



Northern  
Territory  
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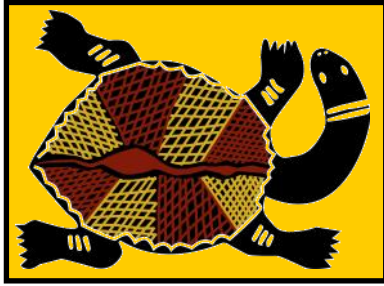
# Adelaide River Conservation Reserves

(includes Fogg Dam, Harrison Dam, Black Jungle/Lambell's Lagoon  
Conservation Reserves and Melacca Swamp Conservation Area)

## Joint Management Plan

August 2014





The Wulna logo was painted by Traditional Owner, David Kenyon. It represents the Lidawi dreaming of the long-necked turtle, which entered the soil at Shady Camp and re-emerged at the Window on the Wetlands site. The turtle then travelled to the rainforest on Litchfield Creek, behind the Wairuk community, where it remains today.

#### Acknowledgements:

The production of this Plan was made possible through the efforts and interests of many individuals and organisations, including the Traditional Owners for the Reserves and other key stakeholders such as the Friends of Fogg Dam. Some Traditional Owners who participated in the planning process are no longer with us, but their significant contribution is greatly appreciated.

#### Warning to Aboriginal and Torres Strait Islander people:

This Plan contains images of Traditional Owners, some of whom are now deceased.

Adelaide River Conservation Reserves Joint Management Plan  
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Cover images: A visitor at Fogg Dam (top left - photo © Michael J Barritt), Lambells Lagoon (top right), Fogg Dam Sunset (bottom centre - photo courtesy of S. Brokke)

## Executive Summary

### **The Reserves and their values**

The Adelaide River Conservation Reserves include Fogg Dam, Harrison Dam, Black Jungle / Lambell's Lagoon Conservation Reserves, and Melacca Swamp Conservation Area. These Reserves provide some of the most accessible places in the Northern Territory to experience the spectacular wetlands of the Top End at any time of the year. They are located approximately 65 km east of Darwin and encompass 11,500 ha (or 8%) of the lower Adelaide River catchment.

The primary value of the Adelaide River Conservation Reserves is that they support a living cultural landscape made up of diverse coastal and freshwater wetlands, which provides significant tourism and recreational opportunities. Harrison Dam and Lambell's Lagoon are two of the few Reserves in the Northern Territory where recreational hunting is permitted.

The wetland habitats have a high conservation value, supporting rare and threatened species, large and diverse waterbird populations, monsoon rainforests, saltwater crocodile breeding areas, and the world's highest recorded biomass of predator (water python) and prey (dusky rat) species.

The wetlands and associated landscapes include sites and landscapes of ritual, mythological and spiritual significance to Wulna Traditional Owners, and they have long been a source of abundant traditional foods, medicines and other resources for them. These Reserves also contain historical sites relating to World War II, and the development of the Northern Territory's agricultural industry.

### **Purpose of the Reserves**

The Adelaide River Conservation Reserves provide quality visitor experiences, while protecting the diverse estuarine and freshwater wetlands for future generations. Joint management allows greater Traditional Owner involvement and economic participation. The unique values of the Reserves and their proximity to Darwin also provide opportunities for the development of niche eco-tourism ventures.

### **Key Management Priorities**

This is the first Joint Management Plan to be prepared for this group of Reserves. Its purpose is to provide management aims and directions, and guide operational planning and annual programs. The joint management partners will work together to:

- provide opportunities for visitors to safely enjoy the iconic wetlands of the Top End;
- investigate new opportunities for tourism and commercial developments that are sustainable and managed to protect the environment;
- help maintain Wulna traditional knowledge and values by incorporating these into the Reserves' management programs;
- protect the outstanding natural values of the Reserves, particularly the wetland and floodplain systems and remnant monsoon rainforest patches;
- provide opportunities for recreational hunting;
- protect and encourage appreciation of the Reserves' cultural and historical sites and values; and
- engage the broader community in the management of the Reserves.

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## Vision for Adelaide River Conservation Reserves

*“Our amazing wetlands are enjoyed by future generations, they are in great health and provide a strong economic base for Traditional Owners.”*

### 1. Introduction

#### 1.1 The Reserves and Their Values

The Adelaide River Conservation Reserves are located approximately 65 km east of Darwin (Map 1) and encompass 11,500 ha (or 8%) of the lower Adelaide River catchment. The Reserves include Fogg Dam, Harrison Dam, Black Jungle / Lambell’s Lagoon Conservation Reserves, and Melacca Swamp Conservation Area.

The key values include:

**Tourism and Recreation** - The Reserves provide one of the most accessible places in the NT to experience the spectacular wetlands of the Top-End all year round. They provide significant opportunities for tourism, including bird-watching, hunting and interpretation due to their proximity to Darwin. Approximately 80,000 visits are made to the Reserves each year, with the main tourist attraction being the wetland wildlife and habitats at Fogg Dam. Recreational hunting at Lambell’s Lagoon and Harrison Dam is also popular with locals.

**Cultural** - The Reserves include traditional lands of the Wulna people. The Reserves are living cultural landscapes which include sacred sites and dreaming trails that cross the broader Adelaide River area linking places and people. Aboriginal archaeological sites, mainly shell middens, are also located in the Reserves. These sites and the associated knowledge and traditions, demonstrate the long and significant connection Traditional Owners have with this area.

**Natural** - These Reserves encompass a range of wetland types and part of the internationally significant Adelaide River floodplain. The Reserves support large numbers of wildlife, as well as populations of threatened species, and provide breeding habitats for wetland birds and saltwater crocodiles. Springs and permanent water sources maintain pockets of rainforest and provide a Dry season refuge for waterbirds. The floodplains of Fogg Dam have the highest recorded biomass (combined weight) of predator (water python *Liasis fuscus*) and prey (dusky rat *Rattus colletti*) species in the world

**Historical** - The Reserves contain remnants of the Humpty Doo rice growing project, including pumping equipment, channels and levees, which are on the NT Heritage Register. While the rice project ultimately failed, the ruins are a reminder of early attempts to establish a modern agricultural industry in the Top End. There are also several sites of historic interest associated with World War II.

## 1.2 Purpose of the Reserves

The Adelaide River Conservation Reserves provide quality visitor experiences, while protecting the diverse estuarine and freshwater wetlands for future generations. Joint management allows greater Traditional Owner involvement and economic participation. The unique values of the Reserves and proximity to Darwin also provide opportunities for the development of niche eco-tourism ventures.

## 1.3 Reservation Status

The Reserves comprise a number of individual conservation areas including Fogg Dam, Harrison Dam, Black Jungle and Lambell's Lagoon Conservation Reserves, and Melacca Swamp Conservation Area. Land tenure differs between each Reserve, and includes Freehold Title, Special Purpose Leases and Crown Leases in Perpetuity. Land ownership for most of the Reserves rests with the Conservation Land Corporation. Details of the reservation status for land parcels in the Adelaide River group of Reserves are listed in Appendix 1.

Prior to 2005, the Reserves were managed by the Parks and Wildlife Commission. In June 2005, the individual Reserves were listed in Schedule 3 of the *Parks and Reserves (Framework for the Future) Act*. The tenure of these areas has not been changed; however, they are now jointly managed by the Northern Territory and Wulna Traditional Owners.

Additional areas of vacant crown land adjacent to Fogg Dam and Lambell's Lagoon have also been set aside for conservation and are managed by the Parks and Wildlife Commission. These portions may be added to the Reserves and included in the joint management arrangements during the life of this Plan. This Plan will also apply to those areas.

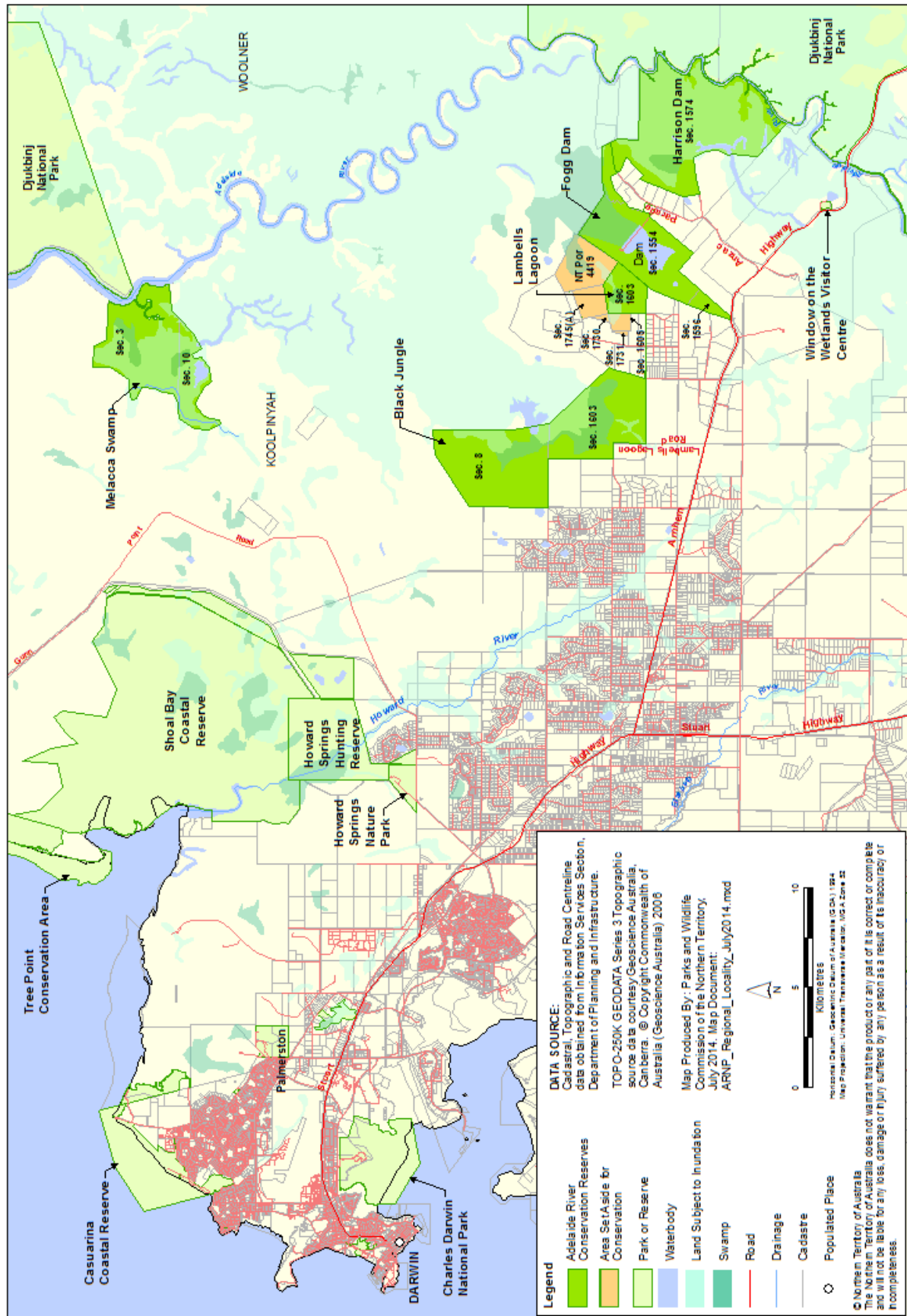


*Fogg Dam is a popular place for bird watchers.*

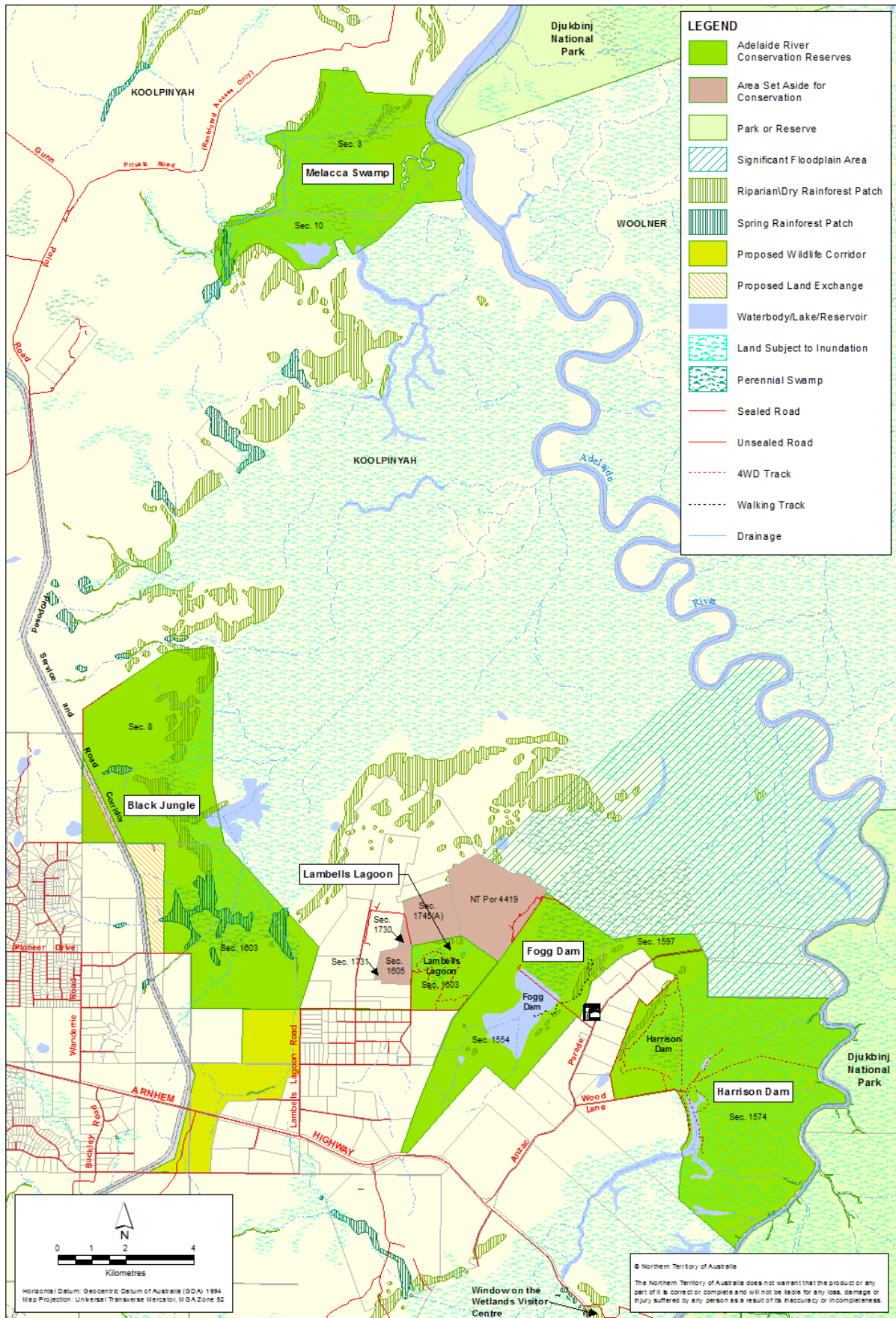
This is the first Joint Management Plan for the Reserves, and it has been developed by the Parks and Wildlife Commission and Traditional Owners, with assistance from the Northern Land Council (NLC). It was prepared in accordance with the *Territory Parks and Wildlife Conservation Act* (TPWC Act) and Indigenous Land Use Agreements (ILUA) registered with the National Native Title Tribunal pursuant to the *Native Title Act 1993 (Cwlth)*. This Plan will remain in effect until amended or replaced by a new plan.

This Plan sets objectives and directions for the management and development of the Reserves over the life of this plan. It provides the primary framework against which management performance will be measured.

**Map 1:** Location of the Adelaide River Conservation Reserves



**Map 2: Location and Features of the Adelaide River Conservation Reserves**





## 1.4 Zoning

The Adelaide River Conservation Reserves are managed for multiple purposes. A zoning scheme is a general summary of the purpose and focus of management based on the values, level of visitor access and facility development.

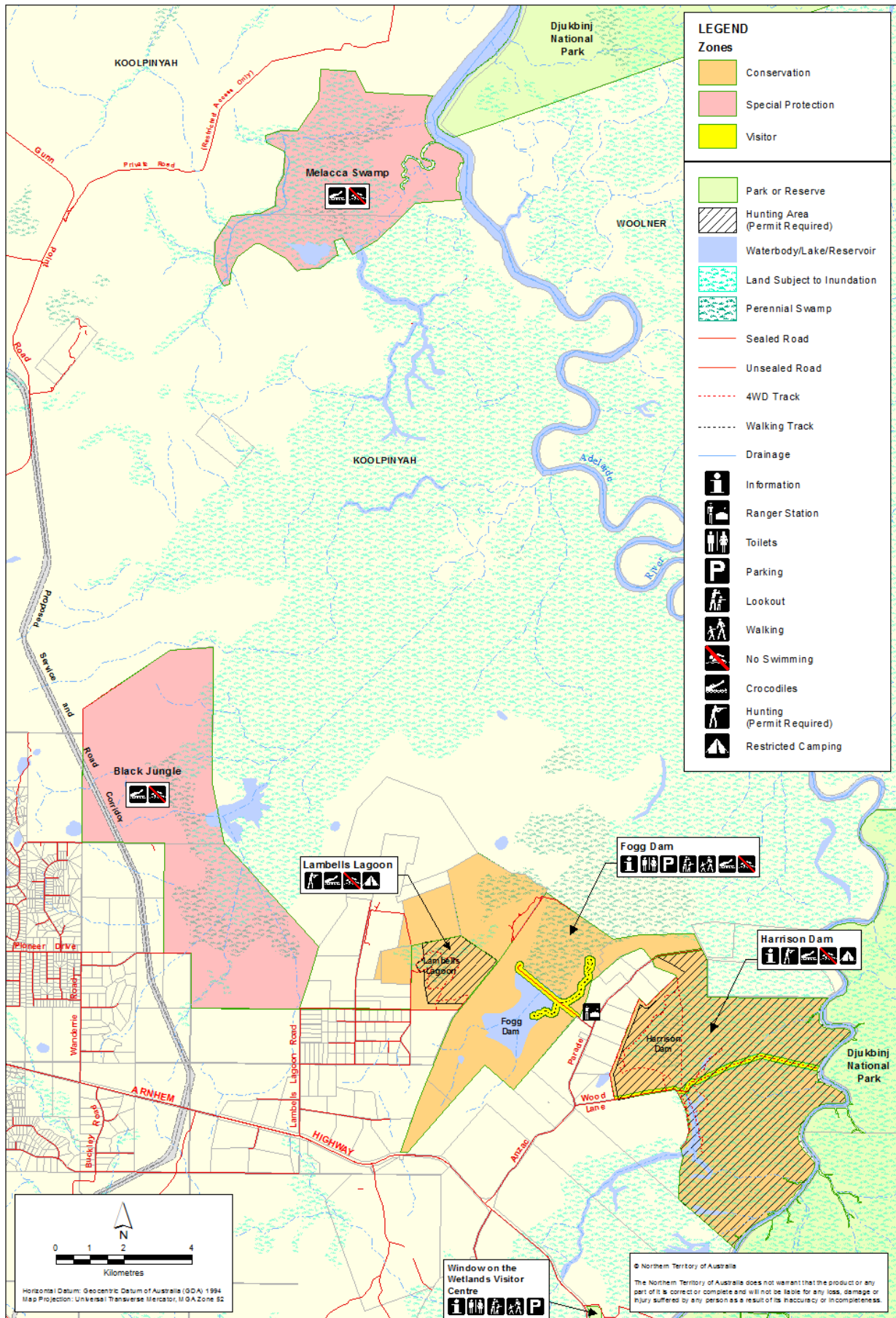
The zoning scheme (Table 1 and Map 3) indicates the management intent at the time of this Plan's preparation. It is not intended to be the basis for regulation of access or development.

<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>Reserve values are protected whilst providing for public access and enjoyment.</li> </ul> <p><b>Management Directions:</b></p> <ul style="list-style-type: none"> <li>Management of the Reserves will be in accordance with the zoning scheme. Regardless of the designated zone, all management and development will maintain the Reserves' natural character, conservation values and visitor experiences.</li> <li>Any new proposed development will be subject to approval of the partners, the relevant environmental and cultural heritage clearances and protection measures, and any relevant laws.</li> </ul>
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**Table 1: Zoning for Adelaide River Conservation Reserves**

Zone	Visitor Zone	Conservation Zone	Special Protection Zone
<b>Purpose / Management Focus</b>	The area where the main visitor access and facilities are located. Where visitors can safely experience and enjoy the main attractions of the Reserves.	Provides opportunities for visitors to experience more natural settings in less crowded surroundings.	Includes significant natural and cultural values that require special management and that are particularly prone to disturbance or damage.
<b>Access</b>	All-weather conventional vehicle access and formed walking tracks.	Access is permitted along designated vehicle and walking tracks and in other areas by permit.	Public access by permit only. Access for approved programs and for cultural activities for Traditional Owners, consistent with the directions of the joint management partners.
<b>Visitor Activities</b>	A range of visitor attractions that offer high quality recreational experiences are provided in this zone, including, bird- watching, and walking.	At Fogg Dam this zone is expected to largely cater for local recreation and small specialist tour operators with a permit. At Harrison Dam and Lambell's Lagoon this zone includes areas where hunting of waterfowl and pigs is allowed under permit. Restricted camping will also be allowed in these Reserves.	The primary activities in these areas are research, education and, at specific sites, commercial sustainable use of wildlife (saltwater crocodile egg collection) under permit.
<b>Facilities</b>	Sealed car and coach parking, public toilets, walking tracks and boardwalks, viewing platforms and interpretive signs.	Basic visitor facilities are provided including formed walking tracks and vehicle tracks.	Facilities and developments are limited to access tracks, protective site works and management facilities.

**Map 3: Zoning within the Adelaide River Conservation Reserves**



## 2. Joint Management

Joint management is about Traditional Owners and the Parks and Wildlife Commission working together to achieve shared goals and aspirations, including richer visitor experiences, protection of natural and cultural values, and more opportunities for Traditional Owners.

The terms of joint management for these Reserves are established under the *TPWC Act* Part III, four ILUAs (each for a term of 99 years), and a Joint Management Agreement.

### 2.1 Joint Management Partners

The joint management partners (the partners) for the Adelaide River Conservation Reserves are the Northern Territory of Australia (Territory) and the Traditional Aboriginal Owners (Traditional Owners). The Territory is represented by the Parks and Wildlife Commission of the Northern Territory, which carries out the Territory's joint management obligations. For the purposes of this Joint Management Plan, references to the Parks and Wildlife Commission as a joint management partner should be read as a reference to the Territory.

The Northern Land Council (NLC) has an important role in assisting with joint management of the Reserves. Under the *TPWC Act*, the NLC's role includes representing and protecting the interests of the Traditional Owners in relation to the Reserves' management.

#### Traditional Owners

##### *"Land is our life, we aren't going anywhere, we're here to stay" The Wulna People*

The Wulna people are the Traditional Owners and signatories to the Indigenous Land Use Agreements for the Adelaide River Conservation Reserves.

The Wulna have lived and worked on the land for many generations and have a long association with the area. Their traditional rights, responsibilities, and obligations to look after their land, culture, and families have been handed down through the generations in accordance with accepted traditions and cultural practice. These traditions govern how people relate to country, and set out their rights and responsibilities to look after country through ceremony, sustainable use of resources, and relationships within and between the groups.

Continuing to respect and exercise their responsibilities and obligations under traditional law is at the forefront of Traditional Owners' aspirations for joint management. While the Traditional Owners respect and observe ancient traditions, they have a contemporary culture and live in a modern society, so their aspirations also extend to opportunities to generate livelihoods for themselves and their families from their traditional lands.

The Wulna people welcome the opportunity to work together with the Parks and Wildlife Commission jointly managing the Adelaide River Conservation Reserves into the future.



*Some of the Traditional Owners involved in preparing this Plan*

## The Northern Territory Parks and Wildlife Commission

The Parks and Wildlife Commission is dedicated to conserving the natural and cultural values of parks and reserves, while providing high-quality nature-based tourism and recreation for visitors. The Parks and Wildlife Commission is committed to engaging the public, working with the community and seeing that the joint management partnership grows, becomes truly equitable and benefits the wider community. This Plan has been developed by the joint management partners in a positive spirit and they are optimistic about the future of these Reserves.

## 2.2 Planning and Decision Making

*“We’ve got to look at all these ideas we are talking about now... we’ve got to start listening to each other and supporting each other. It is a big job. Everyone has to play a part. We have to work together.” The Wulna People*

For the purposes of joint management, the term governance is defined as “the way the partners organise themselves and the rules they put in place to realise their shared vision”.

The partners acknowledge that it takes time to build a strong working relationship. They recognise the need for institutional support and capacity building to develop effective governance. Consequently the partners agree that having a flexible approach to decision making is important, and consider the following principles for working together to be vital:

- Both partners are responsible for making joint management work and are committed to that objective.
- Both partners accept that an understanding of country, law, culture and Indigenous decision-making principles are fundamental to good joint management.
- When making decisions, both partners use a clear process, follow guidelines, use good information and have enough time to consider decisions properly.
- Both partners listen to each other and communicate honestly.

Clear **roles and responsibilities** are essential for joint management and each of the partners have responsibilities for looking after the Reserves in accordance with both traditional Aboriginal laws and Territory or Commonwealth legislation applicable in the Northern Territory.

The **joint management partners** are, together, responsible for the management of the Reserves, and must monitor and review this management against the objectives and management directions in this Plan.

The **Parks and Wildlife Commission** is responsible for the implementation of the day-to-day management of the Reserves as outlined in this Plan and is required to finance and resource the Reserves’ ongoing management. The Parks and Wildlife Commission will report progress annually to the joint management partners, liaise with stakeholders and neighbours, monitor management effectiveness, and modify management according to new information, improved procedures, new technology and new threats or issues.

**Traditional Owners** are responsible to the land, law and culture. They retain special responsibilities for decision-making and also oversee cultural protocols for sacred sites. They are responsible for country, and for managing and transferring traditional knowledge. Senior Traditional Owners have specific responsibilities and must be involved in matters which affect sacred sites.

***“Pride – we want to be able to stand tall and proud as Wulna people” The Wulna People***

The **Northern Land Council** represents Traditional Owners’ interests, arranges and carries out consultations, assists with monitoring joint management processes and helps resolve differences between Traditional Owners if needed.

A **Joint Management Committee** has been formed to govern the Reserves. The Committee provides strategic direction and policy for Reserves’ management, but does not have a direct role in day-to-day operations. Membership of the Committee consists of two senior Parks officers and Traditional Owner representatives from each of the three family groups in the Reserves.

Committee members have a responsibility to represent the collective expertise, interests and concerns of their group. They also have a responsibility to pass information back to the wider Traditional Owner group, local community and key stakeholders. The Parks and Wildlife Commission will maintain regular formal and informal contact and engagement with joint management partners throughout the year. The NLC will provide support if required.

A key principle of joint management is respect for traditional decision-making; at all times, Traditional Owners will have a fair and appropriate say in the management of these Reserves.

***“We need to look at the long term process. We aren’t going to go anywhere, this is our land.” The Wulna People***



*Members of the Joint Management Committee discussing the management of the Adelaide River Conservation Reserves*

## 2.3 Indigenous Training, Employment and Enterprise Development

***“We have a lot of opportunities on these parks. We want a strong economic base to provide employment and training, so we are better able to participate in the society we live in” The Wulna People***

One of the aims of joint management is to promote employment and business for Aboriginal people. Traditional Owners emphasise training and employment for their families and acknowledge their responsibility to support young people. In doing so, they have identified numerous opportunities for greater involvement in Reserve management. These include, but are not limited to, flexible employment, contracting work, guided tours, and fostering tourism business ventures.

The Parks and Wildlife Commission is committed to increasing employment of Wulna people in the Reserves and will make every effort to do so, in accordance with any laws and policies in force in the Northern Territory.

Just as Traditional Owners emphasise the importance of training and employment for their families, they recognise there are limited opportunities to be employed as Rangers. For that reason the joint management partners will explore opportunities for employment of Traditional Owners in a diversity of industries across the wider district.

Traditional Owners are keen to be involved in contract work. Under the ILUA, the Northern Territory Government must give preference to the participation of the Traditional Owners in any commercial activities under the lease, subject to any law in force in the Northern Territory. Where capacity is lacking, the partners can work with local Aboriginal organisations and training providers to help develop their skills and capability.

Traditional Owners are looking to develop tourism opportunities. The Reserves provide excellent opportunities for Traditional Owners to present their culture to visitors from all over Australia and the world. Traditional Owners have experience with tourism business through managing the Window on the Wetlands Visitor Centre and as part of Ranger training programs. The Parks and Wildlife Commission has also assisted them in developing their skills at presenting walks and talks to tourists.

Traditional Owners are optimistic about the opportunities to develop tourism businesses based on their traditional lands. Joint management provides a sustained platform for the partners and the wider community to exchange ideas develop tourism ventures and reinforce progress. They hope liaison with tourism industry partners and supporting organisations such as NLC, the Department of Business, and Tourism NT will assist them to generate viable businesses.



*Rangers installing a new entry sign*

**Objectives:**

- An equitable and effective partnership that result in well-informed and timely decisions.
- The partners and community are satisfied with joint management.

**Management Directions:**

- **Joint Management Committee** – The Committee will meet at least once each year; the structure will remain flexible and adapt to the needs of the partners and their shared vision. At all times Wulna people will have a fair and appropriate say in the management of these Reserves.
- **Making decisions** – Decisions will be made by consensus. The NLC will represent and support Traditional Owners’ interests and facilitate consultations as required.
- **Expert advisory groups and working groups** – Working groups of Wulna people, staff from the Parks and Wildlife Commission, NLC officers, and specialists may be formed to support the Committee, or address specific tasks such as heritage conservation and interpretation, tourism and development projects.
- **Dispute resolution** – The joint management partners will aim to resolve disputes through open discussion and communication at the Joint Management Committee level.
- **Supporting and building effective governance** - The joint management partners recognise that joint management will be a process of continuous learning and growth. The capacity of the partners will be enhanced by:
  - **Training in good governance** – The joint management partners will be encouraged to participate in training in governance principles and procedures.
  - **Professional development** – Professional standards and competencies will be supported by training in aspects of operational management as required.
  - **Performance monitoring** – The joint management partners will annually measure the effectiveness of participation, representation, communication, decision-making and outcomes.
- **Indigenous training, employment and enterprise development** – Training and employment opportunities, including direct and flexible employment, contracts and enterprise will be pursued by the partners. An ongoing program, based on Traditional Owners’ interests and capacity, will be determined and reviewed annually by the partners. Programs will aim to coordinate accredited training and business development available through other agencies.
  - **Tourism enterprises** – Traditional Owners will be encouraged to build their tourism skills and capacity, build partnerships and develop commercial opportunities.
  - **Indigenous employment opportunities** – Opportunities for both flexible and direct employment and training will continue to identified and provided for Wulna people.
  - **Contract services** – Subject to the relevant laws in force in the Northern Territory, the joint management partners will give preference to the Traditional Owners, and other Aboriginal people, companies and organisations when contracting services, provided they demonstrate the capacity to meet contract standards. Other contractors who provide training and employment to local Aboriginal people will also be regarded favourably.
- **Aboriginal training and employment** – This issue will remain a standing item at annual Joint Management Committee meetings.

## 3. Providing for People

### 3.1 Visitors and Tourism

The Adelaide River Conservation Reserves provide some of the most accessible places in the NT to experience the spectacular wetlands of the Top End at any time of the year. Increased visitation and use of national parks delivers regional economic benefits, as well as greater visitor awareness and understanding of natural values, ultimately contributing to better long term conservation outcomes. The Reserves are conveniently located approximately 65 kilometres (about one hour's drive) from Darwin.

Around 80,000 visitors enjoy the Reserves each year, with the main tourist attraction being the wetland wildlife and habitats at Fogg Dam. The Reserves support remarkable landscapes that typify the internationally recognised image of the Top End. In many ways these Reserves have been over-shadowed by the more distant wetland experiences offered at Kakadu National Park. Like Kakadu, these Reserves are enhanced by the continued connection of Traditional Owners with their country, adding further vibrancy and richness to the landscape.

The Reserves offer a unique blend of both natural and cultural experiences consistent with the Northern Territory tourism industry's strategic strengths. Of inbound visitors to Australia, 61% selected nature-based activities as the primary purpose of their visit. Indigenous culture is also a major drawcard for both international tourists and domestic visitors. Tourism research suggests 91% of visitors to the NT expect to meet and interact with Indigenous people, with 77% of those considering this an important part of their NT holiday.

Fogg Dam is currently a destination for visitors' en-route to Kakadu, and for those taking shorter tours, such as an Adelaide River cruise. Visitor surveys (August 2007) show that about 65% of visitors to Fogg Dam are from interstate, and 25% are from overseas. The surveys suggest that a third of visitors had not planned to visit Fogg Dam and 77% of visitors were satisfied or very satisfied with their visit.

#### 3.1.1 Access and Facilities

**Fogg Dam Conservation Reserve** is a focus for wetland and wildlife visitor experiences. Current facilities are designed for day visits. The elevated dam wall is the centre of visitor activity, providing a raised, single-lane sealed road along which visitors can drive. It enables excellent views of the floodplains and the impounded section of the dam from two wildlife-viewing shelters along the wall, and a large two-story lookout (Pandanus Knoll) at the western end.



*The elevated dam wall at Fogg Dam provides a raised, single-lane sealed road along which visitors can drive (Photo: © Michael J Barritt)*



A visitor node is located at the eastern end of the dam wall, and includes a parking area for vehicles and buses, a group shelter, small interpretation shelter and composting toilet.

There are two walks signposted at Fogg Dam. The 'Woodlands to Waterlily Walk' is 2.2 kilometres (return), beginning in the fringing forest and then passing, via a boardwalk, into the wetland created by the dam walls. There are signs and lookouts along the way. The 'Monsoon Forest Walk' winds through a variety of habitats including monsoon paperbark forests and floodplains. The walk is 3.6 kilometres in length and includes boardwalks and signs.

There are a number of management issues associated with Fogg Dam that need to be addressed to ensure it remains a safe, high quality destination for visitors:

- The key natural values of Fogg Dam need to be maintained so it continues to provide suitable habitat for large numbers of waterbirds, and continues to attract visitors. Key threats include weeds, wildfires, feral animals, saltwater intrusion, groundwater extraction and intensification of surrounding land use.
- The risk of saltwater crocodile attack means the dam wall is closed to pedestrians, unless they have parked on the wall and are entering viewing shelters.
- Traffic congestion occurs on the single lane road on the dam wall during peak visitor periods, especially when caravans and coaches are present.
- The edges of the dam wall are soft and prone to erosion during high rainfall events, and usually require repairs after each Wet season.
- Road signage directing visitors to the Reserves, particularly along the Arnhem Highway, is vague and fails to promote the visitor opportunities available in the Reserves.

**Harrison Dam and Lambell's Lagoon Conservation Reserves** are designated recreational hunting areas. They are also popular bird watching areas outside of the hunting season. No visitor facilities are provided in these areas and vehicle access requires a high clearance four-wheel drive.

**Melacca Swamp Conservation Area and Black Jungle Conservation Reserve** protect significant species and habitats, and access to these sites is currently restricted to scientific research, organised groups with permits, and licensed operators collecting crocodile eggs. No visitor facilities are provided in these areas.

Visitors to the Reserves occasionally commit offences against the *TPWC Act* or *TPWC By-laws*, with the most common ones being illegal hunting, illegal access, off-road driving, and bringing dogs into the Reserves without a permit. To address these problems the partners may consider the introduction of surveillance cameras, increased patrolling and other means to encourage compliance.

### **3.1.2 Future Opportunities**

The changing composition of the NT's visitor markets and shifts in customer preferences present new opportunities. The location and values offered by Adelaide River Conservation Reserves are well placed to capitalise on the increasing domestic trend towards short-break experiences, and a declining demand for regional tourism experiences from international tourists. Consistent with NT Tourism Vision 2020, the Parks and Wildlife Commission prepared a Tourism and Recreation Masterplan in 2014 to guide investment toward identified tourism opportunities.

Traditional Owners are keen to use the iconic wetlands and their rich cultural heritage to provide unique tourism experiences and products. Visitors expect rewarding immersive experiences and seek to connect with the environment and Aboriginal culture on a personal level. The Reserves'

proximity to Darwin, iconic landscapes and cultural values present significant tourism opportunities. Fogg Dam has the potential to be recognised as a “must do” visitor experience for short-stay visitors to Darwin and the Top End.

The partners recognise that collaborative and well-considered tourism planning is essential to unlock the full potential of the Reserves. It is important that all plans align with NT wide visitor strategies and provide clear directions for sustainable tourism development and investment. To deliver quality experiences, services and infrastructure several phases of planning may be required.

***“We’ve got to set up businesses, not only for us but for our next generation. We share Tourism’s vision (Tourism NT)... a future for our children” The Wulna People***

Currently there are no commercial operations within the Reserves. Traditional Owners recognise tourism as one of the few industries that can potentially provide sustainable economic and social independence through jobs, education, training and business ownership. Also, as highlighted by the Friends of Fogg Dam, the potential of bird watching tourism could be better promoted as Fogg Dam Conservation Reserve has an international reputation amongst birdwatchers and highlighted in numerous bird-watching guidebooks.

***“A collection of (tourism) experiences as stand-alone ventures might not succeed alone but together they have strength – and we could work through the different seasons.”  
The Wulna People***

Traditional Owners are interested in integrating a range of “adventure based” activities such as specialised wildlife and bird watching, airboat tours, hunting, barramundi fishing, and tours focusing on native cuisine/bush-tucker, indigenous culture, local history and heritage. These activities could occur within and between the Reserves all year round in response to the changing seasons.



*The Reserves have potential to offer new recreational activities (Photo: Tourism NT)*

Commercial opportunities could be enhanced by developing partnerships with existing businesses (such as specialist tour companies and cruise operators), or offering tailored packages from Darwin (e.g. for conferences, working holidaymakers and the education market).

***“We want to see TOs as TOs. That is tour operators and owners of their own enterprises” Bob Furner (Department of Business NT)***

### **3.1.3 Hunting**

Recreational hunting is permitted at Harrison Dam and Lambell’s Lagoon and is regulated through a permit system. It is managed in accordance with the *TPWC Act* and *By-laws*, the Strategy for Conservation through the Sustainable Use of Wildlife (PWCNT 1997), and the Magpie Goose Management Program (Delaney et al 2009).

**Waterfowl hunting** - Magpie Geese and certain ducks are hunted at both Harrison Dam and

Lambell's Lagoon. Waterfowl are hunted very late in the Dry season (September to December) between sunrise and sunset. The open season is dependent upon population numbers and habitat condition. Due to the environmental toxicity of lead shot only non-toxic shot can be used for waterfowl hunting. Dogs are permitted into Harrison Dam and Lambell's Lagoon during the season if the owner has a Waterfowl Hunting permit.

**Pig hunting** - Pigs can be hunted year round at Harrison Dam; however, they are primarily hunted during the Dry season (May to October) when pigs are concentrated near remaining water and there is easier access to the floodplains.

In 2013, 2070 permits for waterfowl hunting were issued for Harrison Dam, Lambell's Lagoon, Howard Springs Hunting Reserve and the nearby Shoal Bay Coastal Reserve, and 383 pig hunting permits were issued for Harrison Dam and Shoal Bay. It is not known how many hunters specifically hunted at Harrison Dam and Lambell's Lagoon; however, the overall number of hunting permits being issued has increased in recent years.

Shooting exclusion zones exist along the western and southern boundaries of Lambell's Lagoon, and the north-western boundary of Harrison Dam to protect the residents of these neighbouring blocks. Intensification of land use around the Reserves could conflict with recreational hunting in the long term. In collaboration with hunters and the local community, new hunting areas and buffer zones may need to be determined.

A number of issues surround recreational hunting in the Reserves, including shooting of non-target species, exceeding bag limits, use of lead shot, and hunting without a permit. Park Rangers, Wildlife Management Officers, NT Police and hunting associations will continue to collaborate to strengthen compliance and ensure sustainable use of the Reserves.

Since 2009 the Field and Game Association of the NT has conducted weed, fire and litter management in Harrison Dam and Lambell's Lagoon. The Parks and Wildlife Commission and the Field and Game Association will continue their collaborations in the future.

### **3.1.4 Visitor Safety**

Rangers are trained in emergency response and advanced first aid, and regularly patrol the main visitor areas to monitor facilities and visitor behaviour. They maintain facilities to the highest practicable standards for visitor safety. Rangers are supported in their management of visitor safety through an Emergency Response Plan. Incidents are reported centrally and Park management adheres to the Parks and Wildlife Commission's Work, Health and Safety Guidelines and Hazard Reduction Guidelines. The effective implementation of this system requires sufficient resources and trained, competent staff.

Saltwater crocodiles occur in areas frequented by visitors. They pose a serious threat to waterfowl hunters, and also to pedestrians on the dam wall at Fogg Dam. Swimming is not permitted in any part of the Reserves and warning signs are present in those areas used by the public. Crocodiles present a safety risk to hunters, especially when hunters wade into the water to retrieve shot birds or to flush game. Traps are maintained at Fogg and Harrison Dam all year, and captured crocodiles are removed.

A Crocodile Management Plan has been prepared for the Fogg Dam, Black Jungle and Lambell's Lagoon Conservation Reserves and Melacca Swamp Conservation Area (NTG 2011). A Crocodile Management Plan is yet to be developed for Harrison Dam.



*Rangers and Wildlife Officers actively manage crocodiles within the Reserves*

## 3.2 Aboriginal Use

### 3.2.1 Continuing Connections to Country

***“We are a bit like a tree – a banyan tree – it’s where our roots are connected. We’re connected to the rivers and billabongs – we are tied to the land. Our stories. Our culture. Our story lines. We’re connected to it”. The Wulna People***

Living on country and travelling across country are important ways through which Wulna Traditional Owners maintain connection with their country. Some Wulna Traditional Owners have maintained a constant presence on country despite significant dispossession through colonisation. Until the last three or four decades, Traditional Owners and their ancestors had extensive access to country through work on Koolpinyah, Humpty Doo and Marrakai pastoral leases, as well as their involvement in the buffalo and crocodile industries. More recently Wulna presence has focused on Wairuk community located south of Fogg Dam.

The Wulna perspective of country includes all the resources, people, beliefs and cultural practices that link them to the land. The Traditional Owners regard themselves as “belonging to country”, and often state that “we look after country, so that country will look after us”. These attitudes and statements confirm that the land and the people are inseparable and all that happens on country has consequences for Traditional Owners. They have a strong desire and obligation to ensure that their country is managed properly and in accordance with traditional law.

The rights to hunt and gather for non-commercial and ceremonial purposes by Aboriginal people, who have traditional rights to country, are confirmed in section 122 of the TPWCA. Senior men and women still recall the range of foods collected from country, including long yams, water chestnuts, freshwater turtles, magpie geese, ducks, eggs, water pythons, file snakes, pigs, buffalo, agile wallabies, goannas, catfish, red-claw yabbies, saratoga and barramundi. These resources also include materials traditionally used to make practical items such as bags, baskets, mats and fish traps as well as sacred and ceremonial items. Many species of animal are sacred to Traditional Owners as totemic species, and the exchange and sharing of traditional foods is a cultural obligation.

The Wulna people are also concerned that other Aboriginal people should follow proper cultural protocols when accessing and utilising the resources of country. Traditional Owners may need to remind family members about their obligations by promoting cultural protocols and appropriate behaviour.

*Traditional Owners still hunt magpie geese in the Reserves (Photo: Tourism NT)*



### **3.3 Engaging the Community**

#### **3.3.1 Community and Stakeholder Engagement**

The partners value the involvement of the community, especially neighbours, tourist operators, hunters and the Friends of Fogg Dam. Their involvement enhances visitor experiences and operational effectiveness within the Reserves.

The joint management partners are very fortunate to have the active support of the Friends of Fogg Dam. Established in 2006, the group aims to promote, protect and enhance the Dam's values and help visitors to enjoy, understand and appreciate them. Volunteers from the group have been instrumental in the maintenance and promotion of the Reserve through working bees, field days, weed control, as well as visitor monitoring. They have also been successful in accessing resources that are not otherwise readily available to the partners. The partners greatly value the work and efforts of the Friends of Fogg Dam and want to continue the strong and effective relationship.

The Reserves are situated in a relatively rapidly growing horticultural and rural residential area, and neighbours face many land management challenges in common, such as weeds and wildfire. The fragmented nature of the Reserves means that maintaining relationships with the community and collaborating with neighbours is especially important.



*Field day at Fogg Dam (Photo: Friends of Fogg Dam).*

### 3.3.2 Community Education and Interpretation

***“The kids are losing all that knowledge... old people need to get back on country and share stories with other people – young kids, parks, everyone” The Wulna People***

Fogg Dam provides an important resource for community education, with many schools visiting the Reserve to learn about the values of wetlands. The Rangers offer guided walks and talks at Fogg Dam, and there are opportunities to expand this seasonal program to include presentations by Traditional Owners giving a cultural perspective on the Reserves.

The Traditional Owners wish to maintain a strong culture by transferring knowledge to younger generations. They are also particularly keen to share knowledge with visitors and the community to increase the understanding and appreciation of the cultural significance of Wulna country. The partners believe this is an important way to provide the richer and more personal experience sought by many international tourists and domestic visitors.

The presentations, interpretation and education offered at the Reserves should enrich a visitor’s total experience of the Top End. The Reserves are rich in biodiversity and are a place where traditional Aboriginal stories continue to bind its Traditional Owners to the land. The Reserves can be presented as a place of re-connection and reconciliation. There is also potential for greater utilisation of Fogg Dam for community education as well as sharing knowledge from research undertaken in the Reserves by Australian and international universities over many years.

All interpretation should be planned, and logically consistent to best present the unique assets of the Reserves. Further, emphasis needs to be placed on genuine engagement between the visitor and the Reserves which builds a sense of personal connection.

***“It’s important that younger generation get our knowledge...they’ll be making the decisions one day” The Wulna People***



*Fogg Dam is an important resource for community education (Photo: Michael Barritt)*

**Objective:**

- Visitors enjoy safe, high quality and informative experiences, and satisfaction with their visit is high (at least 90%).

**Management Directions:**

**Access and Facilities**

- Fogg Dam will be showcased through thoughtful planning and design to establish a complementary suite of experiences consistent with its vision and unique values.
- Existing visitor facilities, including walking tracks, viewing platforms, day-use areas and interpretive signage, will be maintained to a high standard.
- In addition to further priorities identified through tourism planning processes, the partners will consider :
  - providing safe pedestrian access along the Fogg Dam wall;
  - changing the signage on the Arnhem Highway to clearly highlight Fogg Dam Conservation Reserve and visitor activities;
  - reviewing the needs, standards and quality of existing facilities and infrastructure;
  - maintaining the structural integrity of the dam wall at Fogg Dam;
  - managing traffic on the Fogg Dam wall;
  - dispersing visitor pressure on Fogg Dam by developing other areas; and
  - introducing surveillance cameras, expanding patrols or using other means to encourage compliance at Fogg Dam.
- Entry of pets will be consistent with the Parks and Wildlife Commission Pets in Parks Policy.

**Future Opportunities**

- Sustainable commercial cultural and nature-based tourism will be fostered. The partners will work with industry to explore and identify sustainable tourism development and investment opportunities through a well-considered planning process.
- Planning and ongoing business support for commercial development will be assisted by Tourism NT, Department of Business, tourism industry representatives and potential commercial partners.
- To better promote the Reserves and potentially develop more tourism activities the partners will be proactive in working with the tourism industry through established forums and organisations such as Tourism Top End and Tourism NT. Tourism and commercial development will remain a standing item at Joint Management Committee meetings.

**Hunting**

- Recreational hunting will be fostered at Harrison Dam and Lambell's Lagoon and the partners will collaborate with Top End hunting groups to promote sustainable practices and manage wetland habitats.
- In collaboration with hunters and the local community, new buffer zones and new hunting areas in the broader region will be considered if deemed necessary.
- Park Rangers, Wildlife Management Officers, NT Police and hunting associations will collaborate to strengthen compliance and ensure sustainable use of the Reserves.

**Visitor Safety**

- The Emergency Response Plan will be reviewed annually. Identified risks will be rectified on a priority basis and Rangers will receive appropriate training.
- Crocodile traps will continue to be maintained throughout the year at Harrison Dam and a saltwater crocodile management plan will be prepared for the Reserve.
- Tour operators will be encouraged to report incidents and safety issues to park management.

### **Continuing Connections to Country**

- Rights in relation to hunting and gathering from the Reserves will extend to Traditional Owners and Aboriginal people.
- The Reserves, or areas within them, may be temporarily closed to the public for flood or operational requirements and important Aboriginal ceremonies. Any closures will be advertised and involve communication with the tourism industry.

### **Community and Stakeholder Engagement**

- The joint management partners will work with people who have an interest in the Reserves. Involving the community will enhance the values, visitor opportunities and enjoyment of the Reserves. The joint management partners will keep the stakeholders informed about significant issues and proposed developments.
- The joint management partners will actively encourage volunteers and community groups, such as Friends of Fogg Dam, and the Field and Game Association of the NT, to become involved in programs within the Reserves, including education, interpretation, monitoring and maintenance tasks. Public events and programs for the enjoyment of the community will also be encouraged.
- The joint management partners will develop strategies to coordinate and direct all interpretation and community education to best present the unique assets of the Reserves. The strategies will be prepared with Traditional Owners to ensure that all Aboriginal cultural information shared with visitors is accurate and appropriate.

## **4. Protecting the Values**

### **4.1 Understanding the Values**

The wetlands of the Adelaide River Conservation Reserves are spectacular landscapes that characterise the coastal areas of the Top End.

Many traditional Aboriginal dreaming trails traverse the Conservation Reserves and retain highly significant cultural values for Traditional Owners. The Adelaide River Coastal Floodplain is a site of international conservation significance (Harrison et al 2009) and approximately four percent of this floodplain is protected by the Reserves. The Reserves comprise largely intact wetland ecosystems and include vegetation and faunal communities representative of typical Top End wetlands. They include seasonally inundated floodplains and swamps, lagoons and billabongs, melaleuca swamps and saline coastal floodplains. These wetland habitats are also identified as being of national significance, and are listed in the Directory of Important Wetlands in Australia (DIWA).

The joint management partners share a responsibility to maintain the cultural heritage of the Reserves and protect the values for future generations. The recent history of the area associated with World War II, and that of the pastoral, buffalo, crocodile and agricultural industries is shared by both Indigenous and non-Indigenous peoples.

#### **4.1.1 Fauna**

Among the 308 vertebrate species recorded from the Adelaide River Conservation Reserves there are six threatened species (see Appendix 2): northern quoll (*Dasyurus hallucatus*), yellow chat (*Epthianura crocea tunneyi*), Gouldian finch (*Erythrura gouldiae*), yellow-spotted monitor



(*Varanus panoptes*), Mertens' water monitor (*Varanus mertensi*), and the Australian bustard (*Ardeotis australis*). The northern quoll and the two monitors are most threatened by poisoning from cane toads. There are very few records of Gouldian finch and yellow chat from the Reserves, which do not contain core habitat for these species.

Fogg and Harrison Dams form the largest permanent freshwater bodies in the Adelaide River catchment and provide important year-round habitat for water birds and other aquatic fauna and flora. Many migratory bird species listed in international treaties with the governments of China (CAMBA) and Japan (JAMBA) and the Convention on Migratory Species of Wild Animals (Bonn Convention) also use these wetlands. Large areas of the Reserves lie within the Adelaide and Mary River Floodplains Important Bird Area, recognised for the vast numbers of waterbirds, including globally important populations.

The Adelaide River floodplain reliably provides some of the best nesting habitat in the Northern Territory for magpie geese (Bayliss and Yeomans 1990). While most of the significant nesting areas occur outside the boundaries, the Reserves provide essential Dry season habitat for the geese. Melacca Swamp contains some of the best on-park breeding sites for saltwater crocodiles recorded in the Top End and is one of the highest density breeding areas for this species (Wildlife Management International 2007).

Some areas within the Reserves, particularly Fogg and Harrison Dams, are long-term biological research sites. Researchers from Sydney University maintain a Tropical Ecology Research Centre at Middle Point, where work has focused on the remarkably dense biomass of pythons and associated prey, including various species of rats. The recorded biomass (combined weight) of predator (water python *Liasis fuscus*) and prey (dusky rat *Rattus colletti*) species on the Fogg Dam floodplain is the highest in the world (Madsen *et al* 2006). More recently research has turned to the challenges posed by the arrival of cane toads (*Rhinella marina*) in such an environment.



Sunset at Fogg Dam (Photo: Tourism NT)

#### 4.1.2 Flora

The Reserves support patches of wet, spring-fed and dry monsoon rainforest which are floristically and structurally distinct from the surrounding savannah woodland and floodplain vegetation, and have high conservation value as habitat. In the Top End, monsoon rainforests are widespread, highly fragmented, and vulnerable to degradation by feral animals, inappropriate fire regimes, water extraction, and weeds. They are also dependent on highly mobile fauna species, particularly fruit-eating birds and flying foxes, for dispersal of plant seeds and maintenance of diversity. Workshop Jungle at Fogg Dam, containing both wet and dry monsoon

rainforest, is one of the best known and most comprehensively described rainforests in the NT. It provides an important scientific, interpretational and educational resource.

The Reserves support 449 recorded plant species, including three threatened species, a cycad, a palm and an orchid. *Cycas armstrongii*, a threatened cycad endemic to the NT, is listed as vulnerable; it occurs in woodland areas in the Reserves and can be locally abundant. Management for this species should focus on control of gamba and mission grasses and fire management (Liddle 2009).

Black Jungle rainforest supports three populations (of only eight recorded in the NT), of the endangered Darwin palm *Ptychosperma macarthurii*. Black Jungle rainforest also supports one of the two known populations (on the mainland NT) of the vulnerable arboreal orchid *Luisia teretifolia*. This species is cryptic and extremely difficult to find. Management for these rainforest species should aim to reduce risks of frequent and/or intense fire, and feral animals (Liddle *et al* 2006). Invasive grasses, which can increase fire impacts, should also be controlled. Permanent vegetation plots have been established in Black Jungle for monitoring rainforest condition and populations of the Darwin palm.

Two species of Australian native wild rice, (*Oryza rufipogon* and *O. meridionalis*) occur on floodplains within the Reserves and are the subject of research investigating their ecology, food properties and conservation requirements.

#### **4.1.3 Sites of Significance for Aboriginal People**

The Adelaide River floodplain is traversed with pathways of ancestral spiritual beings and their tangible form is present in sacred sites throughout the Reserves. These pathways and sites are part of 'dreamings' which belong to Wulna. The knowledge associated with these 'dreamings' and sites has many functions in Aboriginal culture, including codifying the traditional law which governs how people relate to country, and the rules for caring for country. The 'dreamings' include Travelling Women, Long-necked Turtle, and Dog Dreaming. Areas within Black Jungle are also associated with men's business.

For Traditional Owners, knowledge of sacred sites gives them authority under traditional law, and is one of the most important ways they confirm and maintain their rights to country. For this reason they are concerned that these sites, and the knowledge associated with them, are properly managed.

Protection for sacred sites is afforded under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NTASSA). Under the NTASSA any entry to, works on, or use of, sacred sites is illegal unless in accord with conditions of an Authority Certificate issued by the Aboriginal Areas Protection Authority (AAPA).

Seven sacred sites have been documented and registered by the Aboriginal Areas Protection Authority in the Adelaide River Conservation Reserves. A further eight sites are registered in the vicinity of the Reserves, and many more have been recorded. These sites and places have spiritual, mythological and ritual significance to Traditional Owners, and encompass knowledge and cultural practices exercised in managing them. Some of this knowledge is open and can be communicated widely, but other knowledge is sacred and can only be passed on to those with appropriate authority. Protocols relating to sites, stories and information of cultural significance should be established and communicated between the partners.

Most of the sacred sites in this area are not easily accessible to the public and are not directly affected by park operations. However, some sites are vulnerable, and Traditional Owners would like to see appropriate protective measures developed, as well as education to encourage an understanding of the cultural significance of sites and the importance of compliance with any relevant laws and policies. One site, known as "White Stone", is particularly vulnerable. If more

sections of the Reserves are opened for visitor access, it may be necessary to reassess management of other sites.

Archaeological sites associated with Aboriginal culture, including burial sites, shell middens and artefact scatters, also exist in the Reserves. Some of these sites are also registered and recorded with the Aboriginal Areas Protection Authority as significant to Aboriginal people. Archaeological places and objects in the Northern Territory are protected under the *Heritage Act*. Sacred sites registered with the Aboriginal Areas Protection Authority are also protected under the *Northern Territory Aboriginal Sacred Sites Act*.

#### 4.1.4 Indigenous Knowledge

One of the key actions to fulfil the principles of joint management is to incorporate traditional knowledge and land management practices into management programs. The best way to do this is to ensure that Traditional Owners are involved in developing operational plans and implementing management programs. Spending time together on country and sharing knowledge are also important ways for the partners to learn from each other and to incorporate traditional knowledge into management.

Intellectual property rights and Aboriginal cultural knowledge need to be appropriately recognised and acknowledged, and the recording, presentation and transfer of traditional knowledge need to be managed in line with the wishes of Traditional Owners. Traditional Owners sometimes provide information to researchers, and their contribution must be appropriately acknowledged, particularly in published works. Traditional Owners may expect to share in any benefit if this knowledge is used for commercial purposes. The NLC may assist the Traditional Owners in managing their traditional knowledge and negotiating terms of benefit sharing. Programs aimed at collecting cultural information to assist operational management, and for the benefit of future generations of Traditional Owners, may also be undertaken. Information gained during these programs remains the property of Wulna Traditional Owners.



*Traditional Owners and Rangers discussing the management of the Reserves (Photo: Pam Wickham)*

#### 4.1.5 Sustainable Harvest

Permits are issued to allow hunting of magpie geese and some duck species in Harrison Dam and Lambell's Lagoon during the declared waterfowl season, and the collection of crocodile eggs for commercial purposes within Melacca Swamp and Harrison Dam.

Permits are managed in accordance with the provisions of the *TPWC Act* and the *Sustainable Use of Wildlife Policy*, as well as individual species management programs such as the Saltwater Crocodile Management Program (Leach *et al* 2009) and Magpie Goose Management Program 2009-2014 (Delaney *et al* 2009). Surveys and long-term monitoring data on populations, nests and habitat condition are used to support decisions, and the regulations, policy and management programs are designed to ensure that these activities do not detrimentally affect the long-term survival of species.

Permits for the collection of crocodile eggs are issued under a competitive tendering process once the annual sustainable harvest level has been determined. The Joint Management

Committee is responsible for recommending the successful permit applicant and can negotiate employment and training opportunities for Traditional Owners as part of the licence agreement. Traditional Owners benefit directly from royalties paid for this activity.

Aboriginal traditional harvest of flora and fauna resources is permitted within the Reserves under section 122 of the *TPWC Act*. Harvest activity is seasonal and guided by traditional cultural protocols.

#### 4.1.6 Recent Historic Values

The recent history of the Adelaide River area is shared by Indigenous and non- Indigenous peoples and is part of the story of the development of Northern Australia. Associations between Wulna people and European settlers began with trading in 1846 at the Escape Cliffs settlement on the nearby Cape Hotham. The establishment and expansion of the buffalo industry on the floodplains developed an economic activity where Indigenous and non-Indigenous people worked together.

For Traditional Owners, the history of use and development of this area has had a profound effect on their culture and lifestyle. Current Wulna Traditional Owners and their extended families, together with the families of other groups with whom they share cultural connections, have participated alongside settlers, developers and Government agencies in the development and use of this area since European colonisation.

#### 4.1.7 World War II

A number of artefacts associated with the defence of Australia's northern coastline during World War II are found within and around the Adelaide River Conservation Reserves. These sites are recorded, although a full assessment of their heritage significance and conservation requirements has not been completed. They include:

- the wreck of a spitfire aircraft involved in a mid-air collision during practice exercises in 1944, which is located along Hollands Creek in Black Jungle.
- the remains of Camp Liberton, occupied by a detachment of the 2/1 Australian Forestry Company, Royal Australian Engineers, between August and December 1944; these are located near the edge of Black Jungle Swamp. There is also a timber mill associated with this camp.



*Remains of Camp Liberton, occupied by a detachment of the 2/1 Australian Forestry Company, Royal Australian Engineers 1944*

### 4.1.8 Humpty Doo Rice Growing Project

After World War II, CSIRO developed an area on the Adelaide River floodplain for experimental rice growing, called the Humpty Doo Rice Project. Fogg and Harrison Dams were constructed to store water as part of the project. By the time the rice-growing scheme folded in 1963, the expanse of water impounded by the two dams had already become a Dry season refuge for wildlife, particularly waterbirds.

The remains of the infrastructure at Fogg and Harrison Dams include channels and contour mounds, the rice bulk bin and several pump stations, including the main pump and lock used to pump water from the Adelaide River into Harrison Dam. Clearance is required under the *Heritage Act* for any proposed disturbance to these sites.

With grant funding, the Friends of Fogg Dam developed interpretive material for a Humpty Doo Rice Trail, enabling visitors to take a historic journey from Darwin to Adelaide River identifying locations and relics of the Project along the way.

## 4.2 Managing the Threats

Weeds, feral animals and inappropriate fire regimes all directly threaten biodiversity. The fragmented nature of the Reserves, the surrounding land use and proximity to Darwin all increase the vulnerability of the Reserves to these threats, as well as other less obvious ones such as encroaching development, saltwater intrusion, water extraction and poaching of protected species.

### 4.2.1 Weeds

Weeds represent a major threat to the biodiversity of the Reserves and, if left unmanaged, have the potential to significantly alter the structure and function of existing habitats. The Parks and Wildlife Commission has a legislative responsibility under the *Weeds Management Act* (NT) to control the spread of declared weeds and, in some cases, eradicate them from the Reserves. All attempts must be made to eradicate Class A weeds, and Class B weeds must be contained and controlled. Some species are also recognised nationally as Weeds of National Significance (WONS), and must be managed accordingly. Weed management in the Reserves focuses on general weed control around visitor nodes and main roads, and control of the Class A and B weeds identified below:

- Mimosa (*Mimosa pigra*: B, WONS) – a woody weed that forms dense impenetrable thickets on floodplains, displacing native vegetation and fauna. Mimosa occurs on large areas of the Black Jungle floodplain. Dense thickets are found on land bordering the Reserve and this provides a seed source for re-infestation. The Black Jungle floodplain is a priority area for control of Mimosa, and other Reserves will be monitored for new infestations.
- Para grass (*Urochloa mutica*: B, WONS) and olive hymenachne (*Hymenachne amplexicaulis*: B, WONS) – both exclude native species and reduce wetland habitat diversity, and both have the potential to colonise all areas of freshwater floodplain. They occur in scattered populations throughout the Reserves, are difficult to control, and are spreading. Olive hymenachne is a priority species for control in Fogg Dam and Harrison Dam and is being managed through collaborative projects with both Friends of Fogg Dam and the Field and Game Association NT.
- Gamba grass (*Andropogon gayanus*: B) and mission grass (*Pennisetum polystachion*: B) – these species occur mostly in woodland areas of the Reserves, particularly along

boundaries and fire breaks. They crowd out native plants and significantly increase fire fuel loads, contributing to intense Dry season fires that are difficult to control. Control of these grasses is a priority for all Reserves.

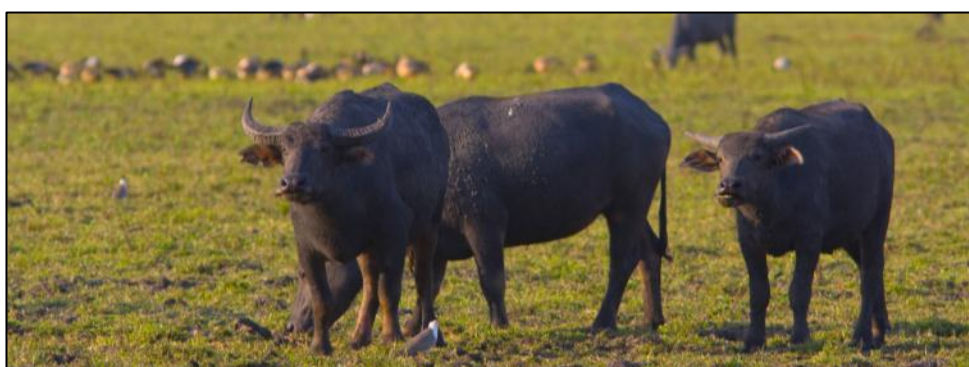
- Water hyacinth (*Eichhornia crassipes*: A) - was first detected at Fogg Dam in the 1970s and forms dense impenetrable mats over the water surface. All instances of this weed in the Northern Territory have been eradicated. On-going surveillance of Fogg Dam for the re-invasion of this weed remains a priority.

#### 4.2.2 Feral Animals

Feral animals can have a major impact on the natural values of the Reserves. They can cause erosion of fragile soils, spread weeds and exotic diseases, prey on native species and compete with them for food and habitat. There have been 16 exotic animal species recorded within the Reserves and the most problematic ones are:

- Pigs (*Sus scrofa*) - favour the moist conditions and dense protective cover found in monsoon rainforests. However, they also exploit seasonal food resources on the floodplains, including waterlily roots and *Eleocharis* corms. The disturbed areas that result from their foraging are particularly vulnerable to weed invasion and erosion. Permits are issued for the hunting of pigs in Harrison Dam year round.
- Buffalo (*Bubalis bubalis*) – trample sensitive vegetation, stir up billabongs and create swim channels which allow saline water to penetrate freshwater wetlands. Buffalo do not occur in large numbers, although they are increasing in Melacca Swamp and could damage the crocodile nesting habitat.

Minor numbers of pigs and buffalo occur in all the Reserves and stray cattle are also a problem, particularly in Black Jungle and Melacca Swamp. Fencing, fence maintenance, mustering and targeted shooting at Melacca Swamp will occur in cooperation with neighbors. However, urban expansion and intensification of land use in areas surrounding Fogg and Harrison Dams and Black Jungle, mean that control of feral animals by shooting or baiting is difficult. Feral animal control in these areas is currently opportunistic and fences maintained through periodic and annual programs. The introduced species, Siamese fighting fish (*Betta splendens*) was found in Fogg Dam and other wetlands along the Adelaide River in 2014. The threat posed by the species to the Reserve's wetlands is unknown.



*Buffalo can trample sensitive vegetation and stir up billabongs (Photo: Tourism NT)*

#### 4.2.3 Fire

Intense wildfires in the Dry season, fuelled by large stands of gamba and mission grass, are capable of killing mature savannah trees and penetrating the margins of monsoon rainforest, increasing susceptibility to further weed invasion and erosion. Over time this can lead to significant loss in the diversity of flora and fauna associated with savannah, rainforest and riparian communities.

Effective fire management is a critical requirement, as three of the four Reserves are in the rural

area of Darwin. Operational fire management priorities should focus on the protection of life, assets and biodiversity. Approaches will include the maintenance of fire breaks and patchy fuel reduction burns carried out early in the Dry season.

#### **4.2.4 Groundwater Extraction**

In recent decades there has been an escalation in the extraction of groundwater from aquifers in the Darwin rural area leading to concern about the conservation of spring-fed rainforests, including Black Jungle.

A water allocation plan is currently being developed for the Howard East region by the Department of Land Resource Management. This region extends east to the Adelaide River and includes the Adelaide River Conservation Reserves. The water allocation plan will guide management of the groundwater resources, including that of the Koolpinyah Dolomite aquifer, the main aquifer within the region. It will consider stakeholder water uses and the needs of the environment, and ensure appropriate water sharing arrangements are made.

Maintenance of groundwater-dependent ecosystems, such as spring-fed monsoon rainforests, is a key goal of the water allocation plan. Department of Land and Resource Management staff currently monitor a number of bores within the water planning area, as well as permanent floristic sites within Black Jungle. Data from these sites can be used to help determine the impact of water extraction levels on rainforest health.

#### **4.2.5 Saltwater Intrusion**

Saltwater intrusion is occurring along natural and man-made levees at Fogg and Harrison Dams and Melacca Swamp. It has the potential to destroy both crocodile breeding grounds and magpie goose habitat, and reduce wetland diversity by replacing freshwater species with salt tolerant species. Levees constructed for irrigation at Harrison Dam are deteriorating and accelerating the drainage of freshwater from the floodplain after the Wet season. Saltwater intrusion is likely to increase as climate change begins to take effect and sea level rises.

#### **4.2.6 Aquatic Vegetation**

Due to nutrient run-off the open water areas of Fogg and Harrison Dams are threatened by vegetation growth, which affects waterbird habitat and tourist features. Leppitt (2010) suggests that the entire surface of Fogg Dam is likely to become covered in aquatic vegetation in the near future. Sections of Fogg Dam have been dredged to remove aquatic vegetation and sediment in recent years. However the depth of any pond dredging is limited as anaerobic mangrove swamp soils exist only several feet below the soil surface and cannot be disturbed.

Leppitt and Franklin (2012) suggest that the optimal strategy to maintain open water habitat will require a combination of disturbances and an adaptive management regime. The Friends of Fogg Dam have also raised the idea of constructing ponds of various depths on the downstream side of the dam wall to create a range of different habitats. Reinstatement of a sluice gate underneath the causeway at Fogg Dam has been identified as a priority to help drain the upper part of the dam.

#### **4.2.7 Intensification of Surrounding Land Use**

Three of the four Reserves are located in the rural urban fringe of Darwin. Intensification of land use, associated with the growth of the rural area, is occurring, and causing additional management issues for the Reserves. Land clearing in surrounding areas is also contributing to

silting up of Fogg and Harrison Dams and Lambell's Lagoon, and there is also high inflow of nutrients into these wetland areas as a result of runoff from surrounding properties.



*The open water areas of Fogg and Harrison Dams are threatened by growth of aquatic vegetation. Sections of Fogg Dam have been cleared to remove aquatic vegetation*

**Objectives:**

- Traditional Owners are actively involved in cultural heritage management.
- Wetland and rainforest habitats and the associated diversity and aggregations of fauna and flora are retained and enhanced.
- Cultural and historical sites are protected and interpretive signage added where appropriate.
- Indigenous knowledge is incorporated into Reserve management and promoted in operational programs.
- Indigenous traditional and intellectual property is protected.

**Management Directions:**

**Biodiversity**

- Park Rangers will record species of interest seen in the Reserves on a database to increase biodiversity data for the Park.
- Community and research groups will be encouraged to participate in a waterbird monitoring program at Fogg Dam to help determine the success of vegetation and water management.
- Management of fire, weeds and feral animals will be a priority to help protect rainforest integrity.
- Periodic surveys of Darwin palm, *Ptychosperma macarthurii*, and the orchid, *Luisia teretifolia*, in Black Jungle will be supported.

**Sites of Significance for Aboriginal people**

- The Parks and Wildlife Commission will respect Traditional Owners' advice relating to cultural matters and customary obligations, including ceremonial activity and their need to access country.
- For matters that potentially affect any sacred sites, the partners will consult with senior Traditional Owners responsible for the sites. Traditional Owners will develop guidelines to clarify issues around public access to culturally sensitive areas and associated knowledge.
- Designation of culturally sensitive areas as Special Protection Zones will be considered as required.
- Adequate public notice will be given where public access is affected by ceremonial activity.

**Indigenous Knowledge**

- Indigenous knowledge and land management practices will be recorded and promoted, and incorporated into operational programs where appropriate.
- On-country activities and local cross-cultural education will be supported to promote the transfer of knowledge and skills between Traditional Owners, younger generations and Rangers.
- Traditional Owners will retain ownership and control of their intellectual property rights consistent with policy and guidelines agreed between the partners and the NLC.



### **Sustainable Harvest**

- Protocols and policy will be developed as needed, to ensure hunting and gathering is consistent with visitor safety and Reserve values.

### **Historical Values**

- The partners will develop a cultural heritage management plan for both Aboriginal and European cultural heritage management in the Reserves. Advice will be sought from NT Heritage Officers regarding the most appropriate protection and conservation works. Any cultural heritage management plan will consider significance to Traditional Owners.

### **Weeds**

- A weed action plan will be developed and implemented each year. The priority weeds for floodplain areas of the Reserves are mimosa, olive hymenachne, and para grass, and those for woodland areas are snake weed, gamba and mission grasses. These species will be managed on a catchment basis within the Reserves and as per the annual weeds program.
- The priority areas for weeds control will be around visitor nodes, and along main roads and tracks within the Reserves.
- There will be ongoing surveillance of Fogg Dam for re-invasion of water hyacinth, and more broadly across the Reserve for new infestations of existing or new weed species.
- Weed location data will be collected and mapped using GIS to monitor weed distribution and the effectiveness of weed control.
- Best practice quarantine procedures will be used to reduce the spread of weeds through the Reserves.

### **Feral Animals**

- A feral animal action plan will be developed and implemented each year with pigs, buffalo and stray cattle being the target species for management in all Reserves.
- Mustering and targeted shooting of feral animals will occur in cooperation with neighbours.
- Fences within the Reserves will be maintained through annual and periodic programs and replaced over time.
- Replacement of the boundary fence between Melacca Swamp and Koolpinyah Station is a high priority and external funds may be sought.
- Recreational hunting to control pigs will continue to occur in the Reserves.
- Parks staff will liaise with relevant agencies and support efforts to monitor environmental impacts of Siamese fighting fish, and address them if necessary.

### **Fire**

- A fire management action plan will be developed and implemented with the priority of management being protection of (1) life, (2) infrastructure and (3) maintenance of biodiversity values.
- Strategic firebreaks will be maintained and fire fuel loads managed in all Reserves.
- Indigenous knowledge and skills will be incorporated into fire management programs as appropriate.

### **Groundwater Extraction**

- Parks staff will provide input into the development of the Howard East Water Allocation Plan.
- Ongoing monitoring of rainforest plots and groundwater in the Reserves by the Department of Land Resource Management will be supported.

### **Saltwater Intrusion**

- Existing levees at Fogg and Harrison Dams and Melacca Swamp will be maintained to reduce the occurrence of saltwater intrusion.

### **Removal of Aquatic Vegetation**

- Removal of aquatic vegetation to maintain waterbird habitat at Fogg Dam will be considered, taking into account likely effectiveness, environmental impact, cost and the temporary reduction in tourism value.

## 5. Managing Operations

### 5.1 Management, Resources and Operations for Joint Management

Management operations are currently carried out by Park Rangers based near Fogg Dam Conservation Reserve with regular patrols to Harrison Dam and Black Jungle/ Lambell's Lagoon Conservation Reserves and Melacca Swamp Conservation Area. At present, most funding to manage the Reserves is provided by Northern Territory Government to manage the Northern Territory's Park estate. Major works and ongoing programs are subject to Territory-wide Government priorities and public tenders under procurement directives.

The Reserves also earn income from an annual tender let for the harvest of saltwater crocodile eggs. This income is shared evenly between the Traditional Owners and the Reserves. The partners need to decide how these funds should be spent as part of budgetary planning, and need to ensure effective allocation of funding across Park management and infrastructure requirements. The partners will also look to diversifying funding sources for special and general projects that cannot be funded under the annual Park budget.

The joint management partners have an obligation to protect the natural and cultural values of the Reserves. Effective use of resources hinges on integrated operational planning. Annual fire, weed and feral animal control programs are based on protecting Reserve values, risk minimisation and long-term strategies. Co-ordination and integration of plans is essential to maximise resource use and effectiveness. Both partners have a role to play in planning and review of annual operational plans and management programs.

### 5.2 Permits

Permits issued under the *Territory Parks and Wildlife Conservation By-laws* are required for activities that involve special access, hunting, use of any part of the Reserves for commercial purposes or various other uncommon activities.

The Joint Management Committee will be responsible for developing practical guidelines for permits. The guidelines must consider the interests of stakeholders, the wider community and existing policy. Until agreed guidelines are developed by the joint management partners, the NLC and Parks and Wildlife Commission will consult with Traditional Owners on permit applications that request any access or activity that would not normally be allowed to visitors.

### 5.3 Regulating Activities

**Licences or sub-leases** – Such agreements may be entered into where a secure form of land tenure is needed, or for long-term security for commercial proponents. Any licence or sub-lease entered into by the Northern Territory Government in respect of the Reserves must be consistent with the terms of the relevant ILUA and must have the informed consent of Traditional Owners.

With the consent of affected Traditional Owners, the ILUA and this Plan together allow the partners to enter into benefit-sharing arrangements for commercial operations and developments within the Park.

**Development Proposals** – All development proposals will be considered by the partners. Any proposal must be consistent with any applicable laws, the appropriate ILUA and any other relevant legislation. They will be subject to assessment to ensure there will be no negative impact on reserved values and meet Parks and Wildlife Commission policies. Developments may also be subject to assessment under the relevant legislation such as the *Northern Territory Aboriginal Sacred Sites Act, Heritage Act, Environmental Assessment Act and Environmental Protection and Biodiversity Conservation Act 1999 (Cwlth)*.

A proposed service and road corridor is identified in the western portion of Black Jungle Conservation Reserve. Under the NT Planning Scheme the alignment of this corridor is fixed; however, advice from DLPE is that it is unlikely to be developed within the next ten years.

**Areas for community living** – Traditional Owners have expressed their interest in developing an area for community living near the Reserves to enable them to engage in business and cultural activities.

**Proposals for expansion of the Reserves** – Adjacent to Lambell’s Lagoon Conservation Reserve are Crown lands managed by Parks and Wildlife Commission that have yet to be officially declared as Section 12 parks under the *TPWC Act* (NT Portions 4419, part of 4732 and Sections 1605, 1730, 1731). These areas may be subject to Park declaration and this Plan will apply.

**Dealing with proposals not in the Plan** – Proposals not addressed in the Plan will be considered by the partners through the Joint Management Committee.

## 5.4 Mining and Extraction

Given the relatively small size of the Reserves, mining and extractive activities have the potential to damage their natural, cultural and tourism values. Northern Territory legislation allows for mining in parks and reserves, but requires the Minister for Mines to consider the views of the joint management partners prior to granting any mining interest. If a mining interest is granted, the Minister for Mines is obliged to consider conditions for the protection of the environment recommended by the partners.

Under the *Mineral Titles Act*, the entire areas of Melacca Swamp, Fogg and Harrison Dams, and Lambell’s Lagoon are identified as Reserved Land (RL1124 and RL365) and not used for mining purposes. The partners are keen to see that the existing mining reservations stay in place.

A gravel pit is located on the south-west boundary of Fogg Dam and has been used for the maintenance of roads within Fogg Dam. The pit is nearly exhausted and the partners wish that no further extraction take place. Options to open new gravel pits within the Reserve are limited and alternative sources of gravel will need to be found for any new major works.

## 5.5 Research, Survey and Monitoring

Sydney University has conducted valuable research and monitoring programs in the Reserves over several years. Long term research of crocodile nesting carried out by Wildlife Management International also continues at Melacca Swamp Conservation Area. Traditional Owners have knowledge of the Reserves that may contribute to research outcomes. It is important that Traditional Owners are consulted about, and invited to participate in, research, survey and monitoring projects, and where possible, employed in this work when economically viable.

Information about the Reserves values, environmental trends and the effectiveness of management actions assists decision-making. Data on visitor numbers, demographics, behaviour and satisfaction levels are crucial for tourism planning and visitor management.

**Objectives:**

- The Objectives and Management Directions in this Plan achieved with resources used effectively on agreed priorities.
- The Reserves' values are enhanced, and Traditional Owners and the wider community benefit from appropriate development and permitted activities.

**Management Directions:**

**Management, Resources and Operations for Joint Management**

- Operational programs will be developed annually based on the protection of key values, and include processes to monitor management effectiveness.
- The partners will explore alternative funding sources for special and general projects that cannot be funded under the annual budget.

**Permits, Development Proposals, Sub-leases, Expansion of the Reserves and Areas for Community Living**

- The Joint Management Committee will develop policies and guidelines for assessing permit applications that involve special access or activities. In the absence of these guidelines the NLC will consult with Traditional Owners over permit applications and advise the Parks and Wildlife Commission when applicable.
- Where proposed activities comply with the standard permit guidelines permits may be issued by the Parks and Wildlife Commission without consulting the Traditional Owners.
- The Parks and Wildlife Commission will consult with NLC if a permit proposal requests special access or activity outside the standard guidelines, may be in conflict with the wishes of Traditional owners, or may be part of a major commercial project.
- The potential impacts of any proposed activity or development will be considered in line with the Commercial Development Policy and assessed at a level commensurate with the scale of potential impact; they will also be consistent with the Commonwealth and Northern Territory legislation as appropriate.
- Proposals for living areas, sub-leases or expansion of the Reserves will be considered by the Joint Management Committee. The NLC will undertake Traditional Owner consultation. Living areas and sub-leases will be subject to environmental impact assessment, Departmental policies and locally developed guidelines as required.
- Potential sites for location of a community living area and/ or joint management shelter will be considered and constructed as external funds become available.
- This Plan will apply to NT Portions 4419, part of 4732 and Sections 1605, 1730, 1731, adjacent to Lambell's Lagoon Conservation Reserve, upon official declaration under the TPWC Act.

**Mining and Extraction**

- The partners will seek to retain the Reserved Lands (RL1124 and RL365) covering Melacca Swamp, Fogg and Harrison Dams, and Lambell's Lagoon. Extraction from the gravel pit located on the south-west boundary of Fogg Dam will be discontinued. Alternative gravel sources will need to be identified.

**Research, Survey and Monitoring**

- The partners will identify research, survey and monitoring priorities for the Reserves and encourage or engage other organisations to be involved.

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## 7. Appendices

### Appendix 1: Land parcels of Adelaide River Conservation Reserves

Site Name (area hectares)	NT Portion	Owner (tenure)	Acquisition	Declaration
Black Jungle/Lambell's Lagoon Conservation Reserve (4052 ha)	Sec 8 , Sec 1603	CLC (Freehold)	23/03/1986	Declared 19/01/11
Fogg Dam Conservation Reserve (1569 ha)	Sec 1554	CLC (SPL 552)	06/08/1982	Declared 07/11/2002 Re-declared 19/01/11
Fogg Dam extension (285 ha)	Sec 1596, Sec 1597	CLC (CLP 1496)	8/08/1994	Declared 19/01/11
Harrison Dam Conservation Reserve (3284 ha)	Sec 1574	CLC (Freehold)	31/01/1989	Declared 19/01/11
Melacca Swamp Conservation Area (2315 ha)	Sec 3, Sec 10	CLC (Freehold)	25/03/1986	Declared 19/01/11
Additional areas set aside for conservation	Sec 1605, Sec 1730, Sec 1731, NT Portion 4419 and southern portion of NT 4732 (Sec 1745 (A))	NTG (VC)		To be declared

CLC – Conservation Land Corporation; SPL –Special Purpose Lease; CLP – Crown Lease Perpetual; VC – Vacant Crown Land

### Appendix 2: Threatened Species

	Common name	Species name	NT status	EPBC Act
Plants	Darwin palm	<i>Ptychosperma macarthurii</i>	Endangered	Endangered
		<i>Luisia teretifolia</i>	Vulnerable	Not Listed
		<i>Cycas armstrongii</i>	Vulnerable	Not Listed
Birds	Yellow Chat (Alligator Rivers subspecies)	<i>Epthianura crocea tunneyi</i>	Endangered	Vulnerable
	Gouldian Finch	<i>Erythrura gouldiae</i>	Endangered	Endangered
	Australian Bustard	<i>Ardeotis australis</i>	Vulnerable	Not Listed
Reptiles	Floodplain Monitor	<i>Varanus panoptes</i>	Vulnerable	Not Listed
	Mertens' Water Monitor	<i>Varanus mertensi</i>	Vulnerable	Not Listed
Mammals	Northern Quoll	<i>Dasyurus hallucatus</i>	Critically Endangered	Endangered