The Lut Desert, or Dasht-e-Lut, is located in the south-east of the country. Between June and October, this arid subtropical area is swept by strong winds, which transport sediment and cause aeolian erosion on a colossal scale. Consequently, the site presents some of the most spectacular examples of aeolian yardang landforms (massive corrugated ridges). It also contains extensive stony deserts and dune fields. The property represents an exceptional example of ongoing geological processes. © UNESCO

In general, the state of conservation of the Lut Desert World Heritage Site is good. Natural processes in the site’s harsh desert environment will effectively maintain World Heritage values over most of the site for the foreseeable future. The protection and management system, once fully developed, should be able to address the few issues that the site is facing. Special attention will need to be paid to managing impacts from visitors and tourism (infrastructure) development, as well as general development pressure near the settlements at the edges of the site. In the last few years since inscription on the World Heritage list in 2016, the Lut Desert World Heritage Base has taken actions to address pressures related to tourism and improve local community partnerships for conservation and management. Grazing and firewood collection have led to some desertification in some areas on the edge of the site, with impacts noticeable in the degradation of some nebkhals (dunes formed around plants). Use of natural resources, therefore, needs to be carefully managed to ensure it is sustainable. However, these impacts remain localised around parts of the edges of Lut Desert, which, owing to its vast size and harsh environment, is for the most part naturally protected against significant impacts.
FULL ASSESSMENT

Description of values

Values

World Heritage values

► Superlative examples of yardangs

The area contains numerous unvegetated parallel and streamlined hills of several kilometres in length and up to 150 m high. They occur over an area of about 120 km long by 65 km wide and can be seen from space. These features are formed mainly by wind, although also gullied by rain, and are carved into almost flat lying fluvial and lacustrine sandy sediments that had previously accumulated in an internally drained continental basin in a hot desert environment. These essentially aeolian landforms are generally known as yardangs, but are locally called kaluts. The examples in the Lut Desert are the best in the world (World Heritage Committee, 2017; State Party of Iran, 2015).

► Sand seas

Down-wind and to the east of the area of kaluts, blown sands have accumulated as sand seas, termed rig or erg. In the Lut Desert, the great Yallan Sand Sea (Rig-e Yallan), covers an area 220 km long by 70 km wide. Its dunes display a wide range of morphological styles, with individual dunes among the largest in the world and reaching 475 m high. Styles include linear, compound crescentic, star and funnel shaped. Interdune hollows sometimes reach brackish standing water with dune lakes ringed by salt crystal flats. Sands trapped around the lee of bushy plants at the margins of the desert form dunes known as nebkha, with individuals to 12 m high (World Heritage Committee, 2017; State Party of Iran, 2015).

► Rocky desert

Text book examples of rocky deserts (hamada) with pediments and pedsplains (coalesced pediments) occur in bedrock areas without sand sea or yardangs. Pediments are flat but gently sloping erosional landforms cut across the geological structure. They are crossed by channels of intermittent streams that, on leaving the mountains, deposit alluvial fans before continuing as braided water courses across the low gradient pediplain surface, eventually terminating in salty sand flats with occasional lakes (playas). Some intermittent water courses are white with salt crystals (World Heritage Committee, 2017; State Party of Iran, 2015).

► Visually stunning diversity of spectacular landforms and mosaic of desert colours

The Lut Desert protects a globally-recognized iconic hot desert landscape, one of the hottest places on earth. It is renowned for its spectacular series of landforms, namely the yardangs (massive corrugated ridges) in the west of the property and the sand-sea in the east. The yardangs are so large and impressive that they can be seen easily from space. Lut is particularly significant for the great variety of desert landform types found in a relatively small area. Key attributes of the aesthetic values of the unspoilt property relate to the diversity and sheer scale of its landforms; a visually stunning mosaic of desert colours; and uninterrupted vistas across huge and varied dune systems that transition into large flat desert pavement areas (World Heritage Committee, 2017).

Other important biodiversity values

► Extreme hot desert ecosystem

Although the Lut Desert has been described in the past as a place of ‘no life’, and no comprehensive
study of biodiversity has been undertaken, the area does contain a sparse flora and fauna, including an interesting insect fauna. Recently researches found an endemic Phallocryptus fahimii sp. n. (Crustacea: Anostraca: Thamnocephalidae) species in Lut Desert (Schwentner et al., 2020). A new study on the flora of Lut Desert has been initiated, gathering much new data. Species have made their home in this extreme environment, an arid region in which the world’s highest temperatures have been recorded.

Assessment information

Threats

Current Threats

At present, there are very few factors threatening the Outstanding Universal Values of the Lut Desert. Some low threats include increased pressure from tourism, commercial developments, roads and off-road traffic and livestock grazing. In this newly established natural World Heritage property, construction of infrastructure for tourists, where little existed before, will inevitably have some environmental impacts. Most of the facilities can be kept outside the property, but roads, trails and viewpoints will be inside. If well managed, the impacts can be minimal and acceptable, especially considering the very large size of the World Heritage property. Nebkhas (dunes formed around plants) are already in a deteriorated state in some areas at the edge of the property, and increasing development pressure could further exacerbate this. However, various guidance and training courses have been organized for the local communities in order to preserve the nebkas.

▶ Housing/ Urban Areas

(Human development pressure)

Twenty-eight villages are located along the western edge of the property. So far, the development pressure has not been significant. Due to the lack of water and very dry environment, most rural people have migrated to the cities. As a result, the villages have not had much residential development. Urban development is considered a (moderate) threat, only occurring in the western part of the property where the Shahdad city has had some development over the last few years. However, both the settlements and the activities associated with them, including grazing animals and wood gathering, have left impacts on the surrounding land, including incipient desertification in an area with nebka dunes (dunes formed around plants). Nebka dunes are best developed at the margins of the desert where there is more moisture and shrubby plants can grow, about which dune sands accumulate. Large nebkas are an identified special feature of the World Heritage property, but most in this settled area appear to have been impacted by grazing, wood gathering and vehicles. Thus increased development pressure is unlikely to permit the rehabilitation of the nebka field and, to the contrary, could lead to its further deterioration. The formation of the National Strategic Committee of the Lut Desert World Heritage Base (consisting of representatives of ministries and relevant organizations) has played an important role in managing and protecting the area. Activities and actions taken by the Committee to prevent destructive development include: a requirement to obtain a permit for any urban, industrial or residential development programmes; multiple meetings with the municipality, the Housing Foundation and other related organization; notifying all executive organs of the buffer and core zone delineation of the Lut Desert World Heritage Site; and holding numerous workshops for the local community and tourism authorities (IUCN Consultation, 2020). Increased tourism may bring further incentive for construction and other developments. Recently a number of Ecolodges have been built in Shahdad city and several villages, especially in Dehsalm (North of Lut) and Shaflabad (North West of Lut). Of course, Dehsalm is located outside of the property and buffer zone. Exactly near the buffer zone. However, any development must be in line with the ground rule of the Lut Desert World Heritage and carried out under the supervision of the Lut Desert World Heritage Base (IUCN Consultation, 2020).

▶ Roads/ Railroads

(Road passing through the site)

A main road passes through the north-western edge of the World Heritage site, linking Shahdad with Dehsalm, and part of its route crosses the valley of the Shur River. Numerous unformed and informal
side tracks, used by four-wheel drive vehicles, leave the main highway, some penetrating into the World Heritage property, especially in the Shur valley. The river floods occasionally and vehicle tracks across its sometimes muddy floodplain leave a web of intertwining ruts across the desert floor. The threat is that with pressure from more vehicles in the future there will be further expansion and erosion of landscape values around the boundary of the park. Recently, a carpark was created for tourists at the side of the Shahdad-Nehbandan road. Over the past two years designated tourist routes (with parking lots) have been developed in other parts of the Lut with the permission and observance of the Lut World Heritage Regulations and the Directorate General for Cultural Heritage, Crafts and Tourism of the provinces involved in the management of the Lut Desert (IUCN Consultation, 2020). Vehicle access to other areas is prohibited, however, off-road traffic remain a threat to the Site and its arid rivers. Desert environments are very fragile, especially where the substrate comprises soft-rock and sediment rather than hard bedrock. Vehicle tracks can persist for a long time, because natural processes can take decades to efface them, although a recent flooding of the Shur River in 2019 has temporarily cleared vehicle tracks on the Shur River floodplain (IUCN Consultation, 2020). This road is currently closed because of the formation of a lake in the area. The temptation for tourists to turn off road must be restrained and managed by providing view-point access sites.

**Livestock Farming / Grazing**

(Livestock grazing)

Low Threat

Hot desert environments have a very low carrying capacity for grazing animals, hence grazing and harvesting vegetation for stock carries a high risk of accelerating erosion of thin top soil by removing the protection that vegetation offers against erosion by wind and runoff. This leads to desertification, a worldwide problem in arid areas where population and stock pressure have increased. The problem is exacerbated by the harvesting of firewood. One of the landform types of particular interest in the Lut Desert is nebkhas. These are sand dunes that have accumulated in the lee of desert scrub, sometimes to 12 m high. Nebkhas are characteristic of the margins of the desert where there is a little more water available for plant growth, and hence more scattered bushes around which blown sands can accumulate. Such environments also provide the opportunity for human habitation, but the ecosystem is fragile and at its margin: too much harvesting of plants by stock and people may exceed its capacity to regenerate. Desertification inevitably ensues. This has already occurred around the more populated western margin of the Lut Desert in the vicinity of settlements around Shahdad. As population and tourist pressure increases, special care must be taken to maintain the natural vegetation. Nebkhas in the area are already in a degenerated state. However, in recent years the threat of livestock farming/grazing in the region has been reduced. The most important action taken has been to inform local communities through numerous workshops and awareness promotion (IUCN Consultation, 2020). The local communities are now well aware of the Outstanding Universal Values of the Lut Desert and has a good cooperation in protecting the Lut Desert values, especially the nebkhas. In addition, any cutting of shrubs and wood harvesting is prohibited. Guides and warning signs have been designed and are now being installed. Nebkhas are now spreading southwest of the Lut Desert, which is not currently threatened by human activity (IUCN Consultation, 2020). Also, there are many high nebkhas outside of the property and buffer zone around the city of Fharaj, which is located to the south of Lut Desert, close to the buffer zone. This area could be considered for an extension of the property in a future revision of its boundaries (IUCN Consultation, 2020).

**Potential Threats**

Potential future threats come from tourist infrastructure and off-road traffic, as well as pressure to build tourist accommodations near the villages within the property. However, the remoteness and aridity of the Lut Desert has been and always will be its main protection. For thousands of years people have moved around and sometimes settled around its edges. This will continue, the pace of change will quicken, and the impacts of people will be greater, but the size of the desert core is still too large and inhospitable to be seriously threatened. So although potential impacts will increase, the overall effect will remain relatively minor and confined to the margins.
Threats include tourist infrastructure, off-road foot trails and traffic, as well as pressure for tourist accommodation to be built near villages situated within the property rather than in settlements in the buffer zone and beyond. Provision must be made to receive tourists by facilitating access by road and air, by providing overnight accommodation, and by providing corridors and access points to view and appreciate the natural values of the Lut Desert. A difficult balance has to be achieved that enables visitors to view the landforms of the property at close range, yet contains and manages impacts associated with roads, parking, toilets and foot trail construction. Off-trail access is justified but, in fragile environments such as areas of kaluts and salt flats, must entail a minimum impact undertaking by licensed operators. To reduce tourism pressure on the area (core and buffer zone), one other region has recently been introduced as a tourism destination to the south, outside of Lut Desert core and buffer zone (around the Fahraj city). In this region, some features can be seen such as meso yardangs, high nebkhas and sand dunes.

Overall assessment of threats

Development pressure, including tourist infrastructure, roads and off-road traffic are the main threats to the property. As population, livestock, traffic and tourist pressure increases, special care must be taken to also maintain the natural vegetation and prevent desertification of nebkhas (dunes formed around plants). Impacts of these pressures are particularly noticeable along the west to northwest periphery of the property, but much less so elsewhere, owing to the large size of the property and its inhospitable environment.

Protection and management

Assessing Protection and Management

Management system

The management system has evolved, adapted and made good progress over the past few years to ensure the best possible conservation, but more work is still needed and efforts are underway. Recent progress includes: Formation of a National Strategic Committee of the Lut Desert World Heritage Site (consisting of a representative of ministries and relevant organizations); Creating eight local Bases for better management; Preparation tourism routes, carparks, signboards and guidelines; Development of Ecolodges; Banning future mining activities and collection of meteorites; Training different stakeholder groups; Improving local community partnerships for conservation and management; and undertaking research on the Lut Desert Ecosystem (IUCN Consultation, 2020). The Lut Desert Management Plan is being updated and will be finalized soon. The Lut Desert management system is running with an integrated management approach. However, no details are currently available on short, medium and long-term planning goals. Greater clarity is needed on the analysis of threats and measures to address them. Lines of control and responsibility need to be agreed and clearly documented. The Lut Desert World Heritage has one Base at national level in Tehran for integrated management, three Bases at provincial centres (three provinces involved in Lut Desert Management) and eight local field Bases located in towns and villages around the Lut Desert (IUCN Consultation, 2020). Important programmes are approved by the National Strategic Committee.

Effectiveness of management system

Due to the recent inscription of the site on the World Heritage List (2016), there has not yet been any assessment of the effectiveness of the management system. Existing field Bases and staff are widely dispersed, and it remains to be seen how coordinated and effective management will be, especially the
lines of control and responsibility. Baselines also need to be established, especially in tourist areas, against which to measure change and the effectiveness of management policy and practices. However, some serious steps in this regard are to create a tour monitoring program by installing a special application. This application also provides tourism information to tour operators and tourists. The preparation of a map of authorized tourist routes has been another measure in this regard. Also, the installation of warning signs and introduction is another effective measure. The monitoring program of this world heritage site is being carried out using satellite images and local bases as well as drones (IUCN Consultation, 2020).

**Boundaries**

These are largely appropriate and effective with the only doubts about boundary configuration in the west to northwest corner, where some 28 settlements and a main road are located within the property, and an area is included (Gandom Beryan Plateau) that is not of global significance and does not relate to the principal features of the Lut Desert. Although there are some features of desert landforms such as meso and micro hoodoos and the shadow dunes between lavas in this area (IUCN Consultation, 2020).

**Integration into regional and national planning systems**

Both national and regional government are fully supportive of the establishment of the World Heritage property, so there is every reason to believe that it will be integrated into regional and national planning systems. Although there is currently insufficient information available to make a decisive assessment, it is reasonable to consider integration of the property into regional and national planning systems to be mostly effective.

**Relationships with local people**

Provincial Strategic Committees (consisting of all stakeholder groups in the Lut Desert World Heritage Site) are formed at provincial level and the different stakeholder groups form good partnerships to manage and protect the Site. Lut Desert field Base programs have been developed to preserve the values of the Site through empowering and involving local communities in the management and conservation, sustainable tourism development and the sustainable development of the Lut Desert World Heritage (IUCN Consultation, 2020). In addition, the relationship of local communities with each other (for example West Lut with East Lut) for integrated management has improved. Many young people in the rural areas of the Lut Desert have joined to the Lut Desert Supporters Association (a non-governmental organization) and are working to promoting awareness and educate local communities, visitors and other stakeholders (IUCN Consultation, 2020). Local people, including administrators, support the concept of the World Heritage property and have long-standing traditional networks that ensure knowledge of activities within the park area. Thus, there is good reason to believe that the cooperation of the public will ensure that protection will be achieved. That said, there are some traditional rural practices that have led inadvertently to desertification in some areas. Education will be required to bring awareness and improve management of land near settlements. From the point of view of the local communities, the actions of the Lut Desert Base are considered positive and usually, in many cases, they work together to help the base management.

**Legal framework**

The Lut Desert is state-owned, and the property is subject to a complex and multi-level protection regime, and to a range of legislation, regulations and protective mechanisms. State level authorities work under their specific mandates with three agencies sharing conservation and management responsibilities for the property: Forests, Range and Watershed Management Organisation; Iranian Department of Environment; and the Iran Cultural Heritage, Handicrafts and Tourism Organisation.

**Law enforcement**

From time immemorial, the desert has looked after itself. The harsh natural environment forces limitations on human behaviour. Now, eight local field Bases have been established around the Lut Desert under supervision the Lut Desert National Base, which has improved management and protection. Each field Base has the task of managing and protecting its own area, and integrally, the
entire Lut Desert (IUCN Consultation, 2020). However, the distances between field Bases and settlements constrain the ability to respond quickly to issues requiring enforcement or assistance, a matter of concern because with modern technology and increased tourist pressure, it seems inevitable that more problems will arise of a kind and perhaps of a scale not previously encountered. It is not clear how such problems will be met and dealt with.

**Implementation of Committee decisions and recommendations**

At the time of the inscription, two recommendations were made by the World Heritage Committee (2016): a) progressively build technical capacity to manage the natural values of the Lut Desert in light of the intrinsic links between the property’s geomorphology, geology and its desert adapted biodiversity and ecology, and b) further study and assess the biodiversity and ecological values of the property with a view to considering nomination also under criteria (ix) and/or (x) at some future time. Through the eight newly established local field Bases, there is now some more capacity to manage the natural values of the Lut Desert, however, more resources and work is still needed to understand physical and biological links within the property (IUCN Consultation, 2020). Studies of the Lut Desert ecosystem are currently being conducted by the Lut Desert World Heritage Base in collaboration with scientific centres, and two reports have so far been published in Persian (Ghollasimod, 2017; Keshtkar, 2018). In addition, the second phase of identifying the Lut Desert ecosystem will begin soon to get a better understanding of the Lut Desert ecosystem.

**Sustainable use**

The vast bulk of the property is ‘managed’ sustainably by ongoing natural processes. Around the edges, use of natural resources needs to be carefully managed to avoid desertification resulting from grazing and firewood collection.

**Sustainable finance**

Funding comes from government appropriations: national, regional and local, as well as income generated from tourism and public use. Finances are derived from the independent budgets of the three responsible state agencies, but no information is available on the breakdown of funding for capital versus recurrent expenditure, nor any guarantee of continuity and ongoing adjustment for inflation. Recently, some private companies helped to finance education for the local community, so that various training courses could be held, and the local community participated with great enthusiasm.

**Staff capacity, training, and development**

The staff of the Lut Desert Bases have had some training over the last few years and have gained much experience. However, due to the vast area of the Site and spread across three provinces, the Bases are in need of more staff. Financial resources for the management and conservation of the Lut Desert need to be improved as well (IUCN Consultation, 2020). There is little experience of international tourism in the area, especially of groups of tourists, so the expectations of international visitors are perhaps not fully appreciated. Further, the Lut Desert is the first natural World Heritage site in Iran, so there is no previous experience in managing the special requirements of natural sites. Consequently, there is still much to be achieved in staff training and development. However, staff capacity building, especially in the level of presentation and tour guide and conservation, was considered to be very effective during these years (IUCN Consultation, 2020).

**Education and interpretation programs**

The relationship of the local community with the managers is at a good level. Over the past few years, many training courses have been organized for the local communities in the margins of the Lut Desert, including a Lut Desert World Heritage Training Course for Students, aiming for tomorrow’s generation to contribute to the preservation and promotion of the Site (IUCN Consultation, 2020). Local community awareness has been promoted for the management and conservation of the Lut Desert. The Lut Desert Supporters Association (a non-governmental organization) has published a colouring book and poetry books for children and are together with local communities and tourism activists collaborating in
clearing and cleaning activities of the Lut Desert (IUCN Consultation, 2020). A booklet for introducing the Lut Desert to tourists has also been published in Persian and English, and the field Bases have information displays that assist visitors to understand the area. However, this is still on a small scale and more remains to be done to interpret the area and convey this information to visitors. A large number of introduction boards are being prepared and will be installed in near future.

**Tourism and visitation management**

Many efforts have been made to manage tourism, visitors and recreation. Tourism activists, tour operators and travel agencies are partnering with the Lut Desert World Heritage Bases to travel the Lut Desert through designated routes. Off-road vehicles arriving in the Lut Desert are GPS-enabled and their traffic is controlled and monitored (IUCN Consultation, 2020). Traffic is only permitted on defined tourist routes and car parking is being created and organized. At present, tourism is on a limited scale and usually involves individuals or small groups, and facilities for overnight stays are limited. Ecolodges are currently being developed within the rural context, but development and construction are not permitted on pristine lands. A visitor information centre is also under construction at the Base in Shafiabad village. After its opening, all visitors and tours will first visit the centre before visiting the Lut Desert through the specified routes (IUCN Consultation, 2020).

**Monitoring**

There is awareness of the need for monitoring of natural features, tourist impacts and management effectiveness, but systems are only just being established. Due to the large area, monitoring is done through satellite images as well as Lut Desert guards. Local communities also report any incidents, changes or interventions to the Lut Desert Base.

**Research**

Basic research has been carried out on the natural science of the property, including on climate, geology, landforms and biota. Effective cooperation exists between management authorities and university scientists, and more recently, comprehensive studies of the Lut Desert ecosystem have been conducted by the Lut Desert World Heritage Bases in collaboration with scientific centres (Ghollasimod, 2017; Keshhtkar, 2018). Research is, for example, carried out on the fault systems in the Lut Desert (Boshrabadi et al., 2018; Marchandon et al., 2018), extreme land surface temperatures (Azarderakhsh et al., 2019), fauna of Lut Desert (Schwentner et al., 2020) and meteorites (Ferrari et al., 2018; Pourkhorsandi et al., 2019), as well as on geotourism development (Maghsoudi et al., 2019). The harsh environment and remoteness of the site has somewhat limited what has been achieved. Given the new status of the site as a World Heritage property, more research is required to fully understand the natural resources that require management, and research is needed on visitor cost-benefits and environmental impacts.

**Overall assessment of protection and management**

Environmental conditions, such as the hot arid climate and large area, as well as seasonal restrictions on tourism have provided good and effective protection for the Lut Desert. The protection and management system is still being developed, especially to address threats to the site’s values posed by expected increases in tourism, traffic and the development of new facilities. Eight new field Bases have been established to improve local management, however, there is some concern regarding the lack of staff. Staff capacity building is though reported to have been effective during the last years.

Most of the property is in a good protection and management situation and only around the villages in the west and north-west of the property are there some concerns about the protection and sensitivity of the fragile environment, and illegal interventions. However, local people generally support the World Heritage designation of the area. Local community partnerships for conservation and management have also been improved in the last years and awareness of the Lut Desert values promoted through training courses. If the anticipated improvement in management capacity and protection materialises, then concerns
Some Concern regarding tourism and development pressures could be minimised.

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

Nature has looked after itself successfully in this desert environment for millennia, although around the more humid desert periphery human impact has in places led to desertification. The use of natural resources needs to be carefully managed to avoid desertification from grazing and firewood collection. A number of new local field Bases have been established for better management, and these have developed training courses and partnership programmes involving the local communities in the management and protection of the Site.

Protection and management measures related to tourism are being developed, such as defining specific tourist routes, fitting off-road vehicles with GPS, construction of a visitor information centre and regulating tourist infrastructure developments. However, conflict between the demands of visitors to see and experience this fragile environment and the need to minimise their impacts, could lead to management issues that are not yet fully addressed.

State and trend of values

Assessing the current state and trend of values

World Heritage values

Superlative examples of yardangs

The yardangs of the Lut Desert are probably the best examples of this land form in the world. The harsh environment and lack of visitation mean that they are essentially undisturbed.

Sand seas

The sand seas of the Lut Desert, or Yallan sand sea, are among the best developed active dune fields in the world, displaying a wide variety of dune types. Within the vast and inhospitable desert landscape of the property, these dune fields and the geomorphological processes that shape them are essentially undisturbed. The sand sea is located in the east of the Lut Desert World Heritage Site and separated from other landforms such as yardangs and nebkhas in the west. In some localised parts at the western edges of the property, some nebkha dunes are showing signs of deterioration as a result of impacts from livestock grazing, vehicles and firewood collection.

Rocky desert

As is the case with the other desert land forms of the property, the harsh environment and vast scale of the landscape have conserved the rocky desert in an essentially undisturbed state.

Visually stunning diversity of spectacular landforms and mosaic of desert colours

The features and landforms available in the Lut Desert are extraordinary and some of them are unique throughout the world. The diversity of features is spectacular, each with their special characteristics, uniqueness and beauty. The harsh hot and arid climate, along with its remoteness and the vast size of the site have provided good and effective natural protection for the Lut Desert.
Summary of the Values

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

Good
Trend: Stable

The property is large (22,780 km²) and surrounded by a wide buffer zone. The landscape and landform values are in an almost undisturbed natural condition, although nebkha dunes have been damaged by grazing, vehicles and wood gathering around at least some of the site’s margins. Natural processes in the harsh desert environment effectively maintain World Heritage values over most of the area, although human impacts are noticeable near settlements and beside the main road where it passes through the property near the Shur River valley.

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

Low Concern
Trend: Data Deficient

Nomination documents indicate limited hunting continues, but impacts on the extreme hot desert ecosystem are unknown. Overall, there is a lack of biological study and research in the Lut Desert, leading to significant knowledge gaps about its desert ecosystem and the species (endemic and/or threatened) of flora and fauna that it harbours. Nevertheless, it can be reasonably assumed that the vastness of the landscape and its harsh environment, which is inhospitable for humans, have left its ecosystem essentially undisturbed.

Additional information

Benefits

Understanding Benefits

▶ Tourism-related income,
Provision of jobs

The special nature of the Lut Desert is known within Iran (Amrikazemi, 2013) and attracts some tourists, but the site is almost unknown internationally. Its recognition and inscription on the World Heritage List will inevitably bring international attention and attract overseas tourists. However, the Lut Desert is inaccessible to local and international tourists alike; so a viable tourist industry will depend on the development of appropriate infrastructure and a well-trained guiding service. This requires serious investment, because conditions can be harsh and dangerous. Sustainable and good quality infrastructure will facilitate a growing tourist industry that will bring direct and indirect employment and tourist-related income to the local people.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low, Trend - Continuing
- Pollution: Impact level - Low, Trend - Increasing
- Overexploitation: Impact level - Low, Trend - Increasing
- Invasive species: Impact level - Low, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

The negative effects will be minimised if most tourist-related construction is required to be sustainable and located outside the property, in the buffer zone or beyond. New eco-camp and ecolodge and infrastructure and trained tour guide increased in recent years near the Shahdad, Fahraj in the south of Lut Desert and Dehsalm (north of Lut Desert) but the impact of them on the property is low. This situation affected the income of local communities. Aerial tourism with balloon and Light aircraft started in recent years.
Importance for research, Contribution to education

The isolation and harsh conditions of the Lut Desert have meant that it has received comparatively little scientific attention. As access improves and the importance of the site as a World Heritage property is recognised, more research is likely to be possible and supported financially. This will lead to an increase in knowledge about the special natural attributes of the Lut Desert which will, in turn, contribute to education at a local, national and international level. Research about flora and fauna (in several stages), geotourism and monitoring of temperature, meteorites and megaripples of Lut Desert increased in recent years.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low, Trend - Continuing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Invasive species: Impact level - Low, Trend - Increasing
- Habitat change: Impact level - Low, Trend - Continuing

Few factors will negatively affect this benefit.

Outdoor recreation and tourism, Natural beauty and scenery

Increased access to a beautiful, challenging and sometimes awe-inspiring landscape brings many personal benefits.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low, Trend - Continuing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Increasing
- Invasive species: Impact level - Low, Trend - Increasing
- Habitat change: Impact level - Low, Trend - Continuing

Few factors are likely to have a significant effect on these benefits.

Summary of benefits

Benefits are typical of those expected in an isolated wilderness site of high landscape value, including knowledge and outdoor recreation. If well managed, the anticipated increase in tourism will bring economic benefits to the local communities.

Projects

Compilation of active conservation projects

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<tr>
<th>№</th>
<th>Organization</th>
<th>Brief description of Active Projects</th>
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<tbody>
<tr>
<td>1</td>
<td>Ministry of Cultural Heritage, Handicrafts and Tourism</td>
<td>Preparation of the first stage of a geodatabase of Lut Desert, including all spatial and attribute of the physical and human geography character of the core and buffer zone. This GIS system helps the management to develop a better and more effective management of the Lut Desert World Heritage.</td>
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<tr>
<td>2</td>
<td>Ministry of Cultural Heritage, Handicrafts and Tourism</td>
<td>Preparation of an Atlas of Lut Desert This project helps the management to demonstrate all aspects of Lut Desert in one or several volumes. Also, it will be very good for the presentation of the property for the people and experts who wants especial information about the Lut Desert.</td>
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<tr>
<td>№</td>
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<tr>
<td>3</td>
<td>Ministry of Cultural Heritage, Handicrafts and Tourism</td>
<td>Second phase of Lut Desert World Heritage ecosystem study. In the first stage, distribution and species of flora of Lut Desert were identified. In the second stage, researchers want to find more information about Lut Desert flora.</td>
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## REFERENCES

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<td>IUCN Consultation (2020). IUCN Confidential Consultation - Lut Desert, Iran.</td>
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