buildings, recreation sites, signs and infrastructure. Guidelines for management in high quality visual landscapes include the following:

- Site-specific visual landscape factors should be identified and evaluated prior to undertaking management activities.
- Roads, recreation sites and walking tracks should focus views onto distinctive features by selecting the best siting and alignment.
- Road design and construction should

remain subordinate to landscape elements (subject to achievement of minimum safety and road standards) by utilising minimum design standards, limited cuts and fill, minimum clearing widths, undulating edges and sensitive alignment.

- Interpretive and explanatory signage should be used before and during operations that alter landscape character, such as new recreation site development, and weed control adjacent to travel routes and walking trails.
- Where structures are required they should be sympathetic in design, materials and colour to complement surrounding landscape elements and be carefully sited away from major natural focal points, out of viewer sightlines and where vegetation or landform screening can be used.
- Optimum siting and alignments for infrastructure such as roads, recreation sites and walking tracks should be selected.
- Infrastructure should be designed so that it complements the surrounding landscape elements and siting it away from major natural focal points, out of viewer sightlines and where vegetation or landform screening can be used.
- Essential firebreaks should follow natural landform, vegetation, or land-use patterns and lines in the landscape, wherever possible.
- Prescribed burning should be carried out by employing prescriptions that minimises visible impacts.
- Previously disturbed areas within high visual landscape zones should be given the highest priority for rehabilitation until the desired standard of visual quality is attained.

## Objective

To protect and enhance the park's visual landscape qualities.

## Strategies

1. Encourage all Burrup Peninsula land managers to participate in the preparation of a landscape management strategy for the whole of the peninsula.
2. Ensure appropriate input into the assessment of proposed developments that impact on the park's landscape values.
3. Liaise with neighbouring land managers to ensure landscape management guidelines are considered in developments, and participate in processes related to such developments.
4. Promote and complement the area's landscape values through all park management activities.
5. Site all major visitor destinations to highlight and promote the cultural and natural landscape values of the park.



Vandalism at Conzinc mudflat. Photo – Laurina Bullen/DEC

# Caring for country: resource use

## 32. Use of the park by Ngarda-ngarli

One of the major benefits of Aboriginal freehold title to Murujuga National Park 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 compatible with continued access and use. The park will allow and encourage Ngarda-ngarli to enjoy the full benefits of ownership of this significant area.

Amendments to the CALM Act enable Aboriginal people, subject to regulation, to undertake certain activities (such as preparing or consuming food and medicine, engaging in artistic, ceremonial or other cultural activities) in DEC-managed lands and waters such as national parks. 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.

Accompanying ownership of Murujuga National Park are 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 other visitors to their country and agree that considerable resources need to be accessed for 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 cause 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 other visitors to the park or parts of it.



Rock piles of the Burrup Peninsula. Photo – DEC

## Hunting and fishing

Aboriginal rights to use native species for food, cultural and family reasons are enshrined in national and state legislation. In Western Australia, this includes, for the most part, protected areas such as national parks. These rights have been further reinforced through the BMIEA. This management plan recognises and supports the continuing rights of eligible Ngarda-ngarli to hunt, fish and collect natural resources from within the park.

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 support the management objective of the park to conserve native wildlife and do 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 an adverse effect on particular species or the environment.

It is probable that the only hunting that will occur in the park, 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 in a national park. As a consequence, hunting by Ngarda-ngarli will not include firearms and will be consistent with CALM Act Regulations. This may mean that, after prior arrangement with park management, hunting occurs:

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

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

It is possible that the proposed Dampier Archipelago Marine Park may include

sanctuary zones where fishing may be restricted in some areas adjacent to Murujuga National Park. Ngarda-ngarli respect the concept of sanctuary zones and their purpose, but insist that their rights to custodial use of lands and waters persist.

## 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 park. 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. 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 areas 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 as long as it is in accordance with CALM Act Regulations.

## 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 traditions.
3. To establish at least one camping area for the exclusive use of 'eligible persons' and their family and friends.



4. To encourage regular use and enjoyment of Murujuga National Park by Ngarda-ngarli.

## Strategies

1. Ensure that any weapons and hunters adhere to relevant CALM Act Regulations.
2. Ensure that all Ngarda-ngarli wishing to hunt in the park make prior arrangements with park management.
3. Explain any issues relating to traditional resource use in public information and interpretation material.
4. Consider the requirement for on-site staff accommodation as part of the assessment of business opportunities.
5. Identify at least one suitable Ngarda-ngarli camping area with basic facilities away from main visitor destinations.
6. Promote the use of the park among Ngarda-ngarli for their enjoyment and to maintain culture.

## 33. Working with neighbours

Adjacent to Murujuga National Park are:

- the Hearson Cove Recreation Reserve managed by the Shire of Roebourne
- the North West Shelf Joint Venture site
- Woodside production facilities
- the ammonia production plant of Burrup Fertilisers
- Nickol Bay quarry
- Dampier Port
- unmanaged reserves for future industrial development and infrastructure corridor.

Since the 1960s these projects have underpinned regional population growth and have contributed to the economic wellbeing of the state and nation.

To assist in orderly planning of any future development, the Burrup Peninsula is subject to two Ministerial Temporary Reserves under

the *Mining Act 1904*, which require that the Minister for Mines must agree before any mining titles are granted.

If projects gain government approval, the 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.

There is a need for a range of strategies to minimise any adverse effects on the park from activities on the adjoining lands. These activities may be due to the construction or operation of industrial projects, service traffic, quarry blasting, rifle range shooting and recreation on adjacent industry zoned lands or the Hearson Cove recreation reserve.

The management practices adopted by neighbouring land managers have the potential to affect the successful implementation of the park's management strategies. Therefore, while acknowledging the industrial zoning of neighbouring land and legal responsibilities, strategies will need to be developed by MPC and adjacent land managers to address matters such as visitor safety, cultural heritage, weeds, feral animals, fire, and security. This will require genuine cooperation and regular dialogue between MPC and the adjacent land managers.

Both Woodside and Rio Tinto have entered into conservation agreements with the then Commonwealth Department of Environment and Water Resources which include commitments to:

- identify sites with National Heritage values
- present and transmit information about the National Heritage values
- manage the National Heritage values to ensure that they are conserved for future generations
- research and monitor the National Heritage values.

In the case of Rio Tinto, this work is predominantly associated with the National



Industry on the Burrup Peninsula. Photo – Norm Williams

Heritage place on its leases while the Woodside program covers the balance of the Burrup Peninsula and Dampier Archipelago. With this in mind, both Rio Tinto and Woodside have envisaged a ranger program that incorporates looking after the whole of the National Heritage listed area.

The irregular shape of the national park, its rugged topography, extensive coastline and lack of fences makes it difficult to distinguish the industrial land from the national park area. With the exception of the existing major industrial facilities, it is not clear where Murujuga National Park begins and ends. To ensure that the values and integrity of the national park are properly protected, and to assist with practical management, it is important that its boundaries are recognisable by managers, the public and neighbouring industry.

### Objective

To promote effective, integrated and cooperative management between Murujuga National Park and adjacent land managers.

### Strategies

1. Liaise and collaborate with neighbouring land managers including industrial operators and the Shire of Roebourne to ensure compatible management of the park and surrounding areas.
2. Liaise with Woodside and Rio Tinto to support their commitments under their conservation agreements.
3. DEC staff to work with MAC staff to manage fire preparedness, weeds and feral animals on adjoining unallocated industrial reserves under section 33(2) or 8C of the CALM Act.
4. Investigate possibilities for additions to the Murujuga National Park from adjoining lands.
5. Install boundary markers and signs on tracks so visitors are aware they are entering the park.
6. Ensure that the park is clearly defined on maps and marketing material.

## 34. Mineral and petroleum exploration and development

### Legislative and policy framework

Mining on lands and waters managed by DEC is subject to the *Mining Act 1978* (Mining Act), the *Petroleum and Geothermal Energy Resources Act 1967* (Petroleum Act), the *Petroleum Pipelines Act 1969*, the *Environmental Protection Act 1986* (Environmental Protection Act), the Wildlife Conservation Act and various state agreement Acts. It should be noted that the Mining Act and the Petroleum Act take precedence over the CALM Act and may prevail over the contents of this management plan.

As Murujuga National Park is private land, managed by MPC as a national park, the private land provisions of the Mining Act apply.

Limestone, rock, gravel, sand and clay are not covered by the Mining Act as these are not defined as minerals on private land. In such cases any quarrying proposal would be subject to an extractive industry licence issued by the Shire of Roebourne, but only after approval by the landowner, Murujuga Aboriginal Corporation. DEC would also need to issue a vegetation clearing permit and the quarrying would be subject to environmental impact assessment under the Environmental Protection Act and EPBC Act (see Western Australian Planning Commission 2009).

The private land does not inhibit the granting of a mining tenement under the Mining Act except where it is under cultivation, the site of a burial ground, spring or substantial improvement. The issue of mining tenements is constrained by the requirement that the Minister for Mines must give written consent prior to beginning any mining on the temporary reserve which covers the Burrup Peninsula. The Minister for Mines can refuse approval to grant a mining tenement in the public interest.

The *Petroleum Pipelines Act 1969* indicates that it is desirable that a compensation agreement be made with any landowner

affected by a pipeline proposal, or otherwise, that compensation will be paid for compulsory acquisition. However, in making a decision to grant a pipeline licence the Minister for Mines will have regard to the public interest and whether the construction and operation of the proposed pipeline would be unsuitable “by reason of the proposed pipeline being likely to interfere unnecessarily with improvements, improved land, flora, fauna or scenic attractions or for any other reason that the Minister thinks sufficient”.

### Basic raw materials

Basic raw materials, principally gravel and lime sand, have previously been extracted from the park area for road construction and industrial uses. A major hard rock quarry, the Nickol Bay quarry, occurs immediately to the south of the park.

Extraction of basic raw materials may be permitted where the use of the material assists in the protection and management of the area, a more environmentally acceptable alternative is not available and where the material is used within the boundaries or enclaves of the park. To minimise disturbance to conservation areas, alternative sources of basic raw materials, located outside Murujuga National Park, are preferred. Where the extraction of basic raw materials does occur, natural values of the park can be maintained by:

- siting pits in vegetation communities that are adequately represented and with the lowest natural values
- applying best practice hygiene management
- applying best practice rehabilitation following extraction (see Section 35 *Rehabilitation*).

Extraction of basic raw materials in the park for use on roads and facilities managed by MPC within the park occurs under the CALM Act and approval is given by DEC’s Pilbara regional office. Extraction by local government authorities for use on road reserve enclaves within the park occurs under the local government act and a lease is required.

## Objective

To protect Murujuga National Park from the impacts of mining, mineral exploration and the extraction of basic raw materials, while being consistent with government legislation and policy.

## Strategies

1. Assist the Department of State Development to re-evaluate the status of proposed industrial lands affected by the National Heritage listing.
2. In conjunction with the Department of Mines and Petroleum, evaluate the likely impact of any proposed mineral resource development activities within Murujuga National Park (and external areas which may impact upon it) and make recommendations that minimise impacts.
3. Seek direct and complementary offsets to counterbalance any adverse environmental impact due to mineral and petroleum exploration and mining activities, to achieve no net environmental loss, or preferably a net environmental benefit.
4. Permit access to basic raw materials from Murujuga National Park where:
  - the use of the material assists in the protection and management of the area
  - where the material is used within the boundaries or enclaves of Murujuga National Park
  - extraction is consistent with this management plan and purpose and tenure of the area.
5. Consider the values of the park in selecting sites for any basic raw materials extraction.
6. Minimise the number of new gravel pits by developing working arrangements with agencies extracting gravel and basic raw materials from lands managed by MPC.
7. Restrict the location of pits supplying gravel, sand or stone to an appropriate recreation visitor management setting.

Where possible, ensure pits are not visible from roads, tracks and paths.

8. Ensure that all sites in which any mining activity occurs are rehabilitated according to DEC's rehabilitation standards and guidelines.
9. Ensure all mining activities adhere to DEC hygiene standards.

## 35. Rehabilitation

Rehabilitation is the process of returning disturbed land to a predetermined stable, self-regulating state. It involves:

- the land surface
- vegetation cover
- the land use and/or productivity, consistent with the purpose for which the area is managed.

Rehabilitation within Murujuga National Park can be undertaken following a wide range of ground disturbance such as gravel pit working, road works, track closure, recreation site closure or redevelopment, or activities associated with fire suppression. Local indigenous species should be used to:

- give rehabilitation works the greatest chance of success
- limit the introduction of exotic (non-local) plants
- enable new vegetation to blend into the existing environment.

*Policy statement no. 10 – Rehabilitation of disturbed land* (CALM 1986) provides guidance for the rehabilitation of lands managed by DEC, based on the following principles:

- Land should be managed as far as possible to avoid disturbance. Rehabilitation should be the last option in a series of management decisions designed to protect natural values.
- Natural regeneration of indigenous vegetation is the preferred method of



Vegetation damage at a north-west Burrup Peninsula beach camp site. Photo – Stewart Caves

rehabilitation, and where necessary, steps should be taken to encourage it. Where this is not possible, or needs supplementing, local species, grown from seed or cuttings obtained locally, should be planted, with restoration as far as possible of the original species diversity, composition and spacing.

- Where conditions have been changed to such an extent that local species cannot grow (for example on areas where topsoil has been removed), or where a desired purpose, such as providing shade, cannot be met by local species, species suitable to the conditions and purpose should be planted. However, where more than one species is suitable, then that which occurs naturally closest to the rehabilitation site should be used, with seeds and cuttings collected from the nearest possible source.

In cases where other agencies or organisations have been responsible for disturbance within Murujuga National Park, it is DEC's policy that the agency is responsible for rehabilitation of these areas to a suitable standard. In such cases, the cost of rehabilitation should also be borne by the agency.

Two main principles are followed for any rehabilitation works undertaken in the park. Firstly, seed used in rehabilitation plantings should have a local provenance, preferably from the Burrup Peninsula area. Secondly, no soil is to be imported without sterilisation, including plants in pots. Any machinery used to rip or restore contours should be washed to remove any contaminated soil or seeds.

### Objective

To restore degraded areas to a stable condition resembling as close as possible the natural ecosystem function.

### Strategies

1. Manage Murujuga National Park, as far as practicable, to avoid disturbance.
2. Develop a working plan for rehabilitation within Murujuga National Park, including allocating priorities for works based on:
  - existing and potential impacts on natural, cultural and visual landscape values

- type and extent of the disturbance
  - likelihood of natural regeneration
  - availability of resources
  - level of participation of stakeholders
  - the capacity for long-term monitoring.
3. Rehabilitate, close or relocate roads and tracks that have the potential to erode or impact on visual amenity.
  4. In the event of planned activities that will cause disturbance, establish conditions for the activities which minimise the area and degree of disturbance, and define the type of rehabilitation required.
  5. Ensure that, whenever possible, the cost of rehabilitation is borne by those responsible for the disturbance.
  6. Actively involve private and public groups, individuals and Traditional Custodians in rehabilitation programs.
  7. Ensure local indigenous plant species are used in rehabilitation of disturbed areas wherever possible.
  8. Monitor, evaluate and record progress of rehabilitation programs/projects.
  9. Develop a rehabilitation program with proponents for gravel pit rehabilitation.

### 36. Utilities and services

Utilities and services within Murujuga National Park are significant to local and regional communities. Utility corridors often link electricity, gas, telephone and water service networks to private property that may be surrounded by Murujuga National Park, or across crown lands to shorten the route for these services to other nearby lands. In the Pilbara, many utilities and services are privately owned by mining companies servicing the various mine sites and transport corridors, some of which run through DEC-managed lands and waters. Leases over specific locations on lands managed by DEC for some utilities

or services can be approved, provided that their impact on other values are minimised. *Policy statement no. 18 – Recreation, tourism and visitor services* (DEC 2006) guides the management of commercial operations (see Section 27 *Commercial operations*).

As at 12 September 2008, there were two easements to allow Woodside to access and operate a communications facility on Mt Wongama. On the southern boundary of the park are Reserve 37967 for water supply purposes and Reserve 42039 for a repeater station site. The Dampier to Bunbury domestic gas pipeline, and power and water pipelines are on the south-western margin of the park. Industrial pipelines are sited in the infrastructure corridor on the northern side of the King Bay-Hearson Cove valley.

Within the Pilbara, infrastructure and utility corridors result in long, linear areas of disturbance through otherwise minimally disturbed areas. The major effects of these infrastructure corridors are that they provide invasion routes for weeds and they interfere with drainage and natural fire patterns.

#### Objective

To minimise the impact of utilities and services on the key values within Murujuga National Park.

#### Strategies

1. Where possible, liaise with utility and service providers to locate utilities and services outside Murujuga National Park in areas where impacts are minimised. Permit new utilities and services within the park where there are no viable alternatives and where they are consistent with the protection of key values of the park and government policy.
2. Encourage new utilities and services within Murujuga National Park to be developed using existing utility sites and corridors.
3. Ensure that land disturbed by the installation and/or maintenance of public or private utilities is adequately rehabilitated

at the expense of the responsible authority and that environmental problems, such as weeds and fire are adequately managed.

4. Minimise the impacts of any essential utility corridor that exists or is proposed in or near Murujuga National Park by implementing landscape management techniques and liaising with adjacent land managers.
5. Control and monitor the effects of utility corridors and infrastructure and their maintenance on natural, cultural, landscape and recreation values.
6. Seek direct and complementary environmental offsets to counterbalance any adverse environmental impact due to the installation and/or maintenance of public utilities to achieve no net environmental loss or, preferably, a net environmental benefit.

# Caring for country: involving the community and research

## 37. Community education

One of the objectives of the Ngarda-ngarli owners of Murujuga National Park is to build a sense of pride and responsibility among non-Aboriginal people for the Ngarda-ngarli land they are now living on. It is hoped that visitors to the park will leave feeling privileged to have visited such a special site.

Ngarda-ngarli feel this could be achieved through guided interpretive experiences on site, and through information and interpretation provided at key sites in the park. Local people will also have the opportunity to put forward ideas and comments to MPC.

Sustainable management of the park will largely depend upon the ability of the managers to communicate its objectives and win the support of the people using the area. Gaining the support and cooperation of park users will be the highest communication priority for park managers as it is so critical to long-term security and protection of the park.

The enormous volume of petroglyphs, significant sites and archaeological materials, and the lack of comprehensive data on this, makes protection through regulation challenging and emphasises the need for cooperative management.

The park provides a valuable opportunity for communication to people within the local, regional and wider community about its values, particularly its rich Aboriginal cultural heritage and unique environment and landforms.

An effective communication program is vital to achieve the goals and objectives for the management of Murujuga National Park and will generally involve three components:

1. Information: provides details of facilities, activities, features and regulations and includes publicity, marketing and promotion.

2. Education: provides resources and programs designed specifically for various educational groups and includes educational materials and learning activities.
3. Interpretation: explains natural and cultural features and management activities and includes on-site signs, exhibits, print and electronic products (for example multi-media, audio, video, CD and internet-based), brochures, and interpretive activities. The interpretation of values to visitors is integrated with recreation and tourism planning and site developments.

Education and interpretation programs will concentrate on:

- raising awareness of the natural and cultural values of Murujuga National Park
- raising awareness of the vulnerability of the park to the effects of visitor activity
- encouraging appropriate behaviour to minimise adverse effects on the environment
- explaining the positive actions visitors can take to support the management of the park
- fostering a sense of community ownership of the park
- engendering support for the management of the park.

Information will be designed to:

- enable visitors to become orientated
- to make visitors aware of the access routes and opportunities available
- to advise of any restrictions in the park and the reasons for these restrictions.

Methods that may be employed in the interpretive program include:



- activities conducted by Ngarda-ngarli
- ranger-led activities (both within and outside the park at venues such as schools)
- self-guided Aboriginal cultural and nature walks
- self-explanatory signs or panels at sites of natural or cultural significance.

The scenic and cultural drive trail the 'Warlu Way' links the Burrup Peninsula with other national parks, reserves and towns in the Pilbara Region, including the destinations of Karijini National Park, Millstream-Chichester National Park, Ningaloo Marine Park, Cape Range National Park, the Dampier Archipelago and the communities of Roebourne, Cossack and Point Sampson. Each destination along the Warlu Way promotes a particular interpretational theme. The Burrup Peninsula is being promoted as "a small landmass with a large range of habitats, a diverse array of wildflowers and wildlife, and an ancient outdoor art gallery." The Warlu Way will appeal to a variety of visitors, as well as niche markets (which target visitors with particular interests).

To project a positive image of cooperative and integrated management, it is proposed that road signs and interpretive signs will be progressively introduced and upgraded by MPC.

The Ngarda-ngarli owners of Murujuga National Park would like all visitors to the area to leave with the following messages regarding the values of their country:

- Murujuga National Park contains some of the world's great archaeological and cultural heritage treasures.
- This country is a record of the history and the lives of the Ngarda-ngarli over tens of thousands of years and is alive with the spirits of these ancestors today.
- The Ngarda-ngarli custodians of the park welcome visitors to enjoy and learn from their country and culture.



Looking out to sea from the peninsula. Photo – DEC

## 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. To ensure that Ngarda-ngarli people and concepts are at the forefront of information, education and interpretive services in the park.

## Strategies

1. Prepare a communication plan for the park, which considers all aspects of public communication, interpretation and information.
2. Continue to work with Ngarda-ngarli to record stories and knowledge about the country and incorporate this into interpretation and information products.
3. Promote and encourage direct contact between Ngarda-ngarli and visitors.
4. Follow established DEC standards and style in presentation of information and signs.
5. Maximise the number of staff directly engaging with visitors, as resources permit.
6. Seek approval from the Ngarda-ngarli members of MPC regarding Aboriginal cultural information used in public communications.
7. Encourage and support the development of Ngarda-ngarli employment and enterprise opportunities in interpretation, guiding and other visitor services.
8. Develop education initiatives such as the Bush Rangers program, based on the values of the park.
9. In partnership with Leave No Trace, develop community education programs aimed at minimising visitor impacts.

## 38. Interpretation and cultural facilities

The BMIEA provides for the construction of 'Burrup non-industrial land buildings' which are defined as:

"a building or buildings and associated infrastructure constructed for:

- (a) office and other facilities for the management of the Burrup Non-Industrial Land; and
- (b) a visitors and cultural centre for the purposes of:

- (i) facilitating and promoting the cultural activities of the Contracting Parties; and
- (ii) promoting the commercial enterprises and tourism activities of the Contracting Parties relating to the Burrup Non-Industrial Land."

After initial community consultation in 2006, a feasibility study was jointly commissioned by DEC and Tourism WA following feedback from the community and industry in relation to potential impact from visitor activity with the siting of the cultural centre on the northern Burrup Peninsula. The feasibility study was divided into two sections: Part A—initial feasibility of all sites, and Part B—detailed economic feasibility/analysis and governance of the preferred site.

Part A of the feasibility study recommended that Deep Gorge be the preferred commercial tourism and cultural centre location. Part B was completed in July 2008, and after further input from key stakeholders, concluded that a single extensive facility at Deep Gorge was "an expensive, non-viable and potentially contentious piece of infrastructure". Part B further observed that:

*"... it is relevant to note that Woodside still has a commitment as part of its Conservation Agreement with the Commonwealth to fund Rock Art Interpretation. Woodside has indicated a willingness to investigate developing some low key interpretation (with stakeholder approval) including static displays or signage."*

These findings signal a new phase in the development of interpretive, cultural and office facilities with the possibility that these may be both in and outside the park. The location and purpose of the facilities will be finalised following the development of an interpretation and orientation plan for the park and surrounding areas.

## Objective

To construct innovative and sustainable support, orientation and interpretive facilities that assist and encourage visitors to appreciate,

enjoy and understand the values of the Murujuga National Park and surrounding areas.

## Strategies

1. Form a working group with key stakeholders including Ngarda-ngarli and Woodside to develop a project brief leading to an innovative interpretation and orientation plan of Murujuga National Park and surrounding areas leading to the development of appropriate management, visitors' and cultural facilities.
2. Ensure that the design of the facilities meet the highest environmental and design standards, and complies with the relevant building, health and environmental codes.

## 39. Research and monitoring

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

- petroglyphs and other cultural heritage sites and values
- the effects of industry and visitors on rock art
- tourist and visitor expectations, satisfaction
- the effects of visitor activities
- sustainable Ngarda-ngarli use of the park
- the use of fox baiting for biodiversity management
- the use of fire for biodiversity management
- weeds, in particular those species that threaten areas or species of significant conservation value.

In establishing National Heritage listing for the area Woodside and Rio Tinto entered into conservation agreements with the federal government to assist in supporting work across the National Heritage place. Considerable

resources were allocated to the research and survey of cultural values across the National Heritage place, which includes Murujuga National Park.

## Objective

To increase knowledge and understanding of visitor use, natural and cultural values, and the impacts on those values, to provide for better management of the park.

## Strategies

1. Conduct research and monitoring (as resources permit and according to priority) that focuses on issues, key values, establishing baseline information and that assists the implementation of this management plan as referenced. Support survey and other works undertaken by DIA and ensure that MAC staff, including trainees, are involved in:
  - determining priorities
  - selection processes to appoint consultants
  - participation in programs
  - monitoring of works.
2. As a priority undertake an initial systematic inventory assessment of the cultural values of the national park to understand the distribution and extent of values.
3. Lead the establishment of a collaborative cultural values research partnership between government (state and federal), industry and MAC.
4. Ensure that the results of research and surveys are considered in the management of cultural values.
5. Ensure all research and survey is undertaken to agreed standards and that a stand-alone Murujuga database is established to manage data and information consistent with the requirements of DIA and the Ngarda-ngarli.
6. Pursue external funding sources to assist in achieving the research and monitoring objective.

7. Encourage and support research and monitoring by external agencies, institutions, volunteers, individuals and other organisations where it will contribute directly to the management of the park.
8. Identify and initiate other integrated research and monitoring programs as resources permit and according to priority, that assist with the management of the park.
9. Incorporate research and monitoring findings into interpretive and educational material where appropriate.
10. Adapt management of the park according to increases in knowledge and results of research and monitoring.



Landscape of the Burrup Peninsula. Photo – Cliff Winfield/DEC

# Appendices

## Appendix 1: Excerpt – Burrup and Maitland Industrial Estates Agreement Implementation Deed 2002

### 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 fulfil 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 endeavour 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

BETWEEN

CEO OF THE DEPARTMENT OF ENVIRONMENT AND CONSERVATION through the Conservation and Land Management Executive Body (“CEO”), the chief executive officer of the Department of Environment and Conservation

AND

MURUJUGA ABORIGINAL CORPORATION (“MAC”), an Aboriginal corporation registered under the Corporations (Aboriginal and Torres Strait Islander) Act 2006 (Cth)

### RECITALS

- A. MAC 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. The Parties have agreed to the Land being jointly managed as a national park under section 8A of the CALM Act and in accordance with the terms and conditions contained in this Agreement and the Management Plan.
- D. The Park Council is the joint management body for the Land under section 8A(13) of the CALM Act.
- E. Under section 33(1)(a) of the CALM Act, a function of the CEO is, subject to the direction and control of the CALM Act Minister and subject to the Section 8A Agreement, to manage the Section 8A Land and the associated fauna, flora and forest produce.
- F. The Parties have agreed that MAC must from this time forward be involved in caring for and managing the Land.
- G. The Parties have agreed to the Land being managed jointly, under the CALM Act, by MAC and the CEO as a “national park” in accordance with the CALM Act and the

terms and conditions contained in this Agreement.

- H. MAC aspires to assume sole responsibility for management of the Land in the long term from the CEO. The State supports and encourages that aspiration through the development of management capabilities and experience that will be acquired by MAC under this Agreement.

### THIS AGREEMENT WITNESSES

#### 1. DEFINITIONS AND INTERPRETATION

##### 1.1 Definitions

In this Agreement unless the contrary intention appears:

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

Agreement means this Agreement as may be varied or replaced from time to time by written agreement between the Parties.

Burrup Non-Industrial Land has the same meaning as in 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).

CALM Act Minister means the Minister for the time being responsible for the administration of the CALM Act.

CALM Act Regulations means the regulations made under Part X of the CALM Act.

CEO has the same meaning as in the CALM Act.

Chairman means the person elected from time to time under clause 7.2(a).

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

Contracting Party has the same meaning as in the Section 31 Agreement.

Council members means the members of the Park 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 the Lease.

Department has the same meaning as in the CALM Act.

Department representative means a representative of the Department nominated under clause 7.1(a) to be a member of the Park Council.

Encumbrance means an encumbrance on the Land.

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

Land means the Burrup Non-Industrial Land, otherwise known as Murujuga National Park.

Lease means the lease of the Land by MAC as lessor to the State as lessee made on or about the same date as this Agreement and annexed to this Agreement in Schedule 1.

MAC members means the “Ngarluma Yindjibarndi members”, the “Yaburara Mardudhunera members” and the “Wong-goo-oo members” as those terms are defined in the Rules of the Murujuga Aboriginal Corporation as amended from time to time.

MAC representative means a representative of MAC nominated under clause 7.1(c) to be a member of the Park Council.

Management Plan means the Management Plan current from time to time in respect of the Land under clause 6.

National Park has the meaning given in the CALM Act.

Park Council means the Murujuga Park Council comprised from time to time under clause 7.

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

Section 8A Agreement has the meaning given in the CALM Act.

Section 8A Land has the meaning given in the CALM Act.

Section 31 Agreement means a deed entitled Burrup and Maitland Industrial Estates Agreement dated 1 November 2002, entered into by the State of Western Australia, the Contracting Parties and others, which has been ratified by MAC by deed dated 12 July 2006.

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

Undetermined Business has the meaning given in clause 7.5.

## 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 Joint management

The Parties agree that the Land shall be jointly managed by the CEO and MAC via the Park Council, in accordance with the CALM Act and the terms and conditions contained in this Agreement, but at all times subject to the Lease, Covenants, Encumbrances, Management Plan and the Aboriginal Heritage Act 1972 (WA).

## 2.2 Land the subject of this Agreement

Throughout the Term the Parties may, by written 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 Variation of this Agreement

Throughout the Term, subject to the CALM Act, the Parties may, by agreement in writing, revise, amend or vary this Agreement or replace this Agreement with a substitute agreement.

## 3. TERM AND TERMINATION

### 3.1 Term

- (a) The Term of this Agreement is the period of ninety-nine (99) years, commencing on the date of commencement of the Lease.
- (b) If the Lease is renewed for a period of ninety-nine (99) years, 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 on the same terms and conditions as this Agreement save for this clause 3.1(b).

### 3.2 Termination

- (a) This Agreement may only be terminated by the agreement in writing of the Parties.
- (b) Where an area of the land is removed from the operation of this Agreement in accordance with clause 2.2, this Agreement shall cease to apply in respect of that area of land but shall continue to apply in respect of the whole of the remaining area of the Land.
- (c) If a Party considers that the terms of this Agreement have been breached:
  - (i) the Party must give notice in writing to the other Parties setting out the details of the alleged breach; and

- (ii) the Parties must as soon as reasonably practicable use reasonable endeavours to resolve the dispute between themselves.

- (d) If the Parties fail to resolve the dispute within 21 days after the service of the notice under clause 3.2(b)(i), the Parties agree that the breach will not give a Party the right to terminate or rescind this Agreement, but subject to clause 3.2(b)(ii), the Party who served the notice may exercise any right or remedy otherwise available to it in respect of such breach.

## 4. MANAGEMENT PRINCIPLES

### 4.1 National park objectives

MAC and the CEO shall jointly manage the Land via the Park Council for the purpose of a national park, or in a manner not inconsistent with or contrary to the purposes of a national park, having regard to the objectives set out in section 56(1)(c) of the CALM Act, and to the extent otherwise permitted under the CALM Act, for the following objectives:

- (a) the protection and conservation of the value of the land to the culture and heritage of Aboriginal persons;
- (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 MAC members from time to time in accordance with their traditional laws and customs acknowledged and observed;
- (f) the use of the Land by MAC members from time to time consistent with the matters set

out in clauses 4.1(a) to (e);

- (g) employment and training opportunities for MAC members relevant to the administration, planning, management and control of the Land;
- (h) commercial opportunities for MAC 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 Provision of services, facilities etc

In managing the Land, MAC and the CEO 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. CALM ACT REGULATIONS

#### Application to the Land

The CALM Act Regulations apply to the Land.

### 6. MANAGEMENT PLAN

#### 6.1 First Management Plan

The Management Plan prepared by the Park Council through the agency of the CEO in consultation with the Conservation Commission and approved by the CALM Act Minister under section 60 of the CALM Act, is the first Management Plan for the purposes of this Agreement and a draft of this Management Plan is annexed hereto in Schedule 2.

#### 6.2 Management Plan to be current at all times

- (a) The Parties will use reasonable endeavours to ensure a Management Plan is current in respect of the Land at all times during the Term.
- (b) Each Management Plan must set out how the Land is to be managed by the Park Council for the period of that Management Plan. In addition to, and consistent with, the contents and objectives of a management plan for a national park required under the CALM Act, and 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:
  - (i) the matters listed in clause 4.1;
  - (ii) the identification of management strategies relating to the use and management of the Land;
  - (iii) the respective management roles of MAC and the CEO in relation to the Land; and
  - (iv) such other matters as MAC and the CEO may agree from time to time.

### 6.3 Review of expiring Management Plans and preparation of further Management Plans

Before the expiry of ten (10) years from the commencement date of this Agreement or completion of the last review (as the case requires), the Management Plan must be reviewed and a further Management Plan prepared in accordance with the following procedure:

- (a) the review of each expiring Management Plan and preparation of a further Management Plan shall be undertaken by the Park Council through the agency of the CEO in consultation with the Conservation Commission.
- (b) Each proposed Management Plan must be:
  - (i) prepared by the Park Council; and
  - (ii) submitted by the Park Council to the CALM Act Minister in accordance with section 59A of the CALM Act for approval pursuant to section 60 of the CALM Act.

### 6.4 Management Plans to be registered on certificate of title

All current Management Plans must be notified on the Certificate of Title for the Land.

## 7. PARK COUNCIL

### 7.1 Establishment and composition of the Park Council

The management of the Land under this Agreement will be administered by the

Park Council, which will comprise:

- (a) three (3) Department representatives nominated from time to time by the CEO and advised in writing to MAC.
- (b) one (1) representative appointed from time to time by the Aboriginal Heritage Minister and advised in writing to MAC and the CEO; and

- (c) six (6) MAC representatives nominated from time to time by MAC and advised in writing to the CEO.

### 7.2 Procedure at meetings

The Park 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 Park Council shall be at least three (3) MAC representatives and at least two (2) non-MAC representatives;
- (c) each Council member (including any person not a Department representative nor a MAC representative) shall have one vote and may vote at a meeting of the Park 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) the Parties acknowledge that the aim of the Park Council is to achieve unanimity in respect of each motion on which a vote is taken at meetings of the Park Council;
- (e) where the Park Council is unable to achieve unanimity in respect of a vote taken at a meeting of the Park Council, then;
  - (i) where a majority of MAC representatives and a majority of the Department representatives each vote in favour of the motion, the motion shall be taken to be carried and constitute a resolution of the Park Council;
  - (ii) where a majority of the representatives of either Party fail to vote in favour of a motion, then the motion shall be deemed to have failed notwithstanding a majority of the members overall has voted in favour of the motion.

For the purposes of this paragraph (e), the representative appointed by the

Aboriginal Heritage Minister is taken to be a representative of the Department;

(f) the Park Council shall meet regularly at such intervals as it considers necessary, but in any event at least three (3) times per year;

(g) the Park Council shall meet within seven (7) days of the execution of this Agreement, thereafter the Council members shall be given at least twenty-one (21) days notice in writing of meetings of the Park Council;

(h) the CEO must convene a meeting of the Park 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 CEO, to consider the business specified in the notice calling the meeting;

(i) the Park 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 Park Council may invite any other person (not being a Council member) to attend at meetings of the Park Council or to advise it on any matter it thinks fit; and

(k) the Park Council may appoint committees (comprising Council members and other persons) to investigate, consider, and advise or recommend such matters to the Park Council as it thinks fit.

### 7.3 Role of Park Council

(a) The Park Council's role shall be to:

- (i) prepare Management Plans under Part V of the CALM Act and related policies for the management of the Land;
- (ii) make decisions consistent with the Management Plan;

(iii) strategically monitor the management of the Land, including the implementation of the Management Plan;

(iv) provide advice to the Parties, the Conservation Commission and anyone else deemed appropriate on the use, management and development of the Land;

(v) determine priorities for any matters required to be done in accordance with or in furtherance of the Management Plan;

(vi) recommend the appointment of Aboriginal staff to be employed to work on the Land;

(vii) provide advice to the CEO on the value of the Land to the culture and heritage of Aboriginal people, or the methods to determine this;

(viii) provide advice to the CEO on the conduct of Aboriginal customary activities pursuant to the CALM Act, CALM Act Regulations, Wildlife Conservation Act and Wildlife Conservation Regulations; and

(ix) approve the expenditure of the annual budget for the management of the Land.

(b) The Park Council's role does not include undertaking the day-to-day management of the Land.

### 7.4 Decisions must be consistent with Agreement, Management Plan and CALM Act

The Park Council shall make decisions, in accordance with clause 7.2, that are consistent with the provisions of this Agreement, the Management Plan and the CALM Act.

### 7.5 Undetermined business

(a) If:

- (i) there are fewer than three (3) MAC representatives present at two (2) consecutive meetings of the Park

Council, then clause 7.5(b) applies.

- (ii) a motion is lost at three (3) consecutive meetings of the Park Council, but at the last meeting the motion was voted in favour by at least two (2) Department representatives and three (3) MAC representatives, then the motion is deemed to be carried and to be a resolution of the Park Council duly made.
  - (iii) a motion is lost at three (3) consecutive meetings of the Park Council and paragraph (ii) does not apply, then clause 7.5(b) applies.
- (b) If clause 7.5(a)(i) or (iii) applies then:
- (i) the business which was proposed to be discussed at the meeting for which there were fewer than three (3) MAC representatives present; or
  - (ii) 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 CALM Act Minister, by either the CEO or MAC and clause 7.5(c) applies.
- (c)
- (i) Upon referral of Undetermined Business, the CALM Act Minister shall first consult with MAC to ascertain whether a mutually satisfactory resolution can be achieved.
  - (ii) If consultation with MAC fails to result in a mutually satisfactory resolution, the CALM Act Minister may:
- (A) consult with such third parties as the CALM Act Minister believes may assist in providing a satisfactory resolution of the Undetermined Business;
- (B) authorise such third parties to consult with the Parties and make recommendations to the CALM Act Minister; and

(C) make a determination in respect of Undetermined Business or decide how the Undetermined Business is to be determined.

(iii) A determination of the Undetermined Business by the CALM Act Minister shall be final and binding on the Park Council and the Parties.

## 7.6 Funding and administrative support

- (a) The Department shall provide administrative and secretarial support for the Park Council.
- (b) The State will provide funding support in accordance with clause 4.6(c) of the Section 31 Agreement, for:
  - (i) the joint management of the Land under this Agreement (including by implementation of the Management Plan);
  - (ii) the provision of resources, including suitably qualified Departmental staff and trainees;
  - (iii) 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;
  - (iv) the administration and operation of the Park Council; and
  - (v) the costs of Council members attending meetings of the Park Council and meeting attendance fees for the Council members as determined by the CALM Act Minister.
- (c) The Minister will review the administrative and funding arrangements at the close of the five (5) year period which commences upon execution of this Agreement.

## 8. INDEMNITY

8.1 The State agrees to indemnify and keep indemnified MAC against all proceedings, actions, suits, claims, demands, costs and losses (“Losses”) suffered or incurred by MAC to the extent such Losses are incurred by MAC or any of its employees, agents or contractors, as a result of the negligent or other tortious act or omission of the State, the Conservation Commission, the Executive Body or any 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.

8.2 MAC agrees to indemnify and keep indemnified the State, the Conservation Commission and the Executive Body against all proceedings, actions, suits, claims, demands, costs and losses (“Losses”) suffered or incurred by the State, the Conservation Commission and the Executive Body or any of them to the extent such Losses are incurred by the State, the Conservation Commission and the Executive Body or any 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 MAC 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.

## 9. NO FURTHER OBLIGATION ON CEO OR DEPARTMENT

Except as otherwise provided in this Agreement or in the Management Plan, the CEO and the Department have no obligation or duty to exercise any powers or functions set out in the CALM Act or the CALM Regulations.

## 10. REVIEW

The Parties agree that within five (5) years of execution of this Agreement, the Parties must undertake a review of its terms for the purpose of assessing without limitation the operation and implementation of the Agreement.

## 11. NOTICES

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

11.2 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.

11.3 Notices to be given to:

- (a) the CEO shall be addressed to:

Keiran McNamara  
Director General

Department of Environment and  
Conservation  
Locked Bag 104  
Bentley Delivery Centre  
Perth WA 6933

Facsimile: (08) 6467 5562

- (b) MAC shall be addressed to:

The Chairman

Murujuga Aboriginal Corporation  
PO Box 1544  
KARRATHA WA 6714



## 12. 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 any Party may bind any other Party or Parties to contracts, agreements, deeds or any other document creating binding legal obligations. Without limiting the foregoing, no Party 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 any other Party or Parties.

## 13. 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.

This Agreement was executed by the Parties on the date first hereinbefore appearing.

Executed by the CONSERVATION AND LAND MANAGEMENT EXECUTIVE BODY by the Chief Executive Officer in accordance with section 38 of the Conservation and Land Management Act 1984.

## Appendix 3: National Heritage values

Excerpt from *Commonwealth of Australia Gazette* No. S127, Tuesday, 3 July 2007.

*Criterion (a): the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history*

The engravings on the Dampier Archipelago include finely executed images of a wide range of terrestrial, avian and marine fauna many of which can be identified to genus or species level (Vinnicome 2002; McDonald and Veth 2005). Most of the engravings, particularly the images of marine fauna, are slightly or moderately weathered and were produced following the rise of sea levels about 8,000 years ago. There are a number of deeply weathered images of terrestrial fauna, particularly kangaroo, which date to the time when the sea was much lower (Lorblanchet 1992). The different degrees of weathering of particular types of faunal engravings on the Dampier Archipelago provide an outstanding visual record of the course of Australia's cultural history through the Aboriginal responses to the rise of sea levels at the end of the last Ice Age.

There are a large number of deeply weathered, engraved 'Archaic Faces' in the Dampier Archipelago including some images that are unique to the area (McDonald and Veth 2005). 'Archaic faces' are widely distributed through arid Australia and are found in the Calvert ranges, the Cleland Hills, the Victoria River District, South Australia and Queensland (McDonald and Veth 2005). The 'Archaic Faces' on the Dampier Archipelago demonstrate the long history of contact and shared visual narratives between Aboriginal societies in the Dampier Archipelago and inland arid Australia and are exceptional in the course of Australia's cultural history.

*Criterion (b): the place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history*

The Pilbara has been described as '... without doubt the richest and most exciting region of rock engravings in Australia' McCarthy (1968: vi). It is the diversity of representations of the human form (anthropomorphs), many of which are in dynamic attitudes, and the way in which they are sometimes arranged in complex scenes that makes the Aboriginal engravings in the Pilbara exceptional. Although there are a number of distinct regional engraving styles in the Pilbara (Wright 1968), the greatest diversity in depictions of the human form, which also include representatives of human figures characteristic of the other Pilbara style provinces, occurs in the Dampier Archipelago (McDonald and Veth 2005:section 4.6). There are a number of complex panels showing groups of people engaged in both mundane and sacred activities, including hunting scenes, ceremonial activity and images of human figures climbing or hanging from lines. At a national level, the Dampier Archipelago is outstanding for its diversity of engraved human forms and the antiquity of depictions of complex scenes showing human activity, which are rare at the national level.

There is a very high density of rock engraving sites on the Dampier Archipelago. Although the majority of these sites contain relatively few engravings (Vinnicombe 1987a; Veth *et al.* 1993;) there are some sites with hundreds (Virili 1977; Vinnicombe 1987a: Fig 6; Veth *et al.* 1993: Fig 7.1), thousands (Dix 1977; Virili 1977; Vinnicombe 1987a) or tens of thousands of engravings (Lorblanchet 1992; Veth *et al.* 1993). An analysis of site locations demonstrates that large concentrations of engravings in the Dampier Archipelago are found on inland plateaus, steep valley inclines bordering watercourses and on rock platforms next to the ocean (Vinnicombe 2002; McDonald and Veth 2005). The Dampier Archipelago contains concentrations of rock engravings, which when compared with other

similar sites in Australia are rare (McNickel 1985; Wright 1968; Stanbury and Clegg 1990).

There is a high density of standing stones, stone pits and circular stone arrangements on the Burrup Peninsula (Veth *et al.* 1993). The stone pits on the Burrup Peninsula have been interpreted as hunting hides and the standing stones may be either ceremonial sites (thalu sites), or markers for resources such as potable water. There is also a high diversity in the standing stones and stone arrangements across the Dampier Archipelago, including some with unusual components (Vinnicombe 1987a). The density of standing stones, stone pits and circular stone arrangements on the Burrup Peninsula, and the diversity of these stone features across the Dampier Archipelago are rare at the national level (Vinnicombe 1987a).

*Criterion (c) the place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history*

The distribution of engraved motifs across the Dampier Archipelago reflects economic and cultural variability (Green 1982; Vinnicombe 2002; Veth *et al.* 1993). Previous work on the Dampier Archipelago provides an outstanding demonstration of the way in which a detailed analysis of archaeological remains (middens, grinding patches, quarries) and associated rock engravings can contribute to an understanding of the cultural and economic meaning of the rock engravings (Lorblanchet 1992). The analysis demonstrated a close association between animal motifs and midden contents in one area of Skew Valley and the way in which some motifs (tracks) are placed in inconspicuous positions while other motifs (anthropomorphs) are publicly displayed. This work demonstrates that on the Dampier Archipelago, areas where archaeological remains are associated with large numbers of engravings have outstanding potential to yield information that will contribute to an understanding of the nation's cultural history.

Archaic Faces' occur on the Dampier Archipelago and are found in many parts of

arid Australia (McDonald and Veth 2005; Dix 1977). The distribution of these engravings indicates there were shared representations across the area in the deep past. There is evidence that at the time of European contact Western Desert peoples were actively moving towards the coast (Tindale 1987). The 'Archaic Faces' in the Dampier Archipelago have outstanding potential to yield information contributing to an understanding of the long history of connections between the coast and the Western Desert.

The Dampier Archipelago contains engravings of human figures (anthropomorphs) characteristic of most of the major art provinces in the Pilbara as well as a number of forms unique to the area (McDonald and Veth 2005). It has the potential to become a key site for establishing the sequence of engraved motifs in the Pilbara, an area described as without doubt the richest and most exciting region of rock engravings in Australia (McCarthy 1968: vi). The different degrees of weathering and the large number of super-positioned engravings provides an outstanding opportunity to establish a relative chronology for motifs characteristic of the major style provinces in the Pilbara (Lorblanchet 1992; Vinnicombe 2002; McDonald and Veth 2005).

*Criterion (d) the place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural or cultural places; or (ii) a class of Australia's natural or cultural environments.*

The rock engravings on the Dampier Archipelago include an extraordinarily diverse range of animal and human figures which are characteristic of regional styles that occur elsewhere in the Pilbara. Images of terrestrial and marine animals and birds in the Dampier Archipelago are similar to the range of images found at other coastal sites in the Pilbara such as Depuch Island and Port Hedland while the range of land animals is similar to those depicted in inland areas (cf Wright 1968; Ride *et al.* 1964). A slightly simpler version of *Kurangara* figures,

characteristic of the Upper Yule, is found in the Dampier Archipelago, only differing in the exaggeration of genitalia and intricacy of headdresses (McDonald and Veth 2005: Section 4.6). Similarly, a type of *Minjiburu* figure characteristic of Port Hedland also occurs in the Dampier Archipelago. Large birds or macropods with spears in their backs, images of turtles and hunting scenes characteristic of Sherlock Station and Depuch Island are found in the Dampier Archipelago, as are examples of stylised figures with exaggerated hands and feet, stylised stick figures with small human figures positioned under both arms. There are a number of images central to the style found on the Dampier Archipelago (McDonald and Veth 2005). They include: solid-bodied human figures with disconnected circular infilled heads and sinuous arm positions; profile figures with solid bodies and thin arms (often with an erect penis), occasionally positioned in rows; profile figures with the disconnected heads, grouped with each other or around a central line (as if climbing); groups of figures positioned beneath lines, as if hanging; the use of infilled circles to indicate joints (elbows, knees) or body parts (genitalia, stomachs, hands, feet); and therianthropes with various mixed human and animal characteristics, particularly lizard and bird. The Dampier Archipelago is outstanding as a place where engravings of human forms representative of all of the style provinces in the Pilbara, the richest and most exciting region of rock engravings in Australia, are found (McDonald and Veth 2005: Section 4; McCarthy 1968: vi).

Standing stones on the Dampier Archipelago range from single monoliths through to extensive alignments comprising at least three or four hundred standing stones (Vinnicombe 2002). While some standing stones are associated with increase ceremonies, thalu, others were used to mark particular places with scarce resources, such as seasonal rock pools, and were also used to mark sites of traditional significance. The standing stones in the Dampier Archipelago are outstanding in a national context for the number of purposes they are known to have served.

*Criterion (f) the place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.*

The rock engravings in the Dampier Archipelago show exceptional creative diversity when compared with the other art provinces in the Pilbara or rock engravings elsewhere in Australia (McDonald and Veth 2005: Section 4.6). They include examples of the types of human figures characteristic of the other art provinces in the Pilbara as well as having unique human forms and figures indicating activity. The engravings on the Dampier Archipelago include detailed and finely executed examples of water birds, crabs, crayfish, kangaroos, turtles and fish, some of which, because of their detail, can be identified to species level. The finely executed animals identified to species level, the diversity of human forms and the panels of engravings showing scenes of human activity exhibit a high degree of creativity, particularly during the Holocene, that is unusual in Australian rock engravings.

For a description of any references quoted above, and more information on each of the places please search the Australian Heritage database at [www.deh.gov.au/cgi-bin/ahdb/search.pl](http://www.deh.gov.au/cgi-bin/ahdb/search.pl) using the name of the place.

## Appendix 4: National Heritage management

(Schedule 5B) (EPBC Act Regulation 10.01E)

1. The objective in managing National Heritage places is to identify, protect, conserve, present and transmit, to all generations, their National Heritage values.
2. The management of National Heritage places should use the best available knowledge, skills and standards for those places, and include ongoing technical and community input to decisions and actions that may have a significant impact on their National Heritage values.
3. The management of National Heritage places should respect all heritage values of the place and seek to integrate, where appropriate, any Commonwealth, State, Territory and local government responsibilities for those places.
4. The management of National Heritage places should ensure that their use and presentation is consistent with the conservation of their National Heritage values.
5. The management of National Heritage places should make timely and appropriate provision for community involvement, especially by people who:
  - a. have a particular interest in, or association with, the place; and
  - b. may be affected by the management of the place.
6. Indigenous people are the primary source of information on the value of their heritage and the active participation of indigenous people in identification, assessment and management is integral to the effective protection of indigenous heritage values.
7. The management of National Heritage places should provide for regular monitoring, review and reporting on the conservation of National Heritage values.

## Appendix 5: Obligations and agreements

Australia is a participant or signatory to a number of international conservation agreements, some of which influence management of Murujuga National Park. The most relevant ones are described below.

### Australia International Council on Monuments and Sites Charter for the Conservation of Places of Cultural Significance (Burra Charter)

The Australia International Council on Monuments and Sites (Australia ICOMOS) originally adopted the Burra Charter in 1979 and adopted the most recently revised charter in 1999 (Australia ICOMOS 2000). Widely accepted as the standard for the conservation of all types of places of cultural significance in Australia, the Burra Charter sets a series of guidelines for defining and establishing significance, conservation policy and procedures for undertaking studies and reports. The Burra Charter advocates a cautious approach to change in regard to managing cultural heritage to ensure that cultural significance is retained.

### Convention on Biological Diversity (the Rio Convention)

Australia signed the Convention on Biological Diversity at the United Nations Conference on Environment and Development (also known as the 'Rio Earth Summit') in 1992. The *National Strategy for the Conservation of Australia's Biological Diversity* was adopted in 1996 as the principal means for coordinated implementation of the convention in Australia. Its main goal is to protect biological diversity and maintain ecological processes and systems. To address this goal there have been a number of significant changes to policy and legislation for biodiversity conservation in Australia to strengthen regulatory and institutional mechanisms. This includes the EPBC Act and the Natural Heritage Trust programs.

### Bonn Convention

Australia is a contracting party to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), which came into force in 1992. Under this convention countries are expected to protect species that regularly migrate across international boundaries. Migratory species listed under the Bonn Convention are further protected under the EPBC Act.

### Japan–Australia Migratory Bird Agreement (JAMBA), China–Australia Migratory Bird Agreement (CAMBA) and Republic of Korea–Australia Bird Agreement (ROKAMBA)

Australia's treaties with Japan and China came into force in the 1980s and with Korea in 2007. These treaties aim to protect migratory birds in these countries. The treaties provide for bilateral cooperation between the governments involved in order to protect shared species in the East Asian–Australasian Flyway and their habitats. The agreements also provide a strong foundation for the conservation efforts of the East Asian–Australasian Flyway Partnership (see [www.eaaflyway.net/index.php](http://www.eaaflyway.net/index.php)). Nearly 80 bird species are listed in these agreements.

Migratory birds listed under these agreements are further protected under the Commonwealth's EPBC Act, which stipulates that all actions that are likely to impact on such species are subject to environmental assessment and approval. This places Australia in a stronger position to meet its international obligations for the protection and management of migratory birds listed under the JAMBA, CAMBA and ROKAMBA agreements.

# Acronyms and abbreviations

Aboriginal Heritage Act	<i>Aboriginal Heritage Act 1972</i>
BMIEA	Burrup and Maitland Industrial Estates Agreement
CALM	The former Department of Conservation and Land Management, now DEC
CALM Act	<i>Conservation and Land Management Act 1984</i>
CAMBA	China–Australia Migratory Bird Agreement
DEC	Department of Environment and Conservation (formerly Department of Conservation and Land Management, CALM)
DIA	Department of Indigenous Affairs
Director General	Refers to the Director General of DEC, as defined in section 3 of the CALM Act
Environmental Protection Act	<i>Environmental Protection Act 1986</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
JAMBA	Japan–Australia Migratory Bird Agreement
IUCN	International Union for the Conservation of Nature
LNG	Liquefied natural gas
LPG	Liquefied petroleum gas
MAC	Murujuga Aboriginal Corporation
Mining Act	<i>Mining Act 1978</i>
MPC	Murujuga Park Council
Petroleum Act	<i>Petroleum and Geothermal Energy Resources Act 1967</i>
ROKAMBA	Republic of Korea–Australia Bird Agreement
Wildlife Conservation Act	<i>Wildlife Conservation Act 1950</i>

# Glossary

1080	A naturally occurring toxin (sodium fluoroacetate) found in many native south-west Western Australian plants known as 'poison peas' ( <i>Gastrolobium</i> sp.)
Aboriginal site	For the purposes of the <i>Aboriginal Heritage Act 1972</i> is contained in section 5 as follows: 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; b) any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent; 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 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.
adaptive management	A process of responding positively to change. The term adaptive management is used to describe an approach to managing complex natural systems that builds on common sense and learning from experience, experimenting, monitoring and adjusting practices based on what was learnt.
aeolian	Wind-deposited materials
aquatic	Living or growing in or on water
aquifer	A layer of rock which holds and allows water to move through it, and from which water can be extracted
biodiversity	The variety of all life forms: the different plants, animals and micro-organisms, the genes they contain and the ecosystems they form; often considered at three levels: genetic diversity, species diversity and ecosystem diversity
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals
Burra Charter	Australia International Council on Monuments and Sites Charter for the Conservation of Places of Cultural Significance
climate change	Climate change is a result of global warming, caused by increases in the concentrations of greenhouse gases such as carbon dioxide, methane and nitrous oxide.
conservation	The protection, maintenance, management, sustainable use, restoration and improvement of the natural environment
cultural significance	In accordance with the meaning in the Burra Charter, cultural significance means aesthetic, historic, scientific or social value for past, present or future generations.
culturally significant place	The use of the term place in this context has the meaning defined in the Burra Charter, that is, of a site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.
declared rare flora or fauna	Threatened flora or fauna gazetted under the <i>Wildlife Conservation Act 1950</i>
declared species	Either plants that are declared as weeds or animals that are declared as pests. A list of declared species, with their levels of declaration in various areas of the state is published annually in the Government Gazette pursuant to Section 37 of the <i>Agricultural and Related Resources Protection Act 1976</i> .



disjunct	Populations are said to be disjunct when they are geographically separated from the main range.
ecosystem	A community or an assemblage of communities of organisms, interacting with one another and the environment in which they live
endemic	Flora or fauna that is confined in its natural occurrence to a particular region
environmental weed	“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)
fauna	The animals inhabiting an area, including mammals, birds, reptiles, amphibians and invertebrates. Usually restricted to animals occurring naturally and excluding feral or introduced animals.
feral	A domesticated species that has become wild
fire regime	The combination of season, intensity, interval, extent and patchiness of fire in a given area over time
flora	The plants growing in an area, including flowering and non-flowering plants, ferns, mosses, lichens, algae and fungi (although fungi are strictly speaking not plants). Usually restricted to species occurring naturally and excluding weeds
genetic	To do with the hereditary units that are composed of sequences of DNA
geology	The study the history of the Earth and its life especially as recorded in rocks
geomorphology	The study of the earth surface features and their formation
groundwater	All free water below the surface in the layers of the Earth's crust
habitat	The place where an animal or plant normally lives and reproduces
heritage	Something inherited from past generation that is valued
holocene	The present geological time period commencing 12,000 years ago
hydrology	The scientific study of the characteristics of water, especially of its movement in relation to the land
igneous rocks	Rocks that are formed by the cooling and crystallisation of molten rock
indigenous	Native or belonging naturally (to a place)
interpretation	Explanations of natural and cultural features of the park
intertidal	Between the levels of low and high tide (also known as the littoral zone)
introduced species	A species occurring in an area outside its historically known natural range as a result intentional or accidental dispersal by human activities
invertebrate	Animals without backbones, for example, insects, worms, spiders and crustaceans
IUCN Red List	A list of endangered species prepared by the International Union for the Conservation of Nature
landform	All the physical, recognisable, naturally formed features of land having a characteristic shape; includes major forms such as a plain, mountain or plateau, and minor forms such as a hill, valley or alluvial fan
landscape	A mosaic where the mix of local ecosystems and landforms is repeated in a similar form over a kilometres-wide area.
macropod	A member of a superfamily which includes kangaroos, rat-kangaroos and wallabies
midden	A mound or deposit containing shells, animal bones, and other refuse that indicates the site of a human settlement

naturalised species	Introduced species that are well established in the wild, i.e. producing offspring and colonising new areas. Compared with introduced species that are not naturalised
nature-based tourism	Tourism that is dependent upon the resources of the natural environment and incorporates a range of tourism experiences including adventure tourism, eco-tourism and aspects of cultural and rural tourism.
Ngarda-ngarli	The name chosen by local Aboriginal people to collectively identify themselves
off-road vehicle	A vehicle that is not licensed, deemed to be licensed, or the subject of a permit granted, under the <i>Road Traffic Act 1974</i>
organic	Of, relating to, or derived from living organisms
petroglyph	Images carved, pecked or scraped into a rock surface
physiographic unit	A prominent landform as considered in relation to its origin, cause, or history
potable	Suitable for drinking
prescribed burning	The planned application of fire under selected fuel and weather conditions to a defined area to achieve specific management objectives
priority flora and fauna listings	<p>Priority 1: Poorly known species Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation and under threat of destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.</p> <p>Priority 2 : Poorly known species Species that are known from one or a few collections or sight records (generally less than five), some of which are on lands not under immediate threat of destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.</p> <p>Priority 3: Poorly known species Species that are known from collections or sight records from several localities not under imminent threat, or from few widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.</p> <p>Priority 4: Rare, near threatened and other species in need of monitoring Rare Species are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. Near threatened. Species that are considered to have been adequately surveyed and that do not qualify for conservation dependent, but that are close to qualifying for vulnerable. Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p> <p>Priority 5: Conservation dependent species Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.</p>

recreation	Those leisure time activities or experiences participated in through choice, which bring enjoyment or satisfaction to the participants
rehabilitation	The process necessary to return disturbed land to a predetermined state, in terms of surface, vegetation cover, land use and/or productivity
Rio Convention	United Nations Convention on Biological Diversity
safari tent accommodation	A term referring to a tented camp, either semi-permanent or permanent, offering a specific form of accommodation and experience
soil erosion	A combination of processes in which soil is loosened, dissolved, or worn away, and transported from one place to another by climatic, biological or physical agents
statutory	Enacted or required by law
sustainability	An aspirational goal to meet the needs of current and future generations through integration of environmental protection, social advancement and economic prosperity
taxa	A defined unit (for example, species or genus) in the classification of plants and animals
the park	Refers to Murujuga National Park
the region	Refers to the Pilbara region in Western Australia
threatened fauna	<p>Under the Western Australian Wildlife Conservation Act, fauna may be declared as likely to become extinct, rare or otherwise in need of special protection:</p> <p>S1 – Fauna that is rare or likely to become extinct</p> <p>S2 – Fauna presumed extinct but might be rediscovered</p> <p>S3 – Birds protected under an international agreement</p> <p>S4 – Other specially protected fauna.</p> <p>Under the Commonwealth EPBC Act, fauna listed under Section 179 may be:</p> <p>EX – extinct</p> <p>EW – extinct in the wild</p> <p>CR – critically endangered</p> <p>EN – endangered</p> <p>VU – vulnerable</p> <p>CD – conservation dependent</p> <p>Under IUCN Red List categories, fauna may be listed the same as under the EPBC Act.</p>
tourism	Generally considered in this management plan to be visitors from outside the area staying overnight in or adjacent to the park
tropical	A region or climate that is frost-free with temperatures high enough to support year-round plant growth given sufficient moisture, the Tropical Zone is the land between the tropic of Cancer and the tropic of Capricorn
vascular plants	Plants having a specialised conducting system that includes xylem (water-conducting tissue) and phloem (food-conducting tissue). These include ferns and seed-bearing plants but not mosses or algae.

vertebrate	Animals that have a spinal column which includes fish, amphibians, reptiles, birds and mammals
visual landscape	Appearance or visual quality of an area determined by its geology, soils, landforms, vegetation, water features and land-use history
wetland	Land or areas (as tidal flats or swamps) containing much soil moisture

# References

- Aplin, KP, Cooper, NK, How, RA, Hutchins, JB, Johnstone, RE & Smith, LA 2001, *Checklist of the vertebrates of Western Australia*, Records of the Western Australian Museum, Suppl. No. 63.
- Australia/ICOMOS 2000, *The Burra Charter: The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance*. [www.australia.icomos.org/publications/charters](http://www.australia.icomos.org/publications/charters). Accessed 11 October 2012.
- Australian Bureau of Statistics 2010, *Regional population growth, Australia*. [www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/F971207279525AF9CA257863000E71BE/\\$File/32180ds0002\\_2001-10.xls#Table 5!A1](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/F971207279525AF9CA257863000E71BE/$File/32180ds0002_2001-10.xls#Table 5!A1). Accessed 1 September 2011.
- Australian Heritage Council 2007, *Australian Heritage Database*. [www.environment.gov.au/heritage/ahdb/index.html](http://www.environment.gov.au/heritage/ahdb/index.html). Accessed 11 October 2012.
- Beard, JS 1975, *Pilbara Sheet 4, 1:1,000,000 Series vegetation survey of Western Australia*, University of Western Australia Press, Nedlands.
- Bird, C and Hallam, SJ June 2006, *Archaeology and rock art in the Dampier Archipelago*. Unpublished report, National Trust of Australia (WA).
- Blackwell, MI, Trudgen, ME & Weston, AS 1979, *Vegetation and floristics of the Burrup Peninsula*, Woodside Petroleum Development Pty. Ltd., North West Shelf Development Project, Perth.
- Bureau of Meteorology 2007, *Climate averages for Australian sites: Averages for Dampier Salt*. [www.bom.gov.au/climate/averages/tables/cw\\_005061.shtml](http://www.bom.gov.au/climate/averages/tables/cw_005061.shtml). Accessed 11 October 2012.
- Burrup Peninsula Management Advisory Board 1996, *Burrup Peninsula land use plan and management strategy*, Department of Industry and Resources and Pilbara Development Commission.
- CALM 1986, *Policy statement no. 10 – Rehabilitation of disturbed land*, Department of Conservation and Land Management, Perth.
- CALM 1989, *Policy statement no. 34 – Visual resource management of lands and waters managed by CALM*, Department of Conservation and Land Management, Perth.
- CALM 1999, *Environmental weed strategy for Western Australia*, Department of Conservation and Land Management, Perth.
- Clark, RN & Stankey, GH 1979, *The recreation opportunity spectrum: A framework for planning, management, and research*, General technical report PNW9, US Department of Agriculture.
- Cooper, NK, Adams, M & How, RA 2001, *The identity of Planigale on the Burrup Peninsula*, Unpublished report, prepared for Sinclair Knight Mertz, on behalf of Burrup Fertilisers.
- Copp, I 2001, *Geology and landforms of the Pilbara*, Department of Conservation and Land Management, Perth.
- DEC – see Department of Environment and Conservation.
- Department of Environment and Conservation 2006, *Policy statement No. 18 – Recreation, tourism and visitor services*, Department of Environment and Conservation, Perth.
- Department of Indigenous Affairs 2007a, *Aboriginal sites register*, viewed 11 October 2012, [www.dia.wa.gov.au](http://www.dia.wa.gov.au).
- Department of Indigenous Affairs 2007b, *Draft Dampier Archipelago Aboriginal Heritage management plan*, Unpublished, prepared for Department of Indigenous Affairs, Perth.

- Dixon, K, Tieu, A 2001, *Using heat to break dormancy of W.A. legume and non-legume species*. In *Western Wildlife*. Vol.5, no. 2.
- DOIR – see Department of Industry and Resources
- Environment Australia 2001, *An interim biogeographical regionalisation of Australia*. Environment Australia, Canberra.
- Heritage Council of Western Australia 2008, *Places 2008 Database* www.heritage.wa.gov.au. Accessed 20 January 2008.
- Hickman, AH 2001, *Geology of the Dampier 1:100,000 Geological series explanatory notes*, Geological Survey of Western Australian, Perth, 39p.
- Kendrick, P & Stanley, F 2001, 'Pilbara 4 (PIL4 – Roebourne synopsis)', In JE May and NN McKenzie (eds.) (2003), *A biodiversity audit of Western Australia's 53 biogeographical subregions in 2002*, Department of Conservation and Land Management: pp. 581–93.
- Lorblanchet, M 1983, 'Chronology of the rock engravings of Gum Tree Valley and Skew Valley near Dampier, WA', In M Smith (ed.), *Archaeology at ANZAAS 1983*, Western Australian Museum, Perth.
- Lorblanchet, M 1992, 'The rock engravings of Gum Tree Valley and Skew Valley, Dampier, Western Australia: chronology and functions of the sites'. (In) McDonald, J. and I. Haskovec (eds.) *State of the Art: Regional Rock Art Studies in Australia and Melanesia*, pp. 39-59. AURA Publication, Melbourne.
- McDonald, J 2005, *Desktop assessment of scientific values for Indigenous cultural heritage on the Dampier Archipelago*, Western Australia, Cultural Heritage Management Pty Ltd, Report to the Heritage Division of the Department of Environment and Heritage (unpublished).
- McDonald, J 2009, *Archaeological survey of Deep Gorge on the Burrup Peninsula (Murujuga) Dampier Archipelago WA* (report to WA Dept. of Indigenous Affairs).
- Miller, G 2003, *Ecological impacts of buffel grass (Cenchrus ciliaris L.) invasion in central Australia—does field evidence support a fire-invasion feedback?*, Honours thesis, Faculty of Science, University of New South Wales, Sydney.
- Pearson, D 2003, 'Giant pythons of the Pilbara', *Landscape* 19(1), pp. 32–9.
- Pracsys 2007, *Burrup Peninsula feasibility study. Part A Final report*, for Tourism Western Australia and Department of Environment and Conservation, Perth.
- Semeniuk, V 1997, *Selection of mangrove stands for conservation in the Pilbara Region of Western Australia – A discussion 30th June 1997* (updated 28th July 1997), Unpublished report to the Department of Resources Development, V & C Semeniuk Research Group, Perth.
- Standards Australia 2001, *Australian Standard 2156.1-2001 Walking Tracks – Classification and Signage*.
- Tourism WA 2004, *The State Report Destination Development Strategy 'An Action Plan Approach' 2004-2014*. Tourism Western Australia, Perth.
- Trudgen, ME 2002, *A flora, vegetation and floristic survey of the Burrup Peninsula, some adjoining areas and part of the Dampier Archipelago, with comparisons to the floristics of areas on the adjoining mainland Volume 1*, M.E. Trudgen and Associates and Department of Mineral and Petroleum Resources, Perth.

Tu, M 2002, *Element stewardship abstract for Cenchrus ciliaris L.*, The Nature Conservancy's Wildland Invasive Species Team, Department of Vegetable Crops and Weed Sciences, University of California.

Veth, P, Bradshaw, E, Gara, T, Hall, N, Haydock, P and Kendrick, P 1993a, *Burrup Peninsula Aboriginal Heritage Project*, Unpublished report, Department of Conservation and Land Management, Perth.

Veth, P, Gara, T, & Kendrick, P 1993b, 'The Aboriginal face of rock art on the Burrup Peninsula', in *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference*, Australian National University 1994.

Vinnicombe, P 2002 'Petroglyphs of the Dampier Archipelago: background to development and descriptive analysis', *Rock Art Research* 19: 3–28.

Wangka Maya Pilbara Aboriginal Language Centre 2008, *Aboriginal languages of the Pilbara, Ngarluma*.

Western Australian Planning Commission 2009, *Basic raw materials applicants' manual. A step-by-step guide for establishing extractive industries in Western Australia*, Western Australian Planning Commission, Perth.

Western Australian Tourism Commission 2002, *Research Review on Domestic Visitor Activity – Pilbara*. Western Australian Tourism Commission, Perth.

Wright, B 1968, *Rock art of the Pilbara region, North-west Australia*. Australian Institute of Aboriginal Studies, Canberra.

