

Boodjamulla (Lawn Hill) National Park and Resource Reserves Management Statement 2013

Park size:	Boodjamulla (Lawn Hill) National Park 282,000ha
	Lawn Hill (Arthur Creek) Resources Reserve 26,500ha
	Lawn Hill (Creek) Resources Reserve 160ha
	Lawn Hill (Gorge Mouth) Resources Reserve 680ha
	Lawn Hill (Gregory River Base) Resources Reserve 93.4ha
	Lawn Hill (Gregory) Resources Reserve 2,550ha
	Lawn Hill (Lilydale) Resources Reserve 2,550ha
	Lawn Hill (Littles Range) Resources Reserve 14,000ha
	Lawn Hill (Stockyard Creek) Resources Reserve 30,400ha
	Lawn Hill (Widdallion) Resources Reserve 19,400ha
Bioregion:	North-West Highlands Bioregion
QPWS region:	Central
Local government estate/area:	Mount Isa City Council Burke Shire Council
State electorate:	Mount Isa

Legislative framework

✓	<i>Aboriginal Cultural Heritage Act 2003</i>
✓	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
✓	<i>Land Protection (Pest and Stock Route Management) Act 2002</i>
✓	<i>Mineral Resources Act 1989 and the Mining and Quarrying Safety and Health Act 1999</i>
✓	<i>Nature Conservation Act 1992</i>
✓	<i>Queensland Heritage Act 1992</i>
✓	<i>Wild Rivers and Other Legislation Amendment Act 2007</i>

Plans and agreements

✓	Indigenous Land Use Agreement
✓	Boodjamulla National Park Main Gorge Cultural Heritage Management Plan 2009
✓	Riversleigh Management Strategy 2003
✓	World Heritage Convention
✓	Bonn Convention
✓	China–Australia Migratory Bird Agreement
✓	Japan–Australia Migratory Bird Agreement

Thematic strategies

✓	Level 2 Fire Management Strategy
✓	Level 2 Pest Management Strategy
✓	Riversleigh Interpretation Strategy 2011



Purple-crowned fairy-wren (Boodjamulla National Park emblem). Photo: NPRSR.

Vision

The Queensland Parks and Wildlife Service (QPWS)—in conjunction with the Waanyi people, the Traditional Owners of the area—aim to protect the unique scenic amenity, precious water sources, natural and cultural values of Boodjamulla (Lawn Hill) National Park and adjacent resources reserves.

The Riversleigh section of the Australian Fossil Mammal Sites World Heritage Area will continue to protect the fossils and artefacts of our ancient past.

The park will continue to have a high regional profile in western Queensland's tourism market.

The Waanyi people welcome to country those who respect and take care of the land and waters as well as the plants and animals which live there, and who wish to learn about the people and culture of the Waanyi nation.

Conservation purpose

The first 12,000ha of Boodjamulla (Lawn Hill) National Park was gazetted to protect Lawn Hill Gorge in December 1984. In March 1992 the park was extended to include Riversleigh World Heritage Area, which was part of the neighbouring Riversleigh Station.

Protected areas in this management strategy include Boodjamulla (Lawn Hill) National Park, Lawn Hill (Arthur Creek) Resources Reserve, Lawn Hill (Creek) Resources Reserve, Lawn Hill (Gorge Mouth) Resources Reserve, Lawn Hill (Gregory River Base) Resources Reserve, Lawn Hill (Gregory) Resources Reserve, Lawn Hill (Lilydale) Resources Reserve, Lawn Hill (Littles Range) Resources Reserve, Lawn Hill (Stockyard Creek) Resources Reserve, Lawn Hill (Widdallion) Resources Reserve. For simplicity the term Boodjamulla is a generic term for all of the above protected areas unless the national park or a resources reserve are specifically mentioned.

The protected areas of this statement are managed based on the management principles for national parks (*Nature Conservation Act 1992* (NCA), Section 17) and resources reserves (NCA, Section 21). The national park area will be managed for the permanent preservation of the area's natural condition and the protection of cultural resources and values. The national parks cultural and natural resources are to be presented to the public and use of the area is to be nature-based and ecologically sustainable.

The management principles of resources reserves enable the recognition and protection of the areas cultural and natural resources while providing for the controlled use of those resources. A resources reserve is to be maintained predominantly in its natural condition.

The Riversleigh site was inscribed on the World Heritage List in 1994 along with Naracoorte as part of the Australian Fossil Mammal Site (Riversleigh/Naracoorte) World Heritage Area. This international recognition was based on the value of these areas in helping understanding the evolution of mammals over 20 million years (Criterion viii) and helping understanding how environments, plants and animals have evolved at the sites and how they continue to change over time (Criterion ix).

Protecting and presenting the park's values

Landscape

Boodjamulla lies on the ancient sandstone of the Constance Range, between the Barkly Tablelands to the south-west and the black soils of the Gulf Savanna Plains to the east. Lawn Hill Creek and the Gregory and O'Shannasy rivers flow all year round, providing a stark contrast to the dry, parched landscape during the dry season.

Scenic amenity

Lawn Hill Gorge provides a great visual contrast between red rocks, green vegetation and clear water. The escarpments along parts of the Constance Range and numerous hidden gorges and springs are spectacular. Large flooding events and broadscale fire affect the aesthetics in a temporal manner.

Geology

The geology in Boodjamulla is one of the most interesting of Queensland's protected areas. The dominant rock parent materials include sandstone and limestone while the plains are black soils derived from residual clays. The brown, hard sandstone in the eastern part of Lawn Hill Gorge and along the Constance Range was once sand deposited in the basin of a shallow ancient sea about 1,560 million years ago. This was the Proterozoic era when little more than bacteria and stromatolites were alive on the planet.

About 530 million years ago (Cambrian) another shallow sea formed and deposits of lime-rich sediments laid down the grey limestones seen in the upper parts of the Lawn Hill Gorge and west of Riversleigh. Sponges and trilobites (primitive marine animals with hard shells) accumulated to form these limestones. Fish had not yet evolved. These grey limestones, known as Thornton Limestone, now occur in upper parts of Lawn Hill Gorge and west of Riversleigh.

The main fossil bearing sediments are included within the Carl Creek Limestone. This is a group of sediments of variable origins, composition and textures, representing a period of deposition spanning from approximately 25 million years ago to 12 million years ago (Miocene).

The Constance Range is still being eroded westwards by the headwaters of streams that flow into the Gulf of Carpentaria, and the resultant gorges provide spectacular, cool havens through the fractured landscape. The lime-rich waters sometimes flow over harder material and deposit skins of lime, which over time form a porous rock made up of calcium carbonate. It is known as tufa and can create small delicate formations across the creeks and streams.

Boodjamulla provides representation of excellent examples of medium scale karst pinnacle development found within the Thornton Limestone. These are significant aesthetic landscapes and generally places of Waanyi cultural significance.

Water resources and catchment

A number of spring systems occur on the park. These can be divided into limestone springs and sandstone springs. The limestone springs in the O'Shannassy and the Gregory River have been impacted by cattle. The limestone springs of Louie, Lawn Hill and Colless creeks are regarded as being in good condition. The sandstone springs are located throughout the northern area of the park and vary considerably, in form and size, offering great diversity in their species composition.

In the northern areas semi-permanent and permanent rock holes are common. In the Thornton Limestone permanent spring-fed seeps and watercourses are widespread. Permanent spring-fed watercourses like the Gregory and O'Shannassy rivers and Lawn Hill Creek are uncommon in Australia's semi-arid tropics.

The Gregory River catchment was declared in 2007 under the *Wild River Act 2005* to preserve the natural values of this significant catchment that has almost all of its natural values intact. The Gregory Wild River Area features the Lower Gregory and Lawn Hill Floodplain Complex, the Bluebush Swamp and the Thornton Wetland Aggregation. The major tributaries traversing Boodjamulla (O'Shannassy River, Lawn Hill Creek, Elizabeth Creek, Musselbrook Creek and Widdallion Creek) all form part of the declaration.

Regional ecosystems

There are three endangered and seven of concern regional ecosystems on Boodjamulla (Table 1). The three regional ecosystems considered to be endangered are associated with the larger watercourses and springs.

Of particular conservation concern for the park are the riparian ecosystems associated with Lawn Hill Gorge, the perennial watercourses and springs. Many of these are too small to be interpreted adequately by regional ecosystem mapping. QPWS has a more detailed vegetation map which identifies most of these restricted ecosystems.

The main threatening process on the restricted regional ecosystems is from larger herbivores including cattle *Bos* spp., pigs *Sus scrofa* and horses *Equus caballus*. Pest plants tend to colonise those ecosystems prone to over-grazing and heavy disturbance.

Native plants and animals

Native animals

Boodjamulla provides habitat for a number of species that are of conservation significance. Due to the permanent water and ecosystem diversity there are also many disjunct and/or restricted populations. Many species are typical of the sandstone ecosystems of the Top End and Kimberly.

Species of conservation significance for Boodjamulla include:

- riparian dependent species like the purple-crown fairy-wren *Malurus coronatus* and the gulf snapping turtle *Elseya lavarackorum* which are locally common but very restricted by habitat requirement

- species which have generally declined across the tropical savanna (e.g. Carpentarian grasswren *Amytornis dorotheae*, northern naitail wallaby *Onychogalea unguifera*, common brushtailed possum *Trichosurus vulpecular* and Gouldian finch *Erythrura gouldiae*); and
- those species that have significantly declined locally due to cane toads, including water monitors and water rats.

The region also has numerous caves, particularly in the extensive limestone areas. While they are largely unsurveyed, they are known to support a number of significant species, and provide roosting and breeding sites for over 10 species of bats.

Seven bird and one reptile species that are listed in international agreements have been recorded from Boodjamulla (Table 3).

Native plants

Boodjamulla is dominated by low open eucalypt woodlands with a spinifex ground layer, on sandstone and limestone substrates. The park also contains monsoonal rainforests, seasonal wetlands, riparian communities, lancewood thickets and Mitchell grass plains.

A number of fire-sensitive obligate-seeder species also occur across Boodjamulla. The mature plants within these species are killed by fire but fire is required to facilitate germination. This group includes species of grevillea, jacksonia and acacia that provide habitat and floristic diversity and aesthetic value through their floral displays. Too frequent, intense and broadscale fires are the main threat to these species.

Queensland Herbarium records indicate 648 plant species have been collected from Boodjamulla. This includes the near threatened species *Alectryon tropicus* and *Brachychiton collinus* which grow in limestone monsoonal forests and scattered amongst the eucalypt woodlands on limestone; and *Cycas brunnea*, *Dodonaea oxyptera*, *Ipomoea antonschimdii* and *Trachymene glandulosa*, which grow in eucalypt savanna. The near threatened *Rhamphicarpa australiensis* and the vulnerable *Solanum cardviforme* grow in springs (Table 1). *Cycas brunnea* is restricted in known distribution to the junction of Colless and Lawn Hill creeks. *Trachymene glandulosa* and an undescribed *Phyllanthus* spp are poorly recorded and understood species within Boodjamulla.

The aquatic bed in the lower Lawn Hill Gorge is dominated by *Nymphaea aquatica* but *Ludwigia octovalvis*, *L. perennis*, *Nymphoides* sp., *Ottelia alismoides* and *Utricularia spalso* also grow there. Water ferns, *Ceratopteris cornuta* and *C. thalictroides* occur in the riverine wetland. The emergent fringing wetlands are dominated by sedges *Bulboschoenus fluviatilis*, *Cyperus cunninghamii*, *C. involucratus*, *C. javanicus*, *Eleocharis geniculata*, *Fimbristylis caespitosa* and *F. sieberiana*, rushes *Typha orientalis*, grasses *Vetiveria elongata* and *Imperata cylindrica*, and ferns *Lygodium microphyllum*, together with scrub-shrub and forested wetland dominated by *Pandanus aquaticus*, *Livistona* sp. and *Nauclea orientalis*. *Melaleuca* sp. occur in the palustrine wetland with *Ficus racemosa* higher up. In lower areas of the gorge system, levees widen and include *Eucalyptus camaldulensis*.

Aboriginal culture

The traditional name for the area is Boodjamulla or Rainbow Serpent country. It contains Aboriginal heritage places such as rock art and burial sites, archaeological sites, spiritual sites, story places, camping places and dreaming tracks. Lawn Hill Gorge is a sacred place, once used only for ceremonial and celebratory purposes. It has a history of cross-cultural conflict as well as cooperation.

Places of significant cultural value are often associated with the rivers, creeks, springs and wetlands throughout Boodjamulla. The perennial waters have allowed, for what appears to be, occupation by people over 40,000 years. The Amphitheatre, the Grotto, Murray Springs, Border Waterhole, Edith Springs, the Lower Gorge and Rainbow Dreaming are significant cultural places which require restrictions on access for cultural purposes. Waanyi people have requested that only men enter the Louie Creek site.

The Riversleigh area is home to extensive archaeological sites, of painted and engraved art sites, stone arrangements, stone artefact scatters and various burial sites, scarred trees and rock shelters. Some of these sites have been dated to many thousands of years old. Rock shelters and middens around the Gregory River have been dated at 37,000 and 13–15,000 years old.

The Waanyi peoples native title was determined on 14 July 2011 (including Boodjamulla) and placed on the National Native Title Register. An Indigenous Land Use Agreement (ILUA) is now in place between the Waanyi people and QPWS and a prescribed body corporate established to manage the native title interests.

The Waanyi Ministerial Advisory Committee has provided cultural heritage advice on management of Boodjamulla since 1995. This committee has been represented by elders of the respective family groups. The Waanyi people and QPWS have an agreed Cultural Heritage Management Plan for Lawn Hill Gorge 2009 which provides a risk management framework for managing cultural heritage on the park. A cultural keeping place to house and maintain non-perishable cultural artefacts belonging to the Waanyi people has been incorporated into the new QPWS workshop at Lawn Hill Gorge.

Shared-history culture

Shared history values of Boodjamulla include the pastoral, mining and recreational use of the area. It conserves numerous shared history areas including two stone walls, of unknown origin (possibly built by Mounted Police), on a ridge near Ixion Creek; the original Riversleigh Homestead including gravesites; Chinese market garden (late 1890s) which supplied vegetables to mines and properties; a cave at Colless Creek with remnant frying pans, horseshoe nails and bolts and graffiti; a mining area with remnant fuel drums and airstrip; a landing ground associated with World War II; Doherty's Mine where 44-gallon drums were used to create a chute down a hill to facilitate loading of a truck; Highland Plains Homestead which sits very close to the Queensland–Northern Territory border; the Grotto, which is a significant cultural place, that was also used by people from Riversleigh station during World War II for 'lights out' so the Japanese couldn't see their lights at night.

Tourism and visitor opportunities

Boodjamulla has outstanding presentation values and is considered a popular destination for people travelling through either Outback Queensland or along northern Australia's Savanna Way. Access to the park is along well maintained gravel roads that are seasonally restricted during the wet months. Visitors arrive in the cooler months when flooding hazards are minimal.

Present visit use is dominated by the grey nomad market arriving during the cooler months. Visitor numbers are estimated at approximately 40,000 visits per year, with an average of 150 people per day visiting in the high season. Lawn Hill Gorge is the primary visitor destination.

Riversleigh D site is the only part of the Riversleigh Australian Fossil Mammal Site open to the public.

Camping

The Lawn Hill Gorge campground has been designed for 20 sites and 80 people at any one time. An area is also available for a commercial operator within the campground, between the free and independent camping area and the day-use area. Alternative camping is provided at neighbouring property of Adel's Grove and they can accommodate larger camping groups to a capacity of 355 visitors per night.

Miyumba bush camp, in the Riversleigh Section of this park, is adjacent to the Gregory River, approximately 55km south-east of Lawn Hill Gorge campground and 3.5km south of Riversleigh D Site. This site has been designated for six sites and 20 people at any one time.

Day-use area

The Lawn Hill Gorge day-use area has been recently upgraded, in 2011 and 2012, to provide a clear focal point around the ranger's office and interpretation leading to Duwadarri Waterhole. The day-use area car park allows for 29 cars and two large buses at any one time. Adjacent to Duwadarri Waterhole, near the canoe launching facilities, are three sites for picnickers.

Walking

There are six walks in the Lawn Hill Gorge section of the park—Island Stack, Cascades, Wild Dog Dreaming, Constance Range, Indarri Falls and the Upper Gorge track.

There is a short walk at D Site within the Riversleigh Section of the Park. This walk's focus is interpretation of the D Site's fossil deposits of outstanding universal value.

Canoeing

Visitors canoe through the middle and upper sections of Lawn Hill Gorge, a distance of up to 6km return. Canoes can be hired from Adel's Grove within the day-use area. Private canoes are welcome.

Fishing

Fishing in the national park is not permitted with the exception of Gregory River in the Riversleigh section.

Culturally sensitive areas

Places of cultural significance (identified in the Aboriginal culture section) require approval from the native title holders prior to allowing access.

Commercial activities

Adels Grove remains a key partner in providing tourism opportunity and capacity in the Boodjamulla / Lawn Hill area.

Boodjamulla provides an important destination for tour companies traversing the Savanna Way and to a lesser degree the Overlander's Way.

The proposal to allow access to new opportunities within Boodjamulla will require endorsement from the Waanyi native title holders.

Scenic flights

Scenic flights over Lawn Hill Gorge will be managed to ensure visitor amenity associated with the gorge is not compromised.

Infrastructure

The ranger base is located between the head of Lawn Hill Gorge and the camping and day use area privacy issues for on park staff. Increased demand by visitors and management will increase impact and potential conflict of uses within this finite space.

Education and science

Education

Boodjamulla provides an opportunity for school visits from the north-west and gulf communities although the remoteness of the location limits its practical availability to specific post-graduate studies from universities.

QPWS run occasional campground talks and activities for visitors to provide information on Boodjamulla's outstanding natural and cultural values.

Science

The University of New South Wales has a role with their ongoing paleontological research within the Riversleigh section of the Australian Fossil Mammal Site World Heritage Area. The lead researchers (Professor Michael Archer, Dr Sue Hand and Henk Godthelp) developed the World Heritage nomination for Riversleigh and their ongoing research is part of further understanding and transmitting the sites universal values.

The archaeological significance of Boodjamulla provides significant research opportunities such as the peopling of Australia, the movement of people through varying climates and potentially relationships between people and fauna.

What appears to be a relatively new pattern of broadscale fire across Boodjamulla and its impacts on flora and fauna is growing in priority. Vegetation and fauna monitoring surveys are established across Boodjamulla and are focused primarily on better understanding the impacts of fire.

Regional ecosystem mapping is expected to be completed by the end of 2011 for this area. Species data is lacking and information on riparian or wetland condition and trend is poor, ecological and life history information on species is poor or absent and knowledge of refugia is poor.

Partnerships

The Waanyi Ministerial Advisory Committee was established 1995 under the Nature Conservation Act. The primary function is to advise the Minister concerning Aboriginal cultural matters relating to the management of Boodjamulla. Two representatives of the Waanyi Ministerial Advisory Committee are members of the Riversleigh Community and Scientific Advisory Committee.

The Riversleigh Community and Scientific Advisory Committee was established to address issues relating to the Riversleigh section of the Australian Fossil Mammal Site World Heritage Area. Membership includes representatives of the Waanyi, research, the Queensland Museum, tourism, neighbours and the Commonwealth and State government representatives.

Other key issues and responses

Pest management

Pest plants

The main pest plants of concern at Boodjamulla are those that threaten the structure and natural processes within the riparian and spring environments. At present these include the vines stinking passionfruit *Passiflora foetida*, butterfly pea *Clitoria ternatea* and rubbervine *Cryptostegia grandiflora*. Other species present include mesquite *Prosopis* spp., parkinsonia *Parkinsonia aculeata*, prickly acacia *Vachellia nilotica*, and senna *Senna siamea*, but these are all currently sparse.

Rubbervine is considered to be the most significant emerging threat on the park and resources reserves with an infestation recently found on the Gregory River. Lion's tail *Leonotis nepetifloia* is impacting on the riparian environments on the eastern extremity of the park. Senna and prickly acacia occur on the Lawn Hill (Creek) Resources Reserve and impact on the significant riparian values. Buffel Grass *Cenchrus ciliaris* is currently the most widespread pest plant species present, and is expanding and increasing in density. Buffel grass is primarily on the alluvial soils with evidence of it expanding within spinifex communities

Weed control should be prioritised on those species which impact on the structure and function of vegetation within the Lawn Hill Gorge area and then around sites of natural and cultural significance (i.e. springs).

Pest animals

The more commonly recorded pest animals include cat *Felis catus*, horse *Equus caballus*, pig *Sus scrofa*, water buffalo *Bubalus bubalis*, cattle *Bos taurus* and cane toad *Rhinella marina*.

Feral pigs are found in areas with reliable water. Particular concern is with the predation of turtle eggs within Lawn Hill Gorge and long neck turtles within Green Swamp. Management programs for control of feral pigs include aerial shooting and targeted baiting and trapping.

Straying domestic stock remains the dominant impact by exotic animals across Boodjamulla. Concentrations are found in the Musselbrook and Widdallion areas and along the Gregory and O'Shannasy rivers.

Cane toads had a significant impact when they spread through Boodjamulla. Water goannas and water rats, in particular, declined dramatically with no noticeable recovery since.

Cat numbers have increased dramatically in 2013 after not appearing to have changed in the previous 20 years. Buffalo occur on an incidental basis; however individuals can cause significant damage within wetlands.

Boundary fencing is being established and a pest animal program is focused on these areas in an effort to minimise impacts from cattle, horses and pigs.

Fire management

Boodjamulla experienced extensive late dry season fires in 1997, 2001, 2006 and 2011. Broad-scale and or high intensity fires impact on the scenic, natural and cultural values of Boodjamulla. Over the last 20 years a five-year cycle of large fire events has proven difficult to stop and proves one of the most significant management challenges. The spinifex and grassy dominated vegetation results in a very fire-prone landscape.

The variability in rainfall in a semi-arid environment also greatly influences the area's proneness to fire. Fire is also a critical element to regeneration of vegetation and providing suitable resources and habitat for fauna

Restricted access areas

The Waanyi Ministerial Advisory Committee has expressed concerns regarding inappropriate access to culturally significant sites on Boodjamulla. They have identified sites that they would prefer to see closed to public access.

Other issues

1. Adel's Grove operates an airstrip on a commercial basis but approximately 70 per cent of the airstrip is located on Lawn Hill (Creek) Resources Reserve. The airstrip predates gazettal of the protected area.
2. The publicly used and maintained road from Adels Grove to Lawn Hill Gorge is not gazetted where it traverses the Lawn Hill (Creek) Resources Reserve. The road predates gazettal of the protected area.
3. Access to D Site at Riversleigh from the public road is across Riversleigh Station.
4. Mineral exploration permits are issued and administered by the Department of Natural Resources and Mines on the resources reserves which have very significant natural and cultural values. QPWS aims to include the nine resources reserves in Boodjamulla (Lawn Hill) National Park as they become available for dedication.
5. Lawn Hill Station has a bore and dam within the Lawn Hill (Widdallion) Resources Reserve.

Management directions

Desired outcomes	Actions and guidelines
<p>Landscape</p> <p>Landscape values are protected and changes in the landscape are managed.</p> <p>The health and integrity of watercourses, perennial springs, groundwater and catchments are maintained.</p>	<p>A1. Minimise the scale and visual impact of public utilities on the landscape.</p> <p>A2. Assist in the identification of the full extent of the Riversleigh fossil field and support ongoing excavation as part of the research process.</p> <p>A3. Continue to develop a GIS data layer on the locations of all known springs and important water bodies.</p> <p>A4. Continue to undertake management actions to protect and maintain the integrity of spring outflow areas as a priority.</p> <p>A5. Investigate and plan the relocation of management infrastructure from within the gorge.</p>
<p>Native plants and animals</p> <p>Manage the outstanding natural and cultural values by maintaining the integrity of waters and managing for species and ecosystems of conservation significance.</p>	<p>A6. Focus management actions on species and ecosystems of limited distribution and currently threatened by pests and fire.</p>
<p>Aboriginal culture</p> <p>Collaborative arrangements enable Waanyi aspirations to care for their country and to be involved in the protection and presentation of its values.</p>	<p>A7. Consult with the prescribed body corporate for the Waanyi people to ensure native title and cultural heritage interests are protected.</p> <p>A8. Maintain and potentially further strengthen collaborative arrangements with the Waanyi through:</p> <ul style="list-style-type: none"> • working with an Waanyi advisory body to inform QPWS on culturally appropriate management and decision making on the protected areas • supporting the investigation of possible commercial tourism, employment and business opportunities for Waanyi people • supporting the recording of cultural values in a form agreeable to the Waanyi • providing opportunities for cultural interpretation (on and off park) • providing a safe place in the QPWS workshop for artefacts stored on behalf of the Waanyi; and • developing protocols on access to significant cultural places.

Desired outcomes	Actions and guidelines
<p>Tourism and visitor opportunities</p> <p>Maintain a range of recreational settings across the park to provide a diversity of recreational opportunities.</p> <p>Visitors to Boodjamulla understand it is a place of outstanding natural and cultural heritage including the world heritage values of Riversleigh.</p>	<p>A9. Finalise projects to upgrade interpretation within Lawn Hill Gorge and Riversleigh D Site.</p> <p>A10. Promote the world heritage values of the Riversleigh fossil site.</p> <p>A11. Provide recreation opportunities for visitors on Boodjamulla by:</p> <ul style="list-style-type: none"> • maintaining Lawn Hill Gorge as the primary visitor site for nature-based activities at a landscape classification system setting of 7 • presenting the Riversleigh World Heritage Site through a short walk and interpretation at D Site • investigate specialist tour opportunities away from the managed sites ; • restrict scenic flights above Lawn Hill Gorge and other significant natural and cultural places; and • nurture partnerships with local Government and the tourism industry to ensure managed development of access and marketing for the area as a remote experience. <p>A12. Encourage Aboriginal tourism opportunities across Boodjamulla for the Waanyi people.</p> <p>A13. Water-based recreation is restricted within the Lower Gorge.</p> <p>A14. Consider opportunities for battery powered punt tours on Lawn Hill Gorge and the Gregory River section.</p> <p>A15. Provide planned Ranger talks and activities within Lawn Hill Gorge during the periods of high visitation.</p>
<p>Education and science</p> <p>Research and monitoring programs provide a greater understanding of the park's values to inform future management decisions and the community.</p>	<p>A16. Encourage research associated with the World Heritage values of Riversleigh.</p> <p>A17. Encourage research of the values and resilience of the refugial environments, fire and pest management in a changing climate.</p> <p style="padding-left: 40px;">Encourage further Aboriginal archaeological research, particularly in the Elizabeth Creek, Musselbrook Creek and Gregory River areas.</p>
<p>Pest management</p> <p>The integrity of native plant and animal communities is maintained through strategic, sustained pest management.</p>	<p>A18. Ensure that pest management focuses on maintaining and restoring essential habitat with a priority on wetland environments.</p> <p>A19. Continue to fund and prioritise the construction of fencing to complete the boundary fence and ensure ongoing maintenance of existing fences to exclude domestic stock as much as possible.</p> <p>A20. Implement and review the Level 2 pest management strategy that includes:</p> <ul style="list-style-type: none"> • intensively managing Lawn Hill Gorge to maintain a high level of integrity • locally eradicating senna and prickly acacia from Boodjamulla • Prioritisation of pig management on Lawn Hill Gorge and Green Swamp • undertaking aerial culling for all larger pest animal species as resources allow responding rapidly to rubbervine incursions as they are found.
<p>Fire management</p> <p>The integrity of native plant and animal communities is maintained through strategic, sustained fire management.</p>	<p>A21. Implement and annually review the fire management strategy for Boodjamulla that includes:</p> <ul style="list-style-type: none"> • Use of an active annual planned burn program to develop a complex mosaic of fuel ages across Boodjamulla • total fire in any one year not exceeding 30 per cent of total area of Boodjamulla • prioritising fire exclusion on the wetland/riparian environment of Lawn Hill Gorge. <p>Continue to encourage and support neighbours in spinifex burning.</p>

Desired outcomes	Actions and guidelines
<p>Partnerships</p> <p>Consolidate the boundary of Boodjamulla (Lawn Hill) National Park.</p> <p>Continue to maintain neighbourly relationships and collaborative management across the landscape.</p>	<p>A22. Consider boundary realignment and gazettal of a section of the Lawn Hill (Creek) Resources Reserve to accommodate the Lawn Hill Gregory Road and the Adels Grove airstrip.</p> <p>A23. Investigate the reclassification of the resources reserves to national park.</p> <p>Maintain mutual relationship with Century Mine.</p>

Tables – Conservation values management

Table 1: Endangered and of concern regional ecosystem descriptions

Regional ecosystem number	Description	Biodiversity status
1.3.5	Mixed eucalypt open woodland on sandy alluvial terraces	Of concern
1.3.6	Ghost gum <i>Corymbia aparrerinja</i> often with <i>C. terminalis</i> , <i>Eucalyptus leucophylla</i> , <i>E. camaldulensis</i> , <i>Lysiphyllum cunninghamii</i> and/or <i>Acacia cambagei</i> woodland on sandy terraces. Significant sub-regional fauna habitat due to the number and size of trees with hollows	Of concern
1.3.7	Red gum <i>Eucalyptus camaldulensis</i> and <i>Livistona rigida</i> around permanent waterholes in major rivers fringing woodland on channels and levees with <i>Lophostemon grandiflorus</i> and <i>Melaleuca bracteata</i> and/or <i>Melaleuca dissitiflora</i> . Important seasonal water bird habitat; regional corridor for fauna	Endangered
1.3.8	Red gum <i>Eucalyptus camaldulensis</i> woodland on channels and levees (north)	Endangered
1.3.9	Perennial watercourses and associated alluvium. Includes the only perennial watercourses in arid and semi-arid Queensland. Habitat for threatened species including purple-crowned fairy-wren <i>Malurus coronatus</i>	Of concern
1.5.4	<i>Eucalyptus pruinosa</i> low open-woodland Cloncurry box <i>Eucalyptus leucophylla</i> low open woodland on red earths in valleys	Of concern
1.9.2	<i>Eucalyptus leucophylla</i> low open woodland on low rocky hills on tertiary limestones	Of concern

Table 2: Species of conservation significance

Scientific name	Common name	Nature Conservation Act 1992 status	Environment Protection and Biodiversity Conservation Act 1999 status	Back on Track status
Plants				
<i>Cycas brunnea</i>	-	Near threatened	-	-
<i>Dichanthium setosum</i>	-	Near threatened	Vulnerable	-
<i>Fimbristylis distincta</i>	-	Near threatened	-	-
<i>Goodenia angustifolia</i>	-	Near threatened	-	-

Scientific name	Common name	Nature Conservation Act 1992 status	Environment Protection and Biodiversity Conservation Act 1999 status	Back on Track status
<i>Ipomoea antonschmidii</i>	-	Near threatened	-	-
<i>Ptilotus maconochiei</i>	-	Near threatened	-	-
<i>Rhamphicarpa australiensis</i>	-	Near threatened	-	-
<i>Solanum carduiforme</i>	-	Vulnerable	Vulnerable	-
Animals				
<i>Accipiter novaehollandiae</i>	grey goshawk	Near threatened	-	-
<i>Amytornis dorotheae</i>	Carpentarian grasswren	Near threatened	-	-
<i>Crocodylus porosus</i>	estuarine crocodile	Vulnerable	-	-
<i>Eseya lavarackorum</i>	Gulf snapping turtle	Vulnerable	Endangered	-
<i>Emydura subglobosa</i>	-	Near threatened	-	-
<i>Emydura subglobosa worrelli</i>	diamond head turtle	Near threatened	-	-
<i>Ephippiorhynchus asiaticus</i>	black-necked stork	Near threatened	-	-
<i>Erythrura gouldiae</i>	Gouldian finch	Endangered	Endangered	-
<i>Falco hypoleucos</i>	grey falcon	Near threatened	-	-
<i>Heteromunia pectoralis</i>	pictorella mannikin	Near threatened	-	-
<i>Hipposideros stenotis</i>	northern leaf-nosed bat	Vulnerable	-	-
<i>Lophoictinia isura</i>	square-tailed kite	Near threatened	-	-
<i>Malurus coronatus</i>	purple-crowned fairy-wren	Vulnerable	-	-
<i>Macroderma gigas</i>	ghost bat	Vulnerable	-	-
<i>Melithreptus gularis laetior</i>	golden-backed honeyeater	Near threatened	-	-
<i>Nyctophilus walkeri</i>	pygmy long-eared bat	Near threatened	-	-
<i>Petrogale purpureicollis</i>	purple-necked rock-wallaby	Vulnerable	-	-
<i>Pseudantechinus mimulus</i>	Carpentarian antechinus	Least concern	Vulnerable	-
<i>Rhinonictoris aurantia</i>	orange leaf-nosed bat	Vulnerable	-	-
<i>Trachymene glandulosa</i>	-	Vulnerable	-	-

Table 3: Species listed in international agreements

Scientific name	Common name	Bonn	CAMBA	JAMBA	ROKAMBA
<i>Acrocephalus australis</i>	Australian reed warbler	✓	-	-	-
<i>Ardea ibis</i>	cattle egret	-	✓	✓	-
<i>Ardea modesta</i>	eastern great egret	-	✓	✓	-
<i>Crocodylus porosus</i>	estuarine crocodile	✓	-	-	-
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	-	✓	-	-

Scientific name	Common name	Bonn	CAMBA	JAMBA	ROKAMBA
<i>Merops ornatus</i>	rainbow bee-eater	-	-	✓	-
<i>Pandion cristatus</i>	eastern osprey	✓	-	-	-
<i>Pelgadus falcinellus</i>	glossy ibis	✓	✓	-	-

Bonn–Bonn Convention

CAMBA – China–Australia Migratory Bird Agreement

JAMBA – Japan–Australia Migratory Bird Agreement

ROKAMBA – Republic of Korea–Australia Migratory Bird Agreement