IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 15 June 2014

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

2014 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, particularly in terms of achieving socio-cultural objectives regarding community involvement and benefit. Land tenure issues still need to be resolved but a joint management committee should continue the good work as well as improve local participation and the conservation and management of the 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 in the Periodic Report (2011), SOC (2011) or any other documents.

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. Questions concerning the boundaries of the property and whether it could be enlarged to encompass greater wilderness areas have been raised. Increased funding would improve monitoring, research, jobs for the local community, cultural heritage management and benefits for Indigenous communities.

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 (SoOUV, 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 (SoOUV, 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

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).

► Identity/ Social Cohesion/ Changes in local population and community

Low Threat

A legal process is underway to determine native title over the Park, which is a lengthy process, and which has management implications. Until then managers are requested to consult with all groups who claim traditional cultural affiliation with the Park concerning management issues (SOC, 2011; SP, in litt.). Current situation of unresolved land tenure poses a low threat to natural values of the site. However it poses a high threat to cultural values and has a significant effect on joint management provisions (Strickland-Munro).

► Livestock Farming / Grazing

Very Low Threat
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).

► Tourism/ visitors/ recreation

Low Threat
Inside site

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/). Most recent visitor data reports 24,602 people visited the Park in 2011 (DEC, 2012). The soils and vegetation of the Purnululu National Park World Heritage area are extremely fragile and there is evidence that vegetation loss and soil erosion and compaction are occurring (DEC, 2012). The re-routing of existing paths and construction of boardwalks will significantly reduce the impact of visitors on the Purnululu National Park World Heritage area.

► Invasive Non-Native/ Alien Species

Data Deficient
Inside site

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. However the last survey of invasive plant species is too outdated to make a conclusion.

► Invasive Non-Native/ Alien Species

Data Deficient
Inside site

While invasive Cane Toads impact on biological values, steps are being taken to manage this problem in Western Australia (WA, 2009). The State Party “did not consider that cane toads posed a threat to the World Heritage values of the Park” (SOC, 2011). To fully understand the issue information on whether Cane Toads are in the Park, and whether they are having any impact on biological values is needed.

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 changes

Data Deficient

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).

▶ 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

New invasions, whether they be Cane Toads (if they have not already arrived to the Park) or other species of plants and animals 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 only keep dogs only under special permit (CALM, 1995).

Protection and management

Assessing Protection and Management

▶ **Management effectiveness**
Highly Effective

State Party reports that the management system is fully effective with an annual work plan of which most or all activities are being implemented and monitored. The low level of visitation is carefully managed to have relatively low aesthetic and other impacts (Periodic Report, 2011).

▶ **Implementation of Committee decisions and recommendations**
Highly Effective

All decisions have been responded to.

▶ **Legal framework and enforcement**
Highly Effective

Property under National Park legislation, with ranger staff presence during the dry season. The issue of impacts from outside the reserved area is managed by the Environment Protection and Biodiversity Conservation Act 1999, which addresses any potential impact to the site’s values (SoOUV, 2012).

▶ **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).

▶ **Relationships with local people**
Serious Concern

Legal land tenure case is not yet resolved (SOC, 2011). Joint management is

undertaken through a Deed of Agreement between the Western Australian Minister for the Environment and Heritage and the Purnululu Aboriginal Corporation (PAC), signed in 2002 which created the Purnululu Council, but which was disbanded in 2007. In its place there is to be a new World Heritage Advisory Committee which will comprise Indigenous and broader community interests. Its functions are to provide advice to Western Australian and Commonwealth ministers; and to participate in the implementation of the management plan (SOC, 2011). The Periodic Report (2011) noted cooperation with local communities/ residents as good, and indigenous peoples as fair. Strickland-Munro (2010) reported little contact with indigenous communities and the Park, especially due to lack of transport. Indigenous involvement in Purnululu's management is complicated by two opposing claims of traditional ownership by different indigenous groups. Both the Djaru and Kija
groups claim traditional ownership of lands encompassing Purnululu, signifying historical
links to the country and the right to speak for an area, based on traditional laws and customs
(Doohan, 2008). Conflicting requirements for consultation with indigenous people imposed by the State (Kija only) and Federal governments (requires both Kija and Djaru involvement) pose as the
second complication. A third complication arises in the fact that current joint management arrangements do not accurately represent all Kija people claiming traditional ownership (Strickland-Munro, 2010).
If land tenure (and therefore joint management) is not addressed in the short term, it is likely to become a major constraint. DEC continues to work towards the establishment of an advisory committee, with representation from both Kidja and Djaru, to ensure all relevant traditional owner groups are represented on the committee. One of the desired outcomes of this committee will be to gain advocacy for the appropriate recognition and management and World Heritage inscription for the cultural values of the property (Confidential consultation, 2013).

► Management system

Mostly Effective

The Management Plan 1995-2005 (CALM, 1995) has not yet been revised due to "a number of factors: the complexity of the Park's values, the Park's

geographic remoteness (3200 km from Western Australia's capital city, Perth, the location of DEC's head office) and the legal and administrative requirements of an ongoing native title case" (SOC, 2011). The Management Plan also encompasses the conservation park (Periodic Report, 2011). The new management plan will be submitted to the World Heritage Centre when it is complete. A revision of the management plan is a critical need as improved joint management and community relationships are dependent on it.

► 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". Land tenure issues between the Indigenous community (Native Title claims) and the State are in the process of being determined (SoOUV, 2012). It has been suggested that a much larger area be included in the World Heritage property in order to incorporate cultural as well as more natural values (Figgis & Mosely, 1988; confidential comment). No proposal as yet has been included in the Australian tentative list.

► Sustainable finance

Mostly Effective

“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. Much greater funding is needed to support improved relationships with local communities. Ongoing funding contributions from the Commonwealth and State Governments for a full-time World Heritage Officer to support the day-to–day management of the World Heritage property, including the establishment and executive support for the World Heritage advisory committee, and the development and implementation of communication and education strategies, is vital to the ongoing protection and management of the site (Confidential consultation, 2012).

► 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). Retaining adequate staffing levels to provide on-ground support and implementation of management actions has been a challenge due to the remote location of the property (Confidential consultation, 2012).

► Sustainable use

Data Deficient

No reporting on whether there is any sustainable use of the site by the seasonal occupation by traditional owners in three areas designated as

special “Living Area Leases” (SoOUV, 2012).

▶ Education and interpretation programs

Mostly Effective

Education, information and interpretive facilities provided by the Western Australian Department of Environment and Conservation (DEC) are adequate but would benefit from an upgrade (Periodic Report, 2011). Environmental education currently does not operate in Purnululu although could if in the future time and funding permit (Strickland-Munro, 2010).

▶ Tourism and interpretation

Highly Effective

Tourism reported as good (Periodic Report, 2011). Park information materials are good (CALM, 2006).

▶ Monitoring

Mostly Effective

Monitoring by park staff was rated as average although monitoring by NGOs and indigenous people rated as poor, with no note of any monitoring by local communities and authorities, researchers or industry. Monitoring for key result areas such as fire, visitor numbers and visitor satisfaction is ongoing (Periodic Report, 2011).

▶ Research

Data Deficient

There is a small amount of research, but it is not planned (Periodic Report, 2011).

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. Questions concerning the boundaries of the

property and whether it could be enlarged to encompass greater wilderness areas have been raised. Increased funding would improve monitoring, research, jobs for the local community, cultural heritage management and benefits for Indigenous communities.

▶ **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 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.

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).

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 in the Periodic Report (2011), SOC (2011) or any other documents.

▶ **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, and in some cases may even have improved.

Additional information

Key conservation issues

▶ Tenure

Local

Tenure issues need to be resolved. Within Purnululu there are overlapping native title claims meaning there are regular disputes over who can speak for country. Determining native title is critical to retaining traditional ways (Periodic Report, 2011). This way an updated management plan will be able to be agreed upon and implemented by all concerned parties.

▶ Fire management

Local

The management of fire is a major issue over the entire Kimberley region and catastrophic fire is a major potential threat to the property. Despite planned burning activities, deliberate illegal lightings and lightening strikes can lead to large, hot, and usually uncontrollable, fires late in the dry season (Periodic Report, 2011).

▶ Invasive species

Local

Invasive species, including some already present in the property which need management as well as potential introductions, need to be carefully managed through the management plan.

▶ **Grazing management**

Local

Currently grazing is not an issue within the property but grazing in areas outside need to be addressed through the management plan.

Benefits

Understanding Benefits

▶ **Sacred natural sites or landscapes**

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.

▶ **Is the protected area valued for its nature conservation?**

Conservation of international and national geological and biological values.

▶ **Does management of the site provide jobs (e.g. for managers or rangers)?**

There seem to be very few people directly employed by the Park (<10, nomination 2002) including rangers, visitor centre mangers and maintenance workers. However the Park creates jobs in the tourism sector, particularly through helicopter and guided visits.

▶ **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

№	Organization/ individuals	Project duration	Brief description of Active Projects
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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