IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 08 November 2017

Please note: this is an archived Conservation Outlook Assessment for Purnululu National Park. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Purnululu National Park

SITE INFORMATION

Country:
Australia
Inscribed in: 2003
Criteria:
(vii) (viii)

Site description:
The 239,723 ha Purnululu National Park is located in the State of Western Australia. It contains the deeply dissected Bungle Bungle Range composed of Devonian-age quartz sandstone eroded over a period of 20 million years into a series of beehive-shaped towers or cones, whose steeply sloping surfaces are distinctly marked by regular horizontal bands of dark-grey cyanobacterial crust (single-celled photosynthetic organisms). These outstanding examples of cone karst owe their existence and uniqueness to several interacting geological, biological, erosional and climatic phenomena. © UNESCO

SUMMARY

2017 Conservation Outlook

Good

Purnululu National Park is a solid example of a site inscribed for landscape and geological outstanding value, but with significant biological importance, both at a regional as well as international scale. Thanks to a low level of threat and good protection and management including the creation of more conservation lands around the property, all values appear to be stable and some are even improving, given that the site was damaged by grazing prior to inscription. While there is always the potential for a catastrophic event such as uncontrolled fire or invasion by alien species, risk management plans are in place although in this case the relatively low level of funding for park management would have to be raised. Low level of funding is a critical constraint to improved management. Land tenure issues remain to be resolved. However, establishment of the Purnululu World Heritage Advisory Committee represented an important step and it should help further improve local participation and the conservation and management of the natural and cultural values contained in the site.

Current state and trend of VALUES

Good
Trend: Stable

No decline in the geological features of the site or in the aesthetic values of its landscapes has been recorded and all these values continue to be well preserved.

Overall THREATS

Low Threat

Current threats are low thanks to good past and current management and low visitation of the property due to inaccessibility (with the Park closed during the wet season). The risks of catastrophic wildfire and alien plant or animal invasion,

compounded by climate change, are potential threats. However management provisions are in place, which will be strengthened when land tenure issues are resolved and an up-to-date management plan in place.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The site is well managed and protected by State and Commonwealth legislation and management planning documents. However, an evaluation will be needed after decisions concerning land tenure are made and the management plan revised. While the management continues to be effective in addressing key threats facing the site and in preserving its values, the fact that the revision of the management plan has not been completed after several years, raises some concerns. However, it is noted that the process is complex due to the complexity of the site and the required consultation.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Outstanding beautiful landscape of sculpted and banded sandstone**
  Criterion:(vii)

  Spectacularly incised landscape of sculptured rocks which contains superlative examples of beehive-shaped karst sandstone rising 250 metres above the surrounding semi-arid savannah grasslands. These dramatically sculptured structures, unrivalled in their scale, extent, grandeur and diversity of form anywhere in the world, undergo remarkable daily and seasonal variation in appearance, including striking colour transition following rain and with the positioning of the sun (World Heritage Committee, 2012).

- **Outstanding example of cone karst in sandstones**
  Criterion:(viii)

  Unique depositional processes and weathering have given the cone karst towers their spectacular black and orange banded appearance. No where else is the process of cone karst formation on sandstone so clearly demonstrated, including an exceptional degree of evidence of geomorphic processes of dissolution, weathering and erosion in an ancient, stable sedimentary landscape. The Bungle Bungle Ranges of the Park also display to an exceptional degree evidence of geomorphic processes of dissolution, weathering and erosion in the evolution of landforms under a savannah climatic regime within an ancient, stable sedimentary landscape. (World Heritage Committee, 2012).

Other important biodiversity values

► Mammals including some threatened species and others at the edge of their range

41 mammals recorded from the property, with records of the Endangered Northern Quoll (Dasyurus hallucatus) (Hill & Ward, 2010). Dingoes (Canis lupus ssp. dingo) (Vulnerable) common in the area. At least three Near Threatened species recorded: the Pale Field Rat (Rattus tunneyi), Western Chestnut Mouse (Pseudomys nanus) and Desert Mouse (Pseudomys desertor, which reaches its northern limit in Purnululu). Non-threatened mammals include the Rock Ringtail Possum (Petropseudes dahli), Ningbing Antechinus (Pseudantechinus ningbing) and at least four species of Macropod, the Northern Nail-tail Wallaby (Onychogalea unguifera), Common Walleroo (Macropus robustus), Agile Wallaby (M. agilis) and Short-eared Rock-wallaby (Petrogale brachyotis). The Large-footed Mouse-eared Bat Myotis adversus reaches the southernmost (inland) limit of its range (Woirnarski, 1992; CALM, 1995).

► Birds including some threatened species

149 species of birds including the Grey Falcon (Falco hypoleucos) (Vulnerable) and the previously Endangered (now listed as Near Threatened) Gouldian Finch (Erythrura gouldiae). The Australian Bustard (Ardeotis australis), previously believed threatened, is now classified as Least Concern, as is the Purple-crowned Fairy-wren (Malurus coronatus) All these are rare grassland species. Also the southern (inland) limit for Bar-breasted Honeyeater (Ramsayornis fasciatus). (Nomination, 2002; Woirnarski, 1992; CALM, 1995; Birdlife, 2012).

► Rich reptile fauna including some threatened species and others at the edge of their range

A rich reptile fauna of 81 species including the skink Lerista bunglebunglensis, said to be endemic to the region (Woirnarski, 1992). Conservation assessments not determined, but species recorded from the

property include many species of skinks including possibly the Endangered Slater’s Skink (Egernia slateri slateri) (although the specific identity of the specimens from this location has recently been questioned, but if so it is at its northern limit) and the nocturnal Western Soil Crevice Skink (Proablepharus reginae), said to be a relict species. Other large reptiles include the Kimberley Rock Monitor (Varanus glauerti), King's Goanna (V. kingorum), Spiny-tailed Monitor (V. acanthurus) Dumeril’s Monitor Lizard (V. dumerilii) and undescribed species of gecko Gehrya sp nov., skink Lerista sp nov. and turtle Chelodina sp nov. (Woinarski, 1992; CALM, 1995).

► Important number of frogs with restricted distribution

12 species of frogs recorded from the property, conservation status not checked. Copland's Rock Frog (Litoria coplandi) and Splendid Tree Frog (L. splendida) are both LC (Woinarski, 1992; CALM, 2006; Hero et al., 2004).

► Transitional vegetation and relict and endemic species

Vegetation between the northern tropical monsoonal savannah and inland arid desert biogeographical realms includes some 619 species of vascular plants. Its transitional location has made the Park a centre of endemism for spinifex grass Triodia spp., resulting in the highest density of spinifex species in Australia, including T. bunglensis, which is endemic to the Park. The southernmost penetration of monsoonal savanna species bring relict species, including the fern Taenitis pinnata, resurrection grass (Micraira spp.) and tall palms Livistona victoriae, all which grow in micrenvironments of the deeper valleys (Morton et al., 1995). 13 plant species are considered to be relict species. Several plant species exist in the Park which were previously not recorded in Western Australia or are of very limited occurrence (Figgs & Moseley, 1988; Nomination, 2002; Woinarski ,1992; Woinarski, 2012.; CALM, 1995; CALM, 2006).

Assessment information

Threats

Current Threats

Low Threat

Current threats are low thanks to good past and current management and low visitation of the property due to inaccessibility (with the Park closed during the wet season from November to March).

► Fire/ Fire Suppression

Low Threat
Inside site, scattered(5-15%)

One significant threat is fire, especially the potentially catastrophic wildfires of the late dry season. The Australian and Western Australian governments have put programmes in place to manage these threats. Purnululu Conservation Park and the Ord River Regeneration Reserve located adjacent to the Park allow for controlled burning to be undertaken to mitigate bushfires, which are a key threatening process to the massif. The fires can be, however, difficult to manage, even with a high level of resources (SOC, 2011; Periodic Report, 2011). A bushfire burnt through approximately 85.000 hectares of the national park in August 2016 (ABC New, 2016: http://www.abc.net.au/news/2016-08-19/bushfire-in-kimberleys-purnululu-national-park/7766898). Continuation of a prescribed burning program is necessary to reduce the extent and intensity of wildfires (IUCN Consultation, 2017).

► Livestock Farming / Grazing, Invasive Non-Native/ Alien Species

Very Low Threat
Inside site, localised(<5%)
Outside site

Grazing was an issue inside the Park until feral animals and livestock (some

25,000 cattle, 4,000 donkeys and several camels) were removed from the Park in the 1980-90's. Overgrazed areas are still under rehabilitation and it is possible that some stray stock or other feral animals could enter the Park. However addition of pastoral lands to the Purnululu Conservation Reserve with the expiry of pastoral leases (in 2015) is adding considerable buffer areas surrounding the property (SOC, 2011). As of 2017, feral cattle still represents an ongoing threat, but these are subject to regular control actions. In 2016, the following pest animals were culled in the Purnululu National Park and Ord River Regeneration Reserve: 526 cattle, 3 donkeys, 10 horses, 5 pigs, 98 camel (for a total of 642 animals). (ABC News, 2016: http://www.abc.net.au/news/2017-03-29/millions-of-dollars-worth-of-cattle-culled-in-the-kimberley/8390812) In 2017 244 animals (209 cattle, 14 horses, 8 camels, 12 pigs, 1 cat) were culled as part of annual aerial control program. As part of a new initiative in 2017 ground based culling will also be initiated prior to start of wet season in December (IUCN Consultation, 2017).

► Tourism/ visitors/ recreation

Low Threat
Inside site, localised(<5%)

Impacts on the special karst features that are vulnerable to damage from inappropriate or excessive use (Dingwall, 2003). The property is reported as receiving more than 26,000 visitors/year with a new safari camp being developed in 2011 (http://www.dec.wa.gov.au/content/view/6568/1560/). Visitor numbers from 2012 to 2016 averaged 24,659. In 2013 a Walk Trails Project was funded under the Australian Government Caring for Our Country program where trails were rerouted and created to reduce the risk of erosion and loss of vegetation caused by tourism pressure (IUCN Consultation, 2017).

► Invasive Non-Native/ Alien Species

Data Deficient
Inside site, widespread(15-50%)

Seventeen weed species (2.8% of the flora) were recorded from the Bungle Bungle area, several of which constitute substantial management problems (Woinarski 1992). The report expressed particular concern with the effects of feral animals and exotic plants on the Park's ecology and their relationship to rehabilitation of degraded lands. Weeding programs (including during the wet season) are required to reduce the spread of weeds and eradicate new

infestations (IUCN Consultation, 2017). Wet season weed program is ongoing in the Park as part of normal operations along with reduction of feral herbivores from ongoing culling operations.

▶ Invasive Non-Native/ Alien Species

Data Deficient
Inside site, extent of threat not known

The State Party “did not consider that cane toads posed a threat to the World Heritage values of the Park” (SOC, 2011). Since the last assessment, the presence of cane toads has been confirmed within the park has been confirmed and increased measures are required to address this threat (IUCN Consultation, 2017).
While invasive Cane Toads represent a threat to the site's biological values, steps are being taken to manage this problem in Western Australia (Department of Parks and Wildlife 2014). Despite this effort, cane toads continue to move westward across the Kimberley and it is now clear that this movement cannot be stopped using any of the methods currently available. Research will continue in the hope of discovering long-term effective cane toad management solutions, while ensuring satellite populations of toads do not establish elsewhere in the State (IUCN Consultation, 2017).

Potential Threats

Low Threat

The risks of catastrophic wildfire and alien plant or animal invasion, compounded by climate change, are potential threats. However management provisions are in place, which will be strengthened when land tenure issues are resolved and an up-to-date management plan in place.

▶ Temperature extremes

High Threat
Inside site, throughout(>50%)
Outside site

The region already experiences climatic extremes, but further extremes could affect the values of the site. Reduced rainfall, higher land temperatures and increased risk of extreme weather events such as flash flooding and cyclonic activity may cause changes in the abundance and distribution of

native flora and fauna populations or alter underlying geological and geomorphologic values (Australian National University, 2009). In 2015 CSIRO released a set of climate change projections based on NRM boundaries. These indicated that the Monsoonal north-west region will increase in average temperatures across all seasons and while changes in rainfall are unclear, extreme rainfall events are projected to be more intense but with fewer occurrences of tropical cyclones (CSIRO, 2015). Local conditions such as wind, erosion and cyclones will need to be monitored to gauge the effects of these processes, which are likely to increase due to climate change (IUCN Consultation, 2017).

► Water Pollution

Low Threat
Inside site
Outside site

It was noted that the existing park boundaries are not ideal, being mainly water courses rather than watershed boundaries which could potentially allow incursion of undesirable impacts from neighbouring areas in catchments upstream of the park, such as waste effluent from mining activities (IUCN, 2003; SoOUV, 2012).

► Invasive Non-Native/ Alien Species

High Threat
Inside site, extent of threat not known

New invasions will always be a risk to the landscape and biological values of the Park. Provision in the Management Plan to avoid new introductions and manage current problems is made. For example, cats are prohibited in the Park including in residential areas, and staff may keep dogs only under special permit (CALM, 1995).

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

Two Aboriginal groups (the Gidja and Jaru) have made native title claims over Purnululu National Park. Both claims are being assessed by the National Native Title Tribunal; however, such processes can take several years. In its Decision 35 COM 7B.9 the World Heritage Committee encouraged the State Party of Australia "to develop an interim management plan, in order to give due consideration to the property's indigenous cultural values while the native title case is ongoing, and to address traditional landowners' concerns, by considering potential stricter regulations on tourism access to culturally significant sites" (World Heritage Committee, 2011). The management plan for Purnululu National Park was supposed to be updated in 2017 which would have been undertaken in consultation with the native title claimant groups. An internal prioritisation process undertaken earlier this year identified the review of the management plan as a high priority (IUCN Consultation, 2017). As for the management structure, the Purnululu World Heritage Advisory Committee, which held its first meeting in 2015, includes members representing the two Aboriginal groups (IUCN Consultation, 2017).

► Legal framework

Highly Effective

The relevant legislation includes the Environment Protection Biodiversity Conservation Act 1999 (EPBC Act) which provides a legal framework to protect and manage nationally and internationally important heritage places, including World Heritage sites (http://www.environment.gov.au/epbc). Any new development proposal in the property will be subject to assessment and approval under the EPBC Act if an action is considered likely to have significant impacts on World Heritage values and other protected matters, such as threatened species. The property is protected under the National Park legislation. Relevant state legislation includes the Environment Protection Act 1986 (WA) which foresees environmental impact assessments of major developments which may affect World Heritage sites in Western Australia (IUCN Consultation, 2017).

► Enforcement

Mostly Effective

Enforcement of the relevant legislation is effective.

► Integration into regional and national planning systems

Highly Effective

There is excellent coordination between all bodies / levels involved in the management of the property" (Periodic Report, 2011).

► Management system

Mostly Effective

The Management Plan 1995-2005 (CALM, 1995) has not yet been revised, although consideration of its revision was noted already in 2011 when the complexity of the site's values and the legal and administrative requirements of an ongoing native title case were noted among factors that made the process complicated (SOC, 2011). As of 2017, no updated management plan has been released. As for the management structure, the Department of Wildlife, Biodiversity, Conservation and Attractions (DBCA) is the main state agency responsible for the management of the site. The Purnululu World Heritage Advisory Committee includes representatives of the two Aboriginal groups and the DBCA also employs park rangers from each of the two groups (IUCN Consultation, 2017).

► Management effectiveness

Highly Effective

Previous reports noted that the management system was fully effective (Periodic Report, 2011). While the management continues to be effective in addressing key threats facing the site and in preserving its values (IUCN Consultation, 2017), the fact that the revision of the management plan has not been completed yet raises some concerns.

► Implementation of Committee decisions and recommendations

Highly Effective

All decisions have been responded to.

► Boundaries

Mostly Effective

Purnululu National Park includes the full extent of the Bungle Bungle Range,

which is well-buffered by protected land on all sides including spinifex- and mulga-dominated sand plains within the Park to the north, south and east. In the west the dominant feature is that of the Osmond Ranges which lie within the adjoining Purnululu Conservation Park (PCP). These areas were considered sufficient to protect the World Heritage values of the Range with the recommendation that the PCP be incorporated into the Park, and that surrounding pastoral country should also be added to provide better buffering and boundary delimitation. It was noted that the existing park boundaries are not ideal, being mainly water courses rather than watershed boundaries. This could potentially allow incursion of undesirable impacts from neighbouring areas in catchments upstream of the park, such as waste effluent from mining activities. Since World Heritage listing, extensive areas of land have been added to reserved lands adjacent to the World Heritage property. This has resulted in the Park being completely surrounded by large areas of conservation land, which include the Purnululu Conservation Park and Ord River Regeneration Reserve. While there were no permanent inhabitants within the property at time of inscription, today there is seasonal occupation by traditional owners in three areas designated as special “Living Area Leases” (SoOUV, 2012).

► Sustainable finance

Data Deficient

“The Purnululu National Park World Heritage Area is not funded to the same level as some of Australia’s other World Heritage properties. This is because the Park’s geoheritage and aesthetic values are generally more resilient than biological values, and visitation – in this remote area of climatic extremes - is relatively low in worldwide terms” (SOC, 2011). Some funding comes from tourism with most from State and Federal funding (Periodic Report, 2011). Increased funding would allow greater investment in jobs and education. On 27 September 2017 the Australian Government announced funding of AUD $140,000 per annum for five years from July 2018 to provide the continuation of the World Heritage Executive Officer and Advisory Committee for Purnululu (IUCN Consultation, 2017).

► Staff training and development

Some Concern

A capacity development plan or programme is in place and partially implemented; some technical skills are being transferred to those managing the property locally but most of the technical work is carried out by external staff (Periodic Report, 2011). While training opportunities were available for all categories, training in research and monitoring, promotion and community outreach were left blank (Periodic Report, 2011). Ability to undertake training and development would benefit greatly from increased funding (Strickland-Munro, 2010). No up-to-date information on the current staff numbers is available.

► Sustainable use

Highly Effective

The use of the site for tourism and recreational purposes appears to be sustainable (IUCN Consultation, 2017).

► Education and interpretation programs

Mostly Effective

Education, information and interpretive facilities provided by the DBCA are adequate but would benefit from an upgrade (Periodic Report, 2011).

► Tourism and visitation management

Highly Effective

Tourism appears to be effectively managed; however, an increase in visitor monitoring programmes is necessary (IUCN Consultation, 2017).

► Monitoring

Mostly Effective

Monitoring by park staff was rated as average in 2011 (Periodic Report, 2011). Increased monitoring would be beneficial in order to address some threats more effectively, particularly those posed by invasive species (IUCN Consultation, 2017).

► Research

Mostly Effective

The Purnululu World Heritage Advisory Committee identifies research priorities which will contribute to the conservation of the property's OUV and defines the scientific basis of management principles (IUCN Consultation, 2017). Research activities undertaken at the site by universities and other research institutions appear to be limited.

Overall assessment of protection and management

Mostly Effective

The site is well managed and protected by State and Commonwealth legislation and management planning documents. However, an evaluation will be needed after decisions concerning land tenure are made and the management plan revised. While the management continues to be effective in addressing key threats facing the site and in preserving its values, the fact that the revision of the management plan has not been completed after several years, raises some concerns. However, it is noted that the process is complex due to the complexity of the site and the required consultation.

▶ Assessment of the effectiveness of protection and management in addressing threats outside the site

Mostly Effective

The principal issues come from outside the site, and the increase in conservation lands surrounding the property is very positive. Decisions on tenure issues and future management will be key.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Outstanding beautiful landscape of sculpted and banded sandstone

Good
Trend:Stable

Landscapes and their aesthetic values have been well preserved - no decline

of their features has been recorded in the Periodic Report (2011), SOC (2011) or any other documents. Outstanding aesthetic values of the site continue to be well preserved (IUCN Consultation, 2017).

▶ **Outstanding example of cone karst in sandstones**

Good

Trend:Stable

No decline in geological features of the site has been recorded in the Periodic Report (2011), SOC (2011) or any other documents. As of 2017, the geological values of the site continue to be well preserved (IUCN Consultation, 2017).

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**

Good

Trend: Stable

No decline in the geological features of the site or in the aesthetic values of its landscapes has been recorded and all these values continue to be well preserved.

▶ **Assessment of the current state and trend of other important biodiversity values**

Good

Trend: Stable

While better biodiversity monitoring is necessary, at a gross scale it appears that biodiversity values have not deteriorated. However, more information is required regarding current and potential impacts of different threats.

Additional information

Benefits

Understanding Benefits

► Wilderness and iconic features

Despite much of the visitation being conducted by helicopters and light aircraft which might destroy some of the wilderness value, vast areas of the Park is still wilderness accessible only by foot.

► History and tradition

The cultural values of the hunter-gatherer society among the aboriginal traditional owners of Purnululu are highly significant (Nomination, 2002). Whether hunting and gathering is still permitted within the Park is not clear, but sustainable use of medicinal and edible plants and animals could be a benefit if it were adequately managed.

► Outdoor recreation and tourism

Tourism is moderately increasing with over 26,000 visitors/year with a new safari camp being developed in 2011, which will provide jobs (http://www.dec.wa.gov.au/content/view/6568/1560/).

► Access to drinking water

Non-commercial water use is permitted by the staff and visitors

► Importance for research

Site is important for building knowledge and disseminating information at a local and non-local scale, although currently this is relatively minor.

Summary of benefits

Purnululu National Park benefits are principally the conservation of a stunning landscape with high biodiversity, geological and cultural values. There are some monetary benefits from tourism and provision of jobs for maintaining the site, although benefits for local (Indigenous) people are largely intangible and

non-pecuniary (e.g. transmission of cultural knowledge).

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	WA Dept of Environment and Conservation		Management Project - Engaging with the community and scientific experts, Purnululu WHA. http://www.landmanager.org.au/management-project-engaging-community-and-scientific-experts-purnululu-wha
2	Macquarie University, CALM, Australian Geographic		Fire and Wildlife in Purnululu (Bungle Bungle) National Park by Thalie Partridge (http://www.landmanager.org.au/land_manager/downloads/Fire_Wildlife_in_PurnululuNP_TPartridge.pdf)
3	WA Dept of Environment and Conservation Biodiversity Conservation Fund		Enhancing threatened gouldian finch food resources and grass carbon storage The endangered Gouldian finch (Erythrura gouldiae) is threatened by frequent, extensive, high intensity fire regimes in northern Australia. Perennial grass seed limitation results in wet season seed famine and is thought to limit survival of finches in frequently burnt savannas. This project seeks to identify best on-ground burning actions for protection of grass seed resources in known Gouldian finch feeding areas in the East Kimberley region. This will have added benefits for carbon storage within vegetation. (Not in Purnululu but of relevance to biological values of property).

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