Wadi Rum Protected Area

2020 Conservation Outlook Assessment

SITE INFORMATION
Country: Jordan
Inscribed in: 2011
Criteria: (iii) (v) (vii)

The 74,000-hectare property, inscribed as a mixed natural and cultural site, is situated in southern Jordan, near the border with Saudi Arabia. It features a varied desert landscape consisting of a range of narrow gorges, natural arches, towering cliffs, ramps, massive landslides and caverns. Petroglyphs, inscriptions and archaeological remains in the site testify to 12,000 years of human occupation and interaction with the natural environment. The combination of 25,000 rock carvings with 20,000 inscriptions trace the evolution of human thought and the early development of the alphabet. The site illustrates the evolution of pastoral, agricultural and urban activity in the region. © UNESCO

SUMMARY

Good with some concerns

2020 Conservation Outlook
Finalised on 02 Dec 2020

The current state of conservation of Wadi Rum’s World Heritage scenic values is considered good. However, there are concerns over sustainable visitor management in the longer term, including the management of illegal camps, off-road activities, increased infrastructure to support a future growing tourism industry, and waste management from tourism and local communities, which need to be addressed. The newly revised Integrated Management Plan for 2019-2023 and additional regulations provide the framework to further improve the protection and management of the property, noting concerns that the full implementation of the previous management plan was lacking in some areas. These measures will be important to strengthen and ensure the effective management of the various threats facing the World Heritage site. A successful future for Wadi Rum is dependent on managing a balance of conservation of natural and cultural heritage with the maintenance of traditional livelihoods and sustainable tourism that specifically and equitably benefits the local Bedouin communities.
FULL ASSESSMENT

Description of values

Values

World Heritage values

► Spectacular desert mountain landscapes and rock formations of outstanding beauty

Wadi Rum protects a globally recognized iconic desert landscape. It is renowned for its spectacular series of sandstone mountains and valleys, natural arches, and the range of narrow gorges, towering cliffs, massive landslides, and dramatic cavernous weathering forms displayed. Key attributes of the aesthetic values of the property include the diversity and sheer size of its landforms, together with the mosaic of colours, vistas into both narrow canyons and very large wadis, and the scale of the cliffs. The property displays, in a protected setting, an exceptional combination of landforms resulting from drainage incision, severe weathering by salt, biological and other processes, and the undermining of steep sandstone cliffs by these weathering processes, together with the world's most spectacular networks of honeycomb weathering features (World Heritage Committee, 2011).

Other important biodiversity values

► Biodiversity values

At the time of inscription, Wadi Rum was the largest protected area in Jordan representing more than 60% of terrestrial protected areas nationally (IUCN, 2011), now representing around 30% (IUCN Consultation, 2020). Located in the Sudanian Bio-geographical region Wadi Rum protects ecosystems typical of this. However the high mountains present in the site (over 1700m above sea level) enable some unusual elements of Mediterranean Bioregions to persist here too - for example Juniper trees (Juniperus phoenica) and some Mediterranean reptiles. Wadi Rum has been identified as an Important Bird Area in the Middle East (Bird Life International, 1999). From survey records to date (2002), the Wadi Rum Protected Area is known to support 183 flora species, 26 mammals, 34 reptiles, 77 arthropods, and 119 birds, including a number of globally threatened species. The level of species diversity for birds is exceptional for habitats within the Sudanian Biogeographical Region of Jordan. A large number of the plants found in Wadi Rum (25 species) are considered to have medicinal properties and 2 plant species are endemic to Jordan. Notable fauna include the Arabian Oryx, Oryx leucoryx - currently being reintroduced after becoming nationally extinct due to hunting, and Nubian Ibex Capra ibex nubiana - threatened with becoming nationally extinct, also due to hunting, but brought back from the brink through enforcement and captive breeding programs in other protected areas in Jordan (4th National Report to the Convention on Biological Diversity 2009).

Assessment information

Threats

Current Threats

Due to its remoteness and mountainous nature much of Wadi Rum has been relatively inaccessible and therefore naturally protected until relatively recently. Whilst there is illegal hunting, woody fuel collection and pastoral grazing by local communities these are currently thought to be within sustainable limits and their impacts are limited to other biodiversity values. There are no commercially viable mineral resources known within the area so there is no actual or potential threat from mining. Unsustainable use of the fossil
Aquifer is not believed to directly impact on the site but has potential to encroach near or inside the site in addition to impact on the local communities living within and around the protected area. However, tourism presents the greatest current threat with illegal tourist camps spreading and poorly regulated off road driving by tour operators and self-guided tourists causing vegetation damage also threatening the integrity of the site. Tourism related solid waste is also a primary concern. Lack of human waste treatment systems for Rum and for the desert campsites are also a concern.

**Hunting and trapping**

*Poaching of wildlife especially Ibex and Oryx*

Low level subsistence hunting, particularly of Ibex, by the local Bedouin was a long established traditional use of the site. Hunting became illegal once Wadi Rum became a protected area in 1997. Ibex hunting - and more recently Oryx - are illegal by law in the whole country. Personal communications with Bedouin rangers during the IUCN Evaluation Mission in September 2010 indicated that there were infrequent but ongoing cases of illegal hunting or poaching of Ibex and Oryx occurring within the site. The full extent and consequent impact on the populations is not known. Compliance and enforcement are undertaken as part of ranger patrols. Effectiveness seems to be adequate. The threat potential was magnified after the reintroduction programs for Oryx and Ibex were developed.

Since the COVID-19 outbreak and the consequent lockdown and stoppage of onsite law enforcement operations by a government order, there have been increasing records of illegal hunting and poaching of Ibex and Oryx in and around the reserve (IUCN Consultation, 2020).

**Tourism/ visitors/ recreation**

*(Degradation of Rock Art and Archaeological Sites)*

Although progress has been achieved in the documentation of rock art by the Wadi Rum Protected Areas management, Department of Antiquities and USAID SCHEP project, there is a lack of progress with the conservation of the rock art sites and inscriptions which are vulnerable to fading and deterioration, and in some cases, to modern graffiti. The archaeological sites, Nabataean water reservoirs, and temple site are also vulnerable (UNESCO, ICOMOS and IUCN, 2014). New damage from bullets was documented in 2018, thought to have been caused by people using rocks as target practice (Wild, 2018).

**Household Sewage/ Urban Waste Water, Solid Waste**

*(Lack of human waste treatment for the village of Rum. Solid waste by visitors throughout the site and outside.)*

The management of Rum Village represents the most sensitive and complicated issue in the WRPA management program. There is currently no management of human waste for the village of Rum (current population approximately 1000), which is located at the heart of Wadi Rum. Pollution from untreated waste from the village threatens the integrity of the site and some of the natural/biodiversity values in the immediate vicinity. Management of this issue is beyond the jurisdiction of the WRPA management staff, as ASEZA has the authority over this issue. ASEZA conducted a pre-feasibility study in 2019 that focused on the tourism camps, and recommended water conservation toilets, blackwater/greywater separation, and decentralised wastewater treatment. Second and third phase studies will target Rum village and Disi villages (ASEZA and BORDA, 2019). Implementation of a wastewater management system was planned to be initiated in 2020 (State Party of Jordan, 2019), however no planned waste water management initiatives have been implemented to date (August, 2020). This is partly due to the lack/reallocation of funding from government, and the issue is further affected by the consequences of the global COVID-19 pandemic and dramatic reduction in budget allocation for WRPA including Rum Village (IUCN Consultation, July 2020). The issue of solid waste generated by tourism activities (particularly desert camps and off-road excursions) along with the lack of a proper management system represent ongoing threats influencing the majority of the site.
**Dams/ Water Management or Use**  
*Unsustainable extraction and use of fossil aquifer groundwater for domestic supply for townships and intensive agriculture immediately North of the site*)  

Low Threat  
Outside site  

Wadi Rum lies just west of one of the largest groundwater resources, the Southern Desert/Disi basin, in Jordan. With low salinity it is suitable for drinking. From the 1960’s onwards groundwater bores were established near Disi immediately North of Wadi Rum enabling these communities to grow and prosper. Water supplies for Rum have traditionally been the springs at the base of Jebel Rum. It is not known if these are supplemented now by bores (IUCN, 2011). The Disi Water Conveyance Project was finished in 2013 and pumps water from the Disi aquifer to the capital of Amman. Currently it is thought that there is little actual threat to the World Heritage values from this unsustainable use of the fossil aquifer. The management of groundwater resources is beyond the jurisdiction of the Wadi Rum protected area management staff.

**Tourism/ visitors/ recreation**  
*High numbers of visitors/off road driving*)  

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

Due to the nature of the site a large proportion of visitors undertake off road vehicle tours by jeep provided by the local Bedouin people as licensed tour operators. Some 500 to 1000 4WD vehicles operated in the area in 2011, exceeding safe limits, disturbing the vegetation and wildlife and leaving obvious visual scars (UNEP-WCMC, 2011). The number of off-road vehicles operating in the site has been regularly increasing since 2011, with informal reports indicating that the number in 2019 could have reached between 1,000-1,500 vehicles. Furthermore, it is important to note that from March 2020, as a result of the global COVID-19 pandemic and almost complete stoppage of tourism activities, the numbers of cars operating/active onsite has declined to few dozens only (IUCN Consultation, 2020).

Repeated driving over slow growing desert shrubs can effectively eliminate them and recovery can take a very long time (IUCN, 2011). Whilst the negative impact of off road unregulated driving has been recognized in management planning as the biggest threat to the values of Wadi Rum, management interventions to address the threat (i.e. dedicated single track routes between key visitor sites have been determined and education and awareness raising programs for licensed tourism operators undertaken) appear to have had limited success to date: on the single track network connecting the main visitor sites it has been virtually impossible to enforce regulations. There are around 30 recognized (registered) camps and as many as 140 unregistered camps randomly distributed across Wadi Rum desert (ASEZA and BORDA, 2019). Due to regional instability (Arab News, 2018), visitation to Wadi Rum declined from a high of 285,000 in 2010 to −66,000 in 2015, but recovered to 177,000 by 2017 (State Party of Jordan, 2019). The challenges related to the number of visitors, off-road vehicles, and desert camps decreased during the first six months of 2020 due to the global pandemic impacts on tourism, however, they could swiftly return, possibly with greater intensity, once travel bans are lifted. Effects of the COVID-19 pandemic on tourism in the 2020s remain to be seen, and specific assessment needs to be undertaken to accurately evaluate its current and future impacts.

**Livestock Farming / Grazing**  
*Pastoral grazing of the site by local people (goats/sheep/camels)*)  

Data Deficient  
Inside site, throughout(>50%)  
Outside site  

Local community grazing use of the site is permitted. Western areas of the protected area see the highest levels of grazing activity during the spring months. At high intensities grazing can threaten both the integrity of the scenic values and the extent and condition of some biodiversity values. However monitoring indicates livestock numbers are reducing as local communities transfer to tourism-based economy. Informal monitoring of grazing occurs as part of ranger patrols (IUCN, 2011). Recent informal reports following the pandemic, indicate that local community members and livestock owners from outside the areas’ social groups have been returning to grazing activities and increasing numbers of livestock and period of presence in the site. Accurate estimates of the numbers and trends are not available and an updated rangeland assessment would be beneficial for future planning and
management of the important activity (IUCN Consultation, 2020).

**High Threat**

**Housing/ Urban Areas**

*(Encroachment of the village of Rum into the site)*

Personal communications during the IUCN Evaluation Mission in 2010 indicated that there were several cases of building outside the formal Rum township boundary (population approximately 1000 and areas approximately 40Ha; IUCN, 2011). Pressure for tourism related infrastructure here could be expected to increase as visitor numbers grow following World Heritage Listing. Although currently a small scale issue, encroachment threatens the integrity of the site. Protected area management staff have limited capacity to tackle encroachment. Enforcement lies with ASEZA. Currently, there seem to be no effective measures to monitor or control the Rum Village expansion into the site.

There are confirmed reports that ASEZA has recently (mid-2019) approved a plan to expand Rum Village to the north of the existing village. Household units have been allocated to local residents and a number of new building structures are easily visible on site. Details of the new village plan are not clear but informal communication with local staff and community members reveals that it will include several hundred new residential units with no clear plans for required infrastructure and facilities including waste management (both solid and liquid). The new poorly planned expansion of the Rum Village represents a new major threat to the integrity of the surrounding natural attributes related to the aesthetic values of the property. Recently, there are reports on the approval of a street lighting project with around 130 metal lighting units to be installed on the new village expansion (IUCN Consultation, 2020).

**Log Wood Harvesting**

*(Collection of woody vegetation for fuel by local communities)*

The Bedouin lifestyle historically depended upon the collection of firewood for domestic use. From the late 1990s the use of gas has largely replaced the use of firewood domestically thereby reducing the impact of this threat on the site substantially. Firewood is now primarily used by individuals in the local tourism industry to prepare a meal or make tea over a desert fire. 83% of the protected area is defined as a protection zone in which no wood collection is permitted (Advisory Body Evaluation, 2011).

This threat could potentially increase in significance if tourist numbers increase. Recent reports during the pandemic indicate that the level of illegal wood cutting and collection has increased during the first six months of 2020 due to the weakened law enforcement system and drastic decline in tourism income leading to more dependence on natural vegetation for fuel wood (IUCN Consultation, 2020).

**Potential Threats**

Increased impacts from a growing tourism economy, now that the site has World Heritage listing, are considered the greatest potential threat for Wadi Rum. These include inappropriate tourism infrastructure both within and adjacent to Wadi Rum and the growing impact of unregulated off road driving. There is also the potential for climate change impacts on flora and fauna dependent on the elevated mountainous areas of Wadi Rum. The ongoing and increasing impacts of the COVID-19 pandemic and its direct and indirect impacts on the property are expected to be high, however this remains to be assessed.

**Data Deficient**

**Habitat Shifting/ Alteration**

*(Habitat shifting / alteration)*

The unusual isolated pockets of Mediterranean bioregion flora & fauna habitat on the elevated mountain environments of Wadi Rum could be impacted by climate change induced higher temperatures and reduced rainfall. The potential loss of this habitat would have severe consequences as there is no alternative for species to shift to. However there is limited baseline data available on exactly what species currently inhabit the mountains and their tolerance of shifting climate regimes.
The site has experienced a growth in camps in recent years. Since 2012, seven new camp locations were established without acquiring the needed permits and licensing by the WRPA management authority. Several other attempts of land grabbing and camp-like structure by local community members are also reported in at least a dozen locations. The WRPA management has already prepared and submitted a full legal suit against all seven illegal camps, in addition to legal warnings against all other attempts for land grabbing within the property (State Party of Jordan, 2016). In 2019, in response to the World Heritage Committee concerns regarding the camps and unsustainable tourism (UNESCO, 2018), the government recognised the importance of sustainable tourism management but also its complexity in Wadi Rum (State Party of Jordan, 2019). Increasing tourist numbers may also lead to increasing deterioration and vandalism of rock art sites (IUCN Consultation, 2020). Tourism number reports indicate that the site received more than 600,000 visitors in 2019, and as a result the number of unregistered camps increased exponentially with estimates reaching 400 unlicensed camps operating in the protected area (IUCN Consultation, March 2020). However, the visitor numbers in 2020 decreased dramatically due to the pandemic, with onsite reports indicating only several thousand visitors (mostly nationals and resident expats) coming to the site during the first half of 2020. This has left many of the desert camps empty and has put a significant number of them out of business, at least temporarily (IUCN Consultation, July 2020). In mid-2019, ASEZA developed and adopted an updated set of regulations for licensing desert camps (State Party of Jordan, 2019), however, the new legal instrument has not become effective due to the sudden impacts caused by the global pandemic.

Due to regional instability (Arab News, 2018), visitation to Wadi Rum declined from a high of 285,000 in 2010 to ~66,000 in 2015, but recovered to 177,000 by 2017 (State Party of Jordan, 2019). Early informal reports relating to the impacts of the global pandemic indicate a drastic decrease in visitor number during the first half of 2020. It is confirmed that WRPA may have lost 90% of its visitors so far in 2020 compared to the numbers of 2019 (IUCN Consultation, July 2020).

Overall assessment of threats

Due to its remoteness and mountainous nature much of Wadi Rum has been relatively inaccessible and therefore naturally protected until relatively recently. Whilst there is illegal hunting, woody fuel collection and pastoral grazing by local communities these are currently thought to be within sustainable limits and their impacts are limited to other biodiversity values. There are no commercially viable mineral resources known within the area so there is no actual or potential threat from mining. Unsustainable use of the fossil aquifer under the site does not directly impact it but has potential to impact on the local communities living within and around the protected area. Tourism presents the greatest current threat with poorly regulated off road driving by tour operators, construction of illegal campsites, and self-guided tourists causing vegetation damage and also threatening the integrity of the site. Increased impacts from a growing tourism economy are considered a potential threat for Wadi Rum, though the COVID-19 pandemic may dramatically reduce this threat in the near- to mid-term. These would include inappropriate tourism infrastructure both within and adjacent to Wadi Rum and the growing impact of unregulated off road driving. There is also the potential for climate change impacts on flora and fauna dependent on the elevated mountainous areas of Wadi Rum.
Protection and management

Assessing Protection and Management

Management system

The first management plan was developed for Wadi Rum in 2003 upon its establishment as a protected area for desert biodiversity and landscape objectives, and then was revised in 2008. In 2010, upon the decision to nominate the WRPA as a mixed World Heritage property, a complete revision was undertaken for the management plan including its baseline for geology, geomorphology, and cultural attributes; and the site changed from being managed as a pure biodiversity hotspot to a complex mixed site of global significance for desert landscapes and rock art. A second revision of the Integrated Management Plan was initiated in mid-2015, and until the adoption of the new management plan, an adaptive approach was used for the current management to include a systematic response to the core management priorities (State Party of Jordan, 2019). A new Integrated Management Plan was endorsed by ASEZA in March 2019. It includes a revised zoning scheme, a tourism and visitor management plan, and a revised buffer zone including new configuration and land use plan (State Party of Jordan, 2019). The implementation of the new Integrated Management Plan is faced with a number of institutional challenges related to the weakened human resources and limited financial resources allocated for plan implementation. Further, the number and level of involvement of donor agencies and technical cooperation partners has declined sharply during the last two years and has declined to lower levels since the global outbreak of COVID-19 (IUCN Consultation, 2020). The main (and possibly) active partnership between the property and a donor is represented by the partnership agreement between ASEZA and the USAID SCHEP initiative which started in 2019 and will continue to 2022 (SCHEP, 2020).

Effectiveness of management system

Wadi Rum was included in a national management effectiveness report on Jordan’s protected areas in 2009 undertaken by RSCN. This confirmed that the conservation of Wadi Rum Protected Area from the date of the development of the first management plan has been satisfactory (Jordanian Royal Society for the Conservation of Nature, 2009). Nevertheless, implementation of the management plan was considered by the 2014 mission to be lacking in some areas (UNESCO, IUCN and ICOMOS, 2014). In 2019, the government reports that key challenges to effectively manage the site to World Heritage standards include increasing socioeconomic challenges and pressures related to local communities leading to difficulties in enforcing regulations on the ground, limited financial resources, as well as limited lack of awareness and will of local law enforcement entities to take necessary measures to meet the required level of rule of law, as well as other factors (State Party of Jordan, 2019). A submission to nominate Wadi Rum to be included on the IUCN Green List of Protected and Conserved Areas is planned for 2020 (State Party of Jordan, 2019).

Boundaries

The boundaries of the property include the key cultural and natural attributes and are well designed. The boundaries of the property have been clearly defined and the 5 km buffer zone surrounding the property is adequately configured to address threats to the area arising from outside its boundaries. However, despite the fact that the staff has acceptable levels of capacity/resources to enforce protected area legislation regulations, they have no legal authority outside the boundary of the protected area (Jordanian Royal Society for the Conservation of Nature, 2009). The ongoing management plan revision includes a major initiative to re-design the Buffer Zone and develop a unified agreed upon vision translated into a set of management scenarios and clear guidelines for land use management, thus creating the anticipated functional buffer zone, effectively contributing to the protection of the OUV (State Party of Jordan, 2016). A full revision of the buffer zone was undertaken through a comprehensive planning process engaging local and national stakeholders, completed in late 2018 and endorsed by ASEZA in early 2019. The government intends to submit a request for a minor boundary modification in 2020 (State Party of Jordan, 2019).
Integration into regional and national planning systems

Some Concern

Wadi Rum is recognized as part of Jordan’s national protected area network and as such is included in periodical national protected area reporting (e.g. CBD report no 4). The Protected Area was established in 1997 following cabinet decisions, and recognized as an archaeological site under a law of the Department of Antiquities (World Heritage Committee, 2011). The Jordanian government has delegated management of the majority of national protected areas to the NGO Royal Society for the Conservation of Nature (RSCN). However due to its location within the Aqaba Governorate, management authority for Wadi Rum sits with the Aqaba Special Economic Zone Authority (ASEZA), which raises questions about consistency of management as well as issues of capacity and an appropriate focus on natural and cultural heritage management.

In 2014, ASEZA and the Department of Antiquities (DoA) signed a framework agreement on the conservation and management of the cultural values of the property (MoU 2014-2016). The agreement gives a clear technical authority to DoA to oversee all research, management and monitoring activities related to the cultural values as represented by the property’s OUV, and as such, represents an important breakthrough in the capacity to study, manage and monitor the cultural heritage of the property. The MOU is perceived as an effective national mechanism to ensure the coordination of the long term conservation and sustainability of the cultural values of the property (State Party of Jordan, 2016). Tourism planning in Jordan is acknowledged as necessary for sustainable development (Omari, 2018).

Jordan does not have a unified legally recognized conservation standard or guidelines for archaeological sites, however, a limited number of cultural sites conservation activities were implemented in WRPA, and based on this, the DoA proposed to use the WRPA example as a demonstration case for the development of the needed standard and guidelines in 2017. It will be important that a multi-stakeholder process is adopted, and that results achieved should then be fed into a nationally agreed upon standard and set of guidelines for the conservation of cultural heritage sites (State Party of Jordan, 2016).

Relationships with local people

Some Concern

The development of the management plan was a participatory process with the local communities involved in the development of the zoning and permitted activities (State Party of Jordan, 2018). Traditional subsistence grazing and fuel collection is permitted whilst hunting has been banned. Local employment is fostered with many park management staff being local Bedouin people. Local communities are accessing economic benefits of tourism through commercial nature based tourism activities such as licenced tourism operators and local handicraft industries (IUCN, 2011). There are increasing levels of local conflicts over scarce resources (especially in regard to tourism), and increased levels of poverty affected by increased inflation and unemployment rates (Abulhawa et al, 2014).

Legal framework

Some Concern

The legal and governance framework is strong, with traditional land tenure reportedly coexisting with legislative gazettel of the Protected Area. Traditional land tenure relates to grazing use, not ownership, but now extends to areas covered by licensed tour operators who operate only within their traditional tribal areas (IUCN, 2011). Management of Wadi Rum sits with ASEZA. A National Protected Areas Management Effectiveness Report noted weak synchronization between national law and ASEZA regulation, as PA staff have no legal authority once outside the boundary of the PA, whereas they should have a mandate from national law to control inappropriate land use activities around the PA boundary. The 2014 Reactive Monitoring mission also noted a lack of coordination between departments and between regional and national institutions (UNESCO, ICOMOS and IUCN, 2014). In this regard, a memorandum of understanding (MoU 2014-2016) was signed between the Ministry of Tourism and Antiquities/DoA and ASEZA in May 2015. Significant progress in implementation has been noted (UNESCO, 2018). Several legal deficiencies of the current by-law and legislative framework governing WRPA have been problematic, and are in need of revision and further development (Abulhawa et al, 2014). A set of regulations for land use in the buffer zone have been developed (State Party of Jordan,
2019), but it is not clear whether they have entered into law. In 2019, ASEZA approved new regulations for licensing, management and control of tourism activities in the property and the buffer zone (State Party of Jordan, 2019).

**Law enforcement**  
Some Concern

Ranger patrols include compliance and enforcement work, although there is little information on ranger capacity or effectiveness of compliance (Abulhawa et al, 2014). The local rangers are supported by staff in ASEZA, who work closely with the local judicial system (IUCN, 2011). A legal suit against all seven illegal tourist camps has been prepared and submitted, in addition to legal warnings against at least a dozen impermanent camp-like installations, which are considered by the State Party to be attempts at land grabbing (UNESCO, 2016). The local team's capacity to enforce site related regulations (especially those related to tourism activities) appears to have been declining in the last 1-2 years due to a multitude of factors including lack of support from judicial entities, limited human and logistical resources, and more recently, the impacts attributed to the global pandemic (IUCN Consultation, 2020).

**Implementation of Committee decisions and recommendations**  
Some Concern

In response to the most recent Committee Decision 42 COM 7B.67, regarding the request to “ensure that the Integrated Management Plan (IMP) provides for effective management of the property and its buffer zone”, an updated IMP has been developed. Regarding plans for development of a sewage treatment plant, only a preliminary study of the tourist camps has been completed to date, with a similar study for the village anticipated for 2020. A land use plan for the buffer zone is included in the IMP. A system and regulations to license tourist camps has been articulated in 2019 but not yet fully implemented. Integration of cultural and natural heritage databases is ongoing, but exact status is unclear. On the firm request for HIA/EIA on tourism activities, one staff member has received some training, and a technical advisor has been resourced, with an intent to begin in 2020. The State Party submitted a State of Conservation report in December 2019. On the whole, implementation of committee requests remain largely aspirational and in the planning stages.

**Sustainable use**  
Mostly Effective

Whilst there is some permitted subsistence woody fuel collection and pastoral grazing by local communities, these are currently thought to be within sustainable limits. The national authorities have agreed to develop terms of reference for the Environmental Impact Assessment/Heritage Impact Assessment (EIA/HIA). Specific technical guidance and support was to be requested from UNESCO and its advisory bodies (IUCN and ICOMOS) on good practices derived from international experience. The tourism development and visitors’ management strategy and plan for the WRPA will be amended to adopt the outcomes of the EIA/HIA results, and are to be reflected in the revision of the integrated management plan (State Party of Jordan, 2016). In 2018 and 2019, staff training included EIA/HIA courses and it is reported that EIA/HIAs for tourism activities in the property will be implemented in 2020 (State Party of Jordan, 2019). It remains to be seen what impact the COVID-19 pandemic will have on tourism and therefore these assessments.

**Sustainable finance**  
Some Concern

A Wadi Rum Development Fund was established in 2001 to ensure the area’s financial and institutional stability. The income from entrance fees goes to the national treasury and is reimbursed to ASEZA as an annual budget. The staff are supported by both national agencies and international aid. In 2009, the site received JD1.3 million (US$1,834,940) for operation and management, supplemented by funds in 2006-7 from the USAID SIYAH tourism development project and JD1 million (US$1,411,490) from Abu Dhabi for Oryx reintroduction (IUCN, 2011).

Wadi Rum is the highest funded PA in Jordan, and is also the only PA in Jordan which has its own bylaw including provisions on financing security (including the Wadi Rum development fund). Despite this, government spending only covers operational costs, and WRPA suffers from low investment in site development funding (development of infrastructure and programs, and recruitment of staff) due to an
economic crisis triggered by regional instability and resulting decline in visitor numbers. In light of this, ASEZA adopted a strategy to ensure adequate funding, to be included in the 2017 Integrated Management Plan (State Party of Jordan, 2016).

In 2019, the ASEZA Board of Commissioners adopted a financial plan to implement the Integrated Management Plan 2019-2023, which was linked to a strategic feasibility assessment associated with the resources needed for the effective management of the WRPA, and which includes a revised structure for entrance fees and tourism services fees, revised government allocation, and a system of self-financing for new projects (State Party of Jordan, 2019).

**Staff capacity, training, and development**

With over 80 staff, many being local Bedouin, staff numbers and indigenous representation are considered adequate. However, staff capacity and capabilities could be further improved, especially in administration, Oryx reintroduction, and tourism units in order to effectively accomplish the protected area management objectives (Jordanian Royal Society for the Conservation of Nature, 2009). Recent aid projects have provided good quality staff buildings, equipment, and visitor centre (IUCN, 2011). Capacity building for natural heritage staff is supported by IUCN-ROWA, Royal Society for the Conservation of Nature (RSCN), and UNESCO ARC-WH, but cultural staff are not included in this. A joint program with the UNESCO Jordan office was to address this shortcoming (Abulhawa et al, 2014), and the 2016-2017 planning and budgeting process included the planned recruitment and installation of two new specialists in cultural and natural science management on-site, as a matter of priority (UNESCO, 2016). Also, the WRPA interpretation program was to be redeveloped in 2016, with one of the outputs being a series of training activities targeting the local staff, community organizations and tourism services providers on the utilization of the new interpretation program. The MoU between ASEZA and DoA calls for the installation of a technical specialist to be based in Wadi Rum and maintain linkages between WRPA and DoA (State Party of Jordan, 2016). In 2019, ASEZA created a "specialized management unit" in Rum village to provide infrastructure improvements such as waste water tanks, solid waste collection, drinking water, a new flood water drainage channel, etc. WRPA staff participated in two trainings preparatory to an HIA/EIA study for the property planned for 2020 (State Party of Jordan, 2019). Further, an MOU between ASEZA and the USAID SCHEP project was signed in late 2019 and includes significant technical cooperation related to institutional and staff capacities development for WRPA (SCHEP, 2020). The program will include a new generation of site management professionals, conducting a series of training activities on heritage research, planning, management and monitoring, and deploying a number of national experts to provide technical support and mentorship to the local team. The cooperation agreement also includes the establishment of the knowledge data base for the cultural/natural inventories and the establishment of an open learning centre on site (OLC).

**Education and interpretation programs**

The Wadi Rum visitor management plan states that ongoing site-based education programs have been established via school nature clubs in the Quweira district and other visiting schools focused on awareness raising of environmental issues. Since Wadi Rum became a World Heritage site relatively recently, there had been no proper interpretation, communication, or promotion of the World Heritage property as a whole. In 2015, sufficient funds were secured through a partnership with UNDP to redevelop the site interpretation program. This included restructuring the main visitor center to be based on the site’s OUV, installing a new set of road signage and interpretation materials targeting local communities and visitors, and restructuring the visitors’ reception point in terms of location, nature and quality of information provided to visitors (State Party of Jordan, 2016). A cooperation agreement (MoU) was signed for 2019-2022 with the American Center for Oriental Research (USAID), which includes an open learning environment on cultural heritage (State Party of Jordan, 2019). Local people are being trained in using the Rock Art Sustainability Index, a phone app assessment tool (Andrews, 2019).

**Tourism and visitation management**

Popular tourist activities include climbing, off-road driving, camel riding, hiking, and camping. Wadi Rum has benefitted significantly from the USAID Jordanian Tourism Project Siyaha and other aid initiatives focused on supporting tourism development. Tour operators are licensed and managed by the Wadi
Rum protected area staff and receive training and education sessions on natural and cultural heritage. A visitor management plan for the site was developed as part of the management planning process in 2003 (IUCN, 2011; UNESCO, IUCN and ICOMOS, 2014). The updated 2019-2023 IMP recognises the threats of tourism pressure to the values of the site and provides a series of management responses (ASEZA, 2019). In response to the World Heritage Committee’s concerns regarding the fifteen active tourist camps (seven of which are unlicensed) and unsustainable tourism (UNESCO, 2018), in 2019 the government stated that this remains the biggest challenge facing the property management due to its socioeconomic sensitivity and management difficulties, and is implementing various measures including new laws, strengthening law enforcement capacity, awareness raising, and EIA/HIAs for tourism infrastructure (State Party of Jordan, 2019). Ensuring effective tourism management will be one of the most important areas of focus going forward. The implementation of the ambitious management plan seems to have been facing significant challenges due to the decreased budget allocated to site management, the regressing capacities of the local team in charge of tourism management and foreseen impacts of the global pandemic. The low number of visitors resulting from the global pandemic could serve as a useful opportunity for ASEZA HQ and the site management team to start the implementation of the new tourism management strategy including needed monitoring and control over unsustainable tourism activities (i.e. desert camps, off-road vehicles) (IUCN Consultation, 2020).

### Monitoring

With the exception of the intensively managed Arabian Oryx Re-introduction program, monitoring of the biodiversity values of Wadi Rum has long been carried out informally. However, in 2015, it was agreed that the informal system would be fully activated and turned into a systematic documentation process starting in 2016. Periodic reports from such a documentation process will be included in the standard reporting adopted for the implementation of the integrated management plan and will be shared with UNESCO. Also, the joint WRPA/DoA team started a comprehensive field investigation on the status of key archaeological and rock art sites along with formulating a specific monitoring program (State Party of Jordan, 2016).

The 2019-2023 IMP recognises a lack of monitoring and enforcement mechanisms as a factor affecting the cultural values of the site, and includes plans to implement an effective integrated monitoring and research program for the cultural and natural values and attributes of the site (ASEZA, 2019).

### Research

Research recommendations are incorporated and adopted in the protected area management plan. However, there are some difficulties in implementing these recommendations. Moreover, there are some concerns on how to use the results of the research programs in the decision making process especially during the implementation of the protected area management plan (Jordanian Royal Society for the Conservation of Nature, 2009). An MoU signed in 2014 by ASEZA and the DoA includes provisions for the establishment of a unified cultural heritage database, which has since been integrated into the DoA’s national cultural databank. Submission of a specific request for International Assistance to complete the database was envisaged for 2016, and a fully operational database was anticipated later that same year (UNESCO, 2016). Specific measures should be addressed in the Management Plan to document and conserve local traditional knowledge and practices through audio-visual production and academic research, and to ensure high levels of knowledge sharing, joint learning, and collaboration (State Party of Jordan, 2016). The new 2019 cooperation program between ASEZA and USAID SCHEP has the potential to revise and activate a new research and monitoring system for the property. This will be supported by the number of national technical experts deployed, the new local interns recruited and the establishment of the Open Learning Centre with the property knowledge platform (SCHEP, 2020).

### Overall assessment of protection and management

Wadi Rum’s protection and management has benefited significantly from support by NGOs, international aid and the national government over the past few decades. The legal and governance framework is strong. Since its inscription on the World Heritage List in 2011, the WRPA has gone
through major structural and technical changes to ensure the protection and maintenance of the OUV for both the cultural and natural components of the property, as well as its integrity and authenticity. Staff levels and financial resources are currently good. The visitor centre and staff administration building are relatively modern and well equipped. The first management plan was considered good, but implementation was lacking in some areas due to staff capacity particularly with regard to technical knowledge of natural and heritage management, and it was revised to ensure the enhancement of the cultural and natural components of the plan in light of the OUV statement, build the capacity of the site team in both disciplines to ensure that the site is managed effectively, well presented to local stakeholders and visitors, and carefully monitored against present and potential factors influencing its integrity and authenticity (State Party of Jordan, 2016). Implementation of the updated 2019-2023 Integrated Management Plan, and new regulations for tourism and buffer zone activities will allow the protection and management of the site to be further strengthened going forward. Wadi Rum is still dependent on external technical expertise and financial support. The COVID-19 pandemic, with anticipated drop in tourism, may have positive and negative impacts on protection and management. Finally, it is important to note that the level of political support and strategic guidance from ASEZA to the site does not seem to match its global significance and sensitivity and should be strengthened (IUCN Consultation, 2020).

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

The National Protected Areas Management Effectiveness Report notes weak synchronization between the national law and the ASEZA special regulation for Wadi Rum. The special regulations are effective only inside the boundary of the protected area. The staff has acceptable levels of capacity/resources to enforce protected area legislation regulations but they have no legal authority outside the boundary of the protected area. Protected area staff should have a mandate from the national law to control inappropriate land use activities around the protected area boundary (Jordanian Royal Society for the Conservation of Nature, 2009). The Integrated Management Plan 2019-2023 includes a re-design of the buffer zone and a series of regulations for land use management (State Party of Jordan, 2019), which should facilitate the strengthening of overall management efforts in the short to medium term. The new cooperation program between ASEZA and USAID-SCHEP is anticipated to support the improvement of the property’s management and build its institutional, human resources and logistical capacities to achieve the site management objectives (IUCN Consultation, 2020).

Best practice examples

The collaboratively developed management plan of the Protected Area, including the participation of the local people, is an example of a strong management framework that might be applicable elsewhere. Nationally, WRPA is considered to be the best example of protected area management in Jordan in terms of legal and regulatory systems, human and financial resource investment, and participative management (Abulhawa et al, 2014).

State and trend of values

Assessing the current state and trend of values

World Heritage values

Spectacular desert mountain landscapes and rock formations of outstanding beauty

Low population density and lack of development impacts have helped maintain Wadi Rum in a relatively pristine and authentic condition. No known major construction projects that might affect the exceptional
Summary of the Values

Assessment of the current state and trend of World Heritage values

The current state of conservation of Wadi Rum’s World Heritage scenic values is considered good and the information available indicates the current trend is stable. Low population density and lack of development impacts have helped maintain Wadi Rum in a relatively pristine and authentic condition. No major construction projects that might affect the exceptional scenic beauty values of the site are known. However, tourism represents the most significant activity in and outside the site with both positive and negative impacts depending on the level of effectiveness of its management and monitoring, and may cause a deterioration in values if not effectively managed.

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

Overall there is a low concern about the current state and trend of visitor impacts affecting biodiversity values. Threats from grazing and wood collection are low, and the extent of illegal hunting is unknown. There is a threat, however, to biodiversity values from off-road driving and poorly regulated tourism related small scale infrastructure (e.g. desert camps).

Additional information

Benefits

Understanding Benefits

Access to drinking water, Commercial wells

Springs are used as a local water supply. Large fossil ground water basin (the Disi Aquifer) of drinking water quality is being pumped to supply the capital of Amman and develop intensive agriculture in Disi area.

Factors negatively affecting provision of this benefit:
- Overexploitation: Impact level - High, Trend - Continuing
- Habitat change: Impact level - High, Trend - Continuing

The impacts of the intensive agricultural expansion are outside the world heritage site but represent a potential future issue as they become closer and bigger.

History and tradition, Wilderness and iconic features, Sacred natural sites or landscapes

The local Bedouin have a very strong and ongoing cultural and spiritual association with Wadi Rum.

Outdoor recreation and tourism

Nature based recreation and tourism such as rock climbing, trekking, scenic jeep driving and cultural tourism in iconic desert landscape

Factors negatively affecting provision of this benefit:
- Pollution: Impact level - Very High, Trend - Decreasing
- Overexploitation: Impact level - Very High, Trend - Decreasing
- **Habitat change**: Impact level - Very High, Trend - Decreasing

Mainly associated with off-road driving and permanent desert camps. WRPA also offer one of the best places on earth for star observation, reference its landscape and complete darkness inside the property.

▶ **Livestock grazing areas**

Traditional subsistence pastoral grazing is utilized by the local population.

Factors negatively affecting provision of this benefit:
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - High, Trend - Continuing

Pollution though solid waste. Overexploitation potential in drought periods and declining tourism.

▶ **Collection of timber, e.g. fuelwood**

Fuel wood collection is permitted to local people.

Factors negatively affecting provision of this benefit:
- Overexploitation: Impact level - Low, Trend - Continuing

Accelerates during tourism income decline and lack of proper monitoring and law enforcement.

▶ **Collection of medicinal resources for local use**

Locals collect and utilize medicinal plants.

Factors negatively affecting provision of this benefit:
- Overexploitation: Impact level - Low, Trend - Continuing

Impacts are higher during drought seasons and near inhabited areas.

▶ **Tourism-related income, Provision of jobs**

Many park management staff are local Bedouin people. Local communities are accessing economic benefits of tourism through commercial nature-based tourism activities and local handicraft industries.

Factors negatively affecting provision of this benefit:
- Pollution: Impact level - High, Trend - Continuing
- Overexploitation: Impact level - Very High, Trend - Decreasing
- Habitat change: Impact level - Very High, Trend - Decreasing

Impacts from tourism activities represent the main threat to the site's core natural values and other biodiversity values. Currently, tourism numbers are in decline and no recovery is foreseen in the midterm.

**Summary of benefits**

Wadi Rum is an iconic desert landscape where humanity can be reminded of its place in nature and be rejuvenated by wilderness values. Many local Bedouin earn their living from tourism, while traditional benefits are still derived from Wadi Rum such as pastoral grazing, and collection of fire wood and medicinal plants.
## REFERENCES

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