

ARAB STATES

'URUQ BANI MA'ARID

SAUDI ARABIA



'Uruq Bani Ma'arid © IUCN / Maher Mahjoub

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

'URUQ BANI MA'ARID (SAUDI ARABIA) – ID N° 1699

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the nomination under natural criteria (vii) and (ix)

Key paragraphs of Operational Guidelines:

Paragraph 77: Nominated property meets World Heritage criteria (vii) and (ix), but not (x).

Paragraph 78: Nominated property meets integrity requirements and protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on the natural values proposed under criteria (vii), (ix) and (x). The supplementary information was provided by the States Parties on 27 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the geomorphology, biology, ecology, protection and management as well as the comparative values of the nominated property. Further references included: Albaqami, T. S. M. (2018). Impact of Natural Reserves on the Rehabilitation of the Arabian Oryx in the Protected Areas of Mahazat as-Sayd and Uruq Bani Ma'arid, Kingdom of Saudi Arabia from 1980 until 2011, *Journal of humanities and social sciences*, 2, 9; Aloufi, A.A., Amr, Z.S., Abu Baker, M.A., Hamidan, N. (2019). Diversity and conservation of terrestrial, freshwater, and marine reptiles and amphibians in Saudi Arabia. *Amphibian & Reptile Conservation*, 13, 181–202; Aloufi, A.A., Amr, Z.S. and Abu Baker, M.A. (2022). Reptiles from 'Uruq Bani Ma'arid and Harat al Harrah protected areas in Saudi Arabia. *Herpetology Notes*, 15, 483–491; Alwelaie, A.N. (1997). *Bihar ar-Rimal fi 'l-Mamlakat al-'Arabiyyat as-Sa'udiyah* (Sand Seas in the Kingdom of Saudi Arabia). (In Arabic); Amin, R., Wachter, T., Bruce, T. and Barichievy, C. (2021). The status and ecology of the sand cat in the

Uruq Bani Ma'arid Protected Area, Empty Quarter of Saudi Arabia. *Mammalia*, 85, 220–226; Boland, C.R.J., Burwell, B.O. (2021). Ranking and mapping Saudi Arabia's high conservation priority terrestrial vertebrates, *Asian Journal of Conservation Biology*, 10, 197–210; Cooke, R.U.; Warren, A.; Goudie, A.S. (1993). *Desert Geomorphology*. CRC Press London. pp. 395–396; Hall, M., Miller, A., Liewellyn, O., Al-Abbassi, T., Al-Harbi R., Al-Shammari, K. (2011). Important Plants Areas in the Arabian Peninsula: 3: 'Uruq Bani Ma'arid. *Edinburgh Journal of Botany*, 68, 2, 183–197, Doi: 10.1017/S0960428611000047; Kumar, A. and Abdullah, M.M. (2011). An overview of Origin, Morphology and Distribution of Desert Forms, Sabkhas and Playas of the Rub' al Khali Desert of the Southern Arabian Peninsula, *Earth Science India*, 4, III, 105–135; Mésochina, P., et al. (2003). Reintroducing antelopes into arid areas: lessons learnt from the oryx in Saudi Arabia, *Comptes Rendus Biologies*, 326, 158–165; Strauss, W. M. (2006). An ecological study of reintroduced Arabian oryx in the 'Uruq Bani Ma'arid protected area of the Kingdom of Saudi Arabia, University of Pretoria; Williams et al. (2012). Climate change and animals in Saudi Arabia. *Saudi Journal of Biological Sciences*, 19, 2.

d) Consultations: 9 desk reviews received. The mission was able to meet with the Ministry of Culture, National Heritage Commission, National Centre for Wildlife, the administrative region (*Imarah*) of Najran, municipality of Sultana as well as with local communities.

e) Field Visit: Maher Mahjoub, 22 to 27 October 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The nominated property of 'Uruq Bani Ma'arid, a Protected Area designated in 1996 by Royal Decree, is located in the south of Saudi Arabia, covering more than 1.27 million ha. 'Uruq Bani Ma'arid encompasses the western edge of the greatest expanse of windblown sand on Earth, called *Ar-Rub' al-Khali* (also referred to as the 'Empty Quarter' in the nomination), as well as the southern end of the thousand-kilometre-

long Tuwayq limestone escarpment with its vegetated wadis, gravel plains, *sebkha* (salt flats) and inter-dune corridors. The nominated property covers a spectacular hyper-arid desert landscape and a wide range of wildlife habitats. It contains one of the world's largest longitudinal sand-dune systems (*'uruq*) overlying a dissected limestone plateau, part of the southern end of the Tuwayq Escarpment. The property is nominated under criteria (vii), (ix) and (x).

Under criterion (vii), the nomination dossier highlights the nominated property as one of the Earth's most spectacular desert landscapes. 35 longitudinal sand dunes ('uruq in Arabic) reach up to 200 km in length and rise up to 170 m in height. Their wavelength ranges between 2.5 and 4.5 km. Located at the southern end of Jabal Tuwayq, the interaction of the dunes with the Tuwayq limestone escarpment creates a topographic diversity that distinguishes the nominated property from the surrounding areas of the Ar-Rub' al-Khali. The aesthetic value is based on the combination of both gradual changes and stark contrasts of forms and colours. This is supported by the interplay of sand with rocks, and of iconic wildlife, including the white, long-horned Arabian Oryx and flowering plants and trees, against the large scale and dramatic backdrop of the hyper-arid environment.

The mosaic-like intersection and interplay of linear sand dunes, inter-dune corridors, the rock and gravel plains of the limestone escarpment and wadis carving the plateau also creates a greater diversity of habitats and species than in other areas of the Empty Quarter, which the nomination seeks to recognise under criteria (ix) and (x).

Regarding criterion (ix), the nomination highlights the nominated property's importance for endemism (three species endemic to the nominated property, 24 species endemic to Saudi Arabia) and plant diversity (118 species), which has been recognised through an Important Plant Area (IPA). The nominated property is also the place where the Arabian Oryx (*Oryx leucoryx*) was last observed in the wild, in 1979. The State Party however started an Oryx reintroduction programme in the Imam Saud bin Abdul-Aziz Reserve in 1989, followed by the 'Uruq Bani Ma'arid Protected Area in 1993, which at that time was in the process of designation. Today, 150 Oryx are present in the nominated property, according to latest monitoring. At the global level, the Arabian Oryx is assessed as Vulnerable according to the IUCN Red List of Threatened Species. The Arabian Sand Gazelle (*Gazella marica*), also assessed as Vulnerable, and the Endangered Mountain Gazelle (*Gazella gazella*) have also been reintroduced to the site since 1995. These free-ranging populations serve as keystone species for the wider desert ecosystem and find refuge within the varied landscape of the nominated property during prolonged drought periods.

Building on these keystone species, the nomination also proposes 'Uruq Bani Ma'arid's habitat and species diversity under criterion (x). The large-scale natural habitats are home to 526 species recorded, out of which 310 are insects, 118 plants, 53 birds, 21 reptiles, 20 mammals and 4 arachnids. The nomination notes the following animal species as nationally or regionally significant, among others: Afro-Asiatic Wildcat (*Felis lybica*), Sand Cat (*Felis margarita*), Honey Badger (*Mellivora capensis*), all listed as of Least Concern globally according to the IUCN Red List of Threatened Species. The Lappet-faced Vulture (*Torgos tracheliotos*) and Egyptian Vulture (*Neophron percnopterus*) are both Endangered whilst the Asian Houbara (*Chlamydotis macqueenii*) and the Egyptian

Spiny-tailed Lizard (*Uromastix aegyptica*) are assessed as Vulnerable. Among the 118 plant species, there are 30 species classified as threatened at the regional level. Plant communities are differentiated across the three topographical zones: (1) On the limestone plateau, the plant community is dominated by Acacia species; (2) Sand dunes constitute the largest plant habitat in the nominated property and are characterized by woody shrubs; (3) In inter-dune corridors, vegetation is sparse with dwarf shrubs, herbaceous species and the Umbrella Thorn Acacia, *Vachellia tortilis* (Least Concern), being the dominant tree species.

3. COMPARISONS WITH OTHER AREAS

The State Party currently has no natural World Heritage property. The closest existing natural properties to the nominated property are Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park (Sudan), which is mostly a marine property inscribed under criteria (vii), (ix) and (x), and Simien National Park, in Ethiopia, inscribed under criteria (vii) and (x).

The nomination compares 'Uruq Bani Ma'arid with thirteen World Heritage properties, protected areas, and significant areas located within the same ecoregion, as well as a number of sites in other ecoregions with similar climatic and/or geomorphic characteristics. The parameters used for the global comparative analysis under criterion (ix) are the biological and ecological features and processes associated with hyper-arid sand dune deserts. The parameters used for comparison under criterion (x) include the faunal and floral diversity of hyper-arid sand dune deserts and key sites for the revival of key species. The comparative analysis also considered the nominated property's integrity and protection level. While there is no comparison specifically for criterion (vii), field evaluation and reviews strongly support the application of criterion (vii), noting the nominated property stands out at the global level as one of the world's most beautiful and varied desert landscapes. The IUCN World Heritage Panel has also requested supplementary photographic and other documentation from the State Party to underpin the case for criterion (vii).

The nominated property is part of the third-largest desert on earth (Arabian Desert) and of the *Ar-Rub' al-Khali*, Earth's largest unbroken expanse of sand, representing desert wilderness of Arabia. The nominated property is part of the largest sea of wind-blown sand on Earth and contains the largest dunes on the Arabian Peninsula, which are one of the largest of this type worldwide. The natural beauty and aesthetic importance due to the vastness of this undisturbed sand sea has been highlighted by external reviewers.

Also in geomorphological terms, the strongest claim for global significance is that the nominated property represents a large tract of the world's largest active sand sea. It contains excellent examples of some of

the world's largest linear dunes. Whilst these are broadly comparable to those of the Namib Sand Sea World Heritage property, the Great Sand Sea of the Libyan Desert, and of the Wahiba Sands in Oman, the nominated property is distinguished by the widespread presence of *Zibars*, which are particularly well-developed in the nominated area. *Zibars* are features that are generally of low relief, without well-formed slip faces, and composed of coarse and relatively poorly-sorted sand.

Regarding criteria (ix) and (x), the nomination puts a strong emphasis on the nominated property as the only place in the world where iconic desert animals, especially the Arabian Oryx, Arabian Sand Gazelle, and the Arabian Mountain Gazelle have successfully been reintroduced into their natural habitats after decades of extinction in the wild. The populations are completely free ranging in an area exhibiting a high level of ecological integrity. IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis with regards to criteria (ix) and (x), based on spatial analyses and literature review.

Regarding criterion (ix), the IUCN/WCMC Comparative Analysis noted that the nominated property is found in the Arabian Desert terrestrial ecoregion, only represented on the World Heritage List with one site, the Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities (Iraq), inscribed under biodiversity criteria. The nominated property also lies in the Arabian Interior freshwater ecoregion, which is only represented with the Wadi Rum Protected Area World Heritage property (Jordan). Endemism is relatively high in this freshwater region, which is an area that is comprised mainly of minor streams or wadis, small marshes, and springs. Similarly, the nominated property is situated in the Arabian Desert Udvardy Province, which is only represented by Wadi Rum Protected Area either. The former Arabian Oryx Sanctuary (Oman) was also found in this biogeographical province, but was removed from the World Heritage List in 2007.

IUCN therefore considers that a strong argument in favour of the nominated property is the fact that its inscription would be a starting point to address a significant gap on the World Heritage List under criterion (ix) as it would be the only property to represent the Arabian Desert Udvardy Province. At the same time, it deserves to be noted that the nominated property does not overlap with bio-realms and biogeographical regions not yet represented on the World Heritage List, and is not found in any biodiversity hotspot, high biodiversity wilderness area, or priority ecoregion. Nevertheless, the nominated property is considered an Important Plant Area in the Arabian Peninsula due to its importance of national endemic, near endemic, regional endemic and/or regional range-restricted taxa, and the exceptionally rich flora in the regional context in relation to its biogeographic zone. A total of 118 plant species were recorded in the nominated property, which makes it the richest area in the Empty Quarter. The area also hosts five reptile species endemic to Saudi Arabia. Furthermore, the nominated property would also fill a

gap on the World Heritage List following the delisting of the Arabian Oryx Sanctuary World Heritage property (Oman).

The large size of the nominated property ensures that all ecological processes can evolve without disturbance. The supplementary information reinforced the case for criterion (ix) in that the nominated property has a notably high degree of integrity, due to the lack of pressures such as overgrazing and hunting. This allows a close-to-natural appreciation of the relatively young hyper-arid ecosystem of *Ar-Rub'al-Khali* which evolved over successive waves of aridity and humidity since the Late Quaternary period. Adaptation to the hostile environment can be observed, including species intercepting water from fog, such as *Zophosis migeauxi*, a beetle species that forms water droplets via the tips and bumps of its wing scales.

Regarding criterion (x), the WCMC Comparative Analysis found that the nominated property shows a similar level of biodiversity as existing World Heritage properties in the same Palearctic Deserts and Xeric Shrublands biorealm. It is home to several plants, including several endemic and globally threatened species, and a diversity of mammal species, including three reintroduced globally threatened antelope species (Arabian Oryx, Arabian Sand Gazelle, and Arabian Gazelle). Some of the bird species found are globally threatened and some reptile species are endemic to the Arabian Peninsula. Whilst the desert landscape in the nominated property presents a biodiversity that is higher than any other part of the *Ar-Rub' Al-Khali*, the nominated property appears to have average numbers of plant, mammal and bird species. The nominated property does not overlap with any Alliance for Zero Extinction site, Important Bird Area or Key Biodiversity Area. Nevertheless, it does overlap with a protected area considered to be amongst the top 0.3% most irreplaceable in the world for mammal, bird and amphibian conservation, which is however solely due to the presence of the Arabian Oryx. It is noted that the Oryx is also found in other Arabian countries.

Whilst the supplementary information included a species list of commendable quality, the species present do not provide a compelling case for global significance under criterion (x). The current species count of 526 species for the vast area of 1,275,500 ha is low, even for a desert environment. There is also a low number of threatened species in the nominated property. Out of the 526 species listed, there are no Critically Endangered species and only three Endangered species. The Endangered species have a wide distribution range across the Middle East and Africa. Out of the six Vulnerable species, three species are the emblematic keystone species of the Arabian Oryx, Arabian Sand Gazelle and the Arabian Mountain Gazelle, each with 19%, 25% and 2% of its total worldwide population respectively within the nominated property. In IUCN's view, the doubtlessly important role of these keystone species as well as the endemic and threatened species would best be recognised under criterion (ix) alone, rather than criterion (x), as part of an intact and vast desert ecosystem.

In conclusion, whilst there does not appear to be a compelling case for global significance under criterion (x), IUCN considers that the nominated property demonstrates global significance under (ix). It is also a convincing case for global significance under criterion (vii).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

In 1996, 'Uruq Bani Ma'arid was designated a protected area by Royal Decree. As such, the nominated property enjoys the highest level of protection at the national level. Any harmful action is prohibited, including driving on non-designated roads and wildlife hunting. Activities within the nominated property are prohibited, unless a permit from NCW is granted. Grazing and farming is also not permitted, except in areas and periods strictly defined by NCW. The nominated property is entirely publicly owned.

The very recent Environment Protection Law, adopted in 2020, is the main legislative framework applying to the nominated property and its buffer zone. The Environment Protection Law mandates the National Centre for Wildlife (NCW) as the responsible authority in charge of proposing, managing, and supervising protected areas with the implementation of this Law. It is executed through several bylaws, including an updated protected areas bylaw, the Protected Areas Regulation, adopted by the Government in September 2021. This Regulation provides a legal framework for the protection and management of the States Party's protected areas. It is important to note that within protected areas the Protected Area Regulation supersedes any other regulations. The legal responsibility for historical monuments is vested in the Ministry of Cultural through its Heritage Committee.

Desk reviewers and the field mission noted that, overall, the protection and management of Uruq Bani Ma'arid is robust and the governance sound whilst taking into account the interests of local communities. The rules, plans, programmes, structure and organization of the managing body guarantee rigorous conservation of the potential Outstanding Universal Value and integrity of the nominated property. Therefore, there is a sufficiently strong legal basis and institution framework to ensure adequate protection of the property.

IUCN considers that the protection status of the nominated property meets the requirements of the Operational Guidelines.

4.2 Boundaries

The boundaries of the nominated property are congruent with those of the 'Uruq Bani Ma'arid Protected Area. At 1,275,500 ha, the nominated property covers a vast area of desert that supports its claim for integrity particularly under criteria (vii) and (ix). With respect to criteria (vii) and (ix), IUCN notes that the attributes present within the nominated property express the potential Outstanding Universal Value (OUV) under both criteria. Iconic desert animals, including the Arabian Oryx, Arabian Sand Gazelle, and Arabian Mountain Gazelle, have successfully been reintroduced into their natural habitats. It is also the only place where these animal populations are completely free ranging in an area with a high level of ecological integrity and underpinned by boundaries based on a strong legal framework for long-term protection. With respect to criterion (x) however, IUCN notes that only fractions of the distribution range of the key species would be covered.

The nominated property's zoning plan divides the area into four zones, with an additional buffer zone: Firstly, a Wilderness Zone (IUCN Category Ib) of 684,750 ha (54% of the nominated property) is designed to enclose the main area of the longitudinal sand dunes ('uruq), the limestone plateau, the inland wadis, the wide range of habitats and plants, and the habitats of the flagship species (Arabian Oryx, Sand Gazelle and Mountain Gazelle). Secondly, a Nature-Culture Ecotourism Zone (IUCN Category II) of 26,850 ha (2%) is located at the northern edge of the nominated property. Thirdly, a Sustainable Resource Use Zone (IUCN Category VI and V) 560,140 ha (44%) where sustainable camel grazing may be tested. Fourthly, a General Use Zone of 4,290 ha (less than 0.5%) is reserved for the management and visitor facilities of the main ranger station.

Finally, there is a buffer zone straddling along the western part of the nominated property taking account of the human interventions occurring along a north-south road connection from Riyadh to Najran. Within this 80,600 ha area, there are three types of land use adding up to 5% of the buffer zone area: (1) a former limestone quarry, which is planned to be rehabilitated, (2) small farms used by two families, and (3) the Najran Cement Factory with a license active since 2005. While these activities could pose a threat to the nominated property if expanded further, they currently occur only within a very small area of the buffer zone and do not pose a significant threat to the nominated property. The mission reviewed the overall zoning regime and considered the scheme is adequate for protection and management whilst ensuring an appropriate representation of the nominated property's values, a view which was also widely supported by desk reviewers.

In conclusion, IUCN considers that the boundaries of the nominated property encompasses a complete and intact representation of the wider desert ecosystem, with a buffer zone functioning as an added layer of protection at the western edge of the nominated property.

IUCN considers that the boundaries of the nominated property and buffer zone meet the requirements of the Operational Guidelines.

4.3 Management

The nominated property is managed by the National Centre for Wildlife (NCW), which is an independent entity both administratively and financially within the institutional framework of the Ministry of Environment, Water, and Agriculture (MEWA). The 'Uruq Bani Ma'arid Protected Area is divided almost equally between two administrative regions (*Imarah*): the *Imarah* of Riyadh covering 57% of the nominated property and the *Imarah* of Najran covering 43% of the nominated property. The day-to-day management is coordinated directly with the *Imarah* of Najran.

The State Party's Protected Areas Regulation requires NCW to implement a protected area management plan no longer than 90 days after the establishment of a protected area. This involves the creation of a site management team in charge of the implementation of the Management Plan, which also needs to allow for representation by researchers, local communities, NGOs and CBOs. NCW is also required to develop a conservation zoning plan, including regulation of visitor access and classification under IUCN Protected Area Categories (see previous chapter). The zoning plan represents a ten-year conservation vision for the protected area as a potential natural World Heritage property. The division of the nominated property into four distinctive zones seeks to balance conservation and sustainable development objectives.

A rapid protected area management effectiveness assessment was undertaken for the 'Uruq Bani Ma'arid Protected Area in 2018. This assessment recommended, *inter alia*, the development of a new management and zoning plan. Subsequently, a new management plan has been developed for 2021-2023 based on IUCN best practises and guidelines. The World Heritage nomination was one of the strategic outputs of the new management plan with the objective to guide the site's transition from a national protected area to a globally recognized area. The implementation started in 2021 and all required human, financial, and logistical resources have been allocated, along with national and international technical expertise. The 'Uruq Bani Ma'arid Protected Area is fully financed by the Government of Saudi Arabia along three main budget categories: (1) approximately USD 3.2 million are allocated to the 141 staff; (2) 400,000 USD cover management operations; and (3) USD 2.8 million fund currently eight conservation projects.

The field evaluation mission and desk reviewers found that this substantial annual budget available for the site supports effectively a well-staffed and well-trained management team. It was recommended to further strengthen the scientific team of the nominated property by appointing a permanent ecologist at the site level in charge of the scientific monitoring of the wildlife and biodiversity. The infrastructure and facilities for the management are also adequate. The management plan provides a clear diagnosis of the context and needs, and a set of priorities to be undertaken during the three years. The management plan includes an annual work plan with clear activities and goals to be attained by the management team. There are eight well-equipped ranger stations distributed across the nominated property. Thanks to patrolling and close cooperation with the local communities, it has been possible to make a measurable increase in the effectiveness of management.

In conclusion, IUCN considers that a strong and well-resourced management system is in place for the nominated property. IUCN also recommends that the State Party be requested to provide the subsequent management plan for 2024-2028, once it becomes available.

IUCN considers the management of the nominated property meet the requirements of the Operational Guidelines.

4.4 Community

The nominated property is entirely state-owned with no private lands or land claims within its boundaries. Traditionally, the area was shared by major tribes, namely, the Dawasir Tribe of the Riyadh Region, and the Yam Tribe of the Najran Region. Representatives of local communities participate in an advisory committee that has been established for the nominated property. All rangers of the nominated property have been hired from local communities. The mission observed that local communities met are supportive of the nomination and there appears to be a good partnership between the management team, the authorities and local people, which are regularly involved in decision-making processes.

4.5 Threats

Whilst the wider region has a long history of human habitation and commerce, the nominated property was not subject to human settlements or overgrazing in the past. Most human activity was limited to the periphery of the nominated property within or beyond the proposed buffer zone. Nevertheless, it has in the past been impacted by camel grazing and hunting, practiced by local communities. Desk reviewers also noted that the biodiversity values of the nominated property are extremely fragile, a vulnerability which is exacerbated by climate change as the main threat to the nominated property. The management team succeeded in reducing the impacts of grazing and

hunting through negotiations and regular communication with local communities. The recently established legal framework has considerably strengthened the management team's control over the area. Furthermore, NCW is working closely with the Environment Police and the Ministry of Interior to enforce the law, which led to a decrease of poaching activities during the last years.

Regarding tourism development, a Nature-Culture Ecotourism Zone (IUCN Category II) of 268.5 sq km (approximately 2% of the nominated property) has been agreed within the new zoning plan. This area is located in the north of the nominated property, close to the Al-Faw cultural area. A current strategy for ecotourism development, as part of a nation-wide program, is currently under preparation by NCW and as a result, it is expected that tourism activities and visitation will be increasing gradually in and around protected areas. The total number of visitors to the protected area since 2013 reached a total of 1,058 persons, which is low considering the vast nominated area. So far, visitor activity has not caused negative impacts on the nominated property.

As noted above, two closed quarry sites and one active cement factory are found in the buffer zone of the nominated property. There are plans being developed to rehabilitate the two former quarry sites and to reinforce the environmental monitoring on any impacts from the cement factory. The areas affected are minor in relation to the nominated property and its buffer zone. Local communities hold grazing rights in some areas of the buffer zone, although the vegetation cover is sparse.

In conclusion, IUCN considers that the threats to the nominated property are understood and being mitigated, and addressed via a strong and well-funded protection and management system. Noting the fragile nature of the nominated property and the prospect of climate change impacts, IUCN recommends the State Party to ensure that no further projects are developed in the buffer zone (and within the nominated area) that could negatively impact the proposed OUV of the nominated property; to rehabilitate the two quarrying sites inside the buffer zone, as planned by the State Party; to continue negotiations with the local communities as to how to retain camel grazing at sustainable levels; and to monitor and respond to any negative impacts from the cement factory.

In summary, IUCN considers that the integrity requirements and protection and management requirements of the *Operational Guidelines* are met.

5. ADDITIONAL COMMENTS

IUCN notes that the State Party has submitted a nomination of the Cultural Landscape of Al-Faw Archaeological Area under cultural criteria to be considered in the 2023/2024 evaluation cycle. The historic city of Al-Faw is located in the buffer zone at the north-western edge of the nominated property. The main archaeological site of Al-Faw is located outside

the nominated property whilst there are further archaeological artefacts inside the nominated area. There is coordination in place between the Heritage Commission responsible for the Al-Faw site and the nominated property's management team. The present evaluation report makes no conclusions regarding the newly submitted nomination.

6. APPLICATION OF CRITERIA

The '**Uruq Bani Ma'arid (Saudi Arabia)** has been nominated under natural criteria (vii), (ix) and (x).

Criterion (vii): Superlative natural phenomena or natural beauty or aesthetic importance

'Uruq Bani Ma'arid encompasses the western part of the greatest expanse of windblown sand on Earth, known as *Ar Rub' al-Khali* and conserves one of the Earth's most spectacular desert landscapes. The nominated property is characterised by the interplay of three types of dunes: complex longitudinal dunes; barchanoid dunes, and dome-shaped dunes called *zibars*; all contributing to the nominated property's aesthetic value.

There are 35 giant longitudinal dunes ('*uruq*') which extend as much as to 200 km in length, with a wavelength between dune crests that ranges between 2.5 km and 4.5 km. The crests of the dunes rise to more than 160 meters in height. These are the largest linear sand dunes on the Arabian Peninsula and among the largest dunes of this type on Earth. Barchanoid dunes are small, oval dunes moving along the interdunal corridors and *Zibars* emerge on the flanks of the '*uruq*' and in the interdunal corridors. *Zibars* are particularly well-developed in the nominated property and add to its geomorphological diversity.

The overlay between the vast longitudinal sand dunes and the Tuwayq Escarpment dissected by vegetated wadis, gravel plains, and inter-dune corridors adds to the aesthetic value of the nominated property, which is also based on the combination of both gradual changes and stark contrasts of forms and colours. This is supported by the interplay of sand with rocks, and of iconic wildlife, including the white, long-horned Arabian Oryx and flowering plants and trees, against large scale and dramatic backdrop of the hyper-arid environment.

IUCN considers that the nominated property meets this criterion.

Criterion (ix): Ecosystems/communities and ecological/biological processes

The varied topography of the nominated property creates a wide range of wildlife habitats and niches, including ecological refuges to the Arabian Oryx, Arabian Sand and Arabian Mountain Gazelles. The nominated property is globally notable due to the reintroduction of iconic desert animals, including the Arabian Oryx, Arabian Sand Gazelle, and Arabian

Mountain Gazelle into their natural habitats after decades of extinction in the wild. The animal populations are completely free ranging in an area with a high level of ecological integrity and a strong framework for effective conservation and long-term protection. The Tuwayq Escarpment and its associated network of inland wadis play a vital role to support woody perennial plants, which are essential as feeding and shelter areas for the flagship species. Whilst low on biodiversity, the site may exhibit a high level of endemism, including two species endemic to the nominated property and currently under description, as well as five reptile species endemic to Arabia, among others. The mobile dunes provide an excellent and well-oxygenated habitat for sand-diving invertebrates and reptiles.

The vast area of the nominated property ensures representation of the hyper-arid desert ecosystem with all its elements covered and subject to undisturbed evolution. The trophic network is intact and in balance. Ingenious adaptations by plant and animal species to the hostile environment and speciation processes can be observed. The nominated property stands out due to its large size and high level of integrity with impacts from tree-cutting, overgrazing, hunting and other drivers of desertification largely being absent.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

The current species count of 526 species for the vast area of 1,275,500 ha is low, even for a desert environment. There is also a low number of threatened species in the nominated property. Out of the 526 species listed in supplementary information, there are only three species assessed as Endangered and six assessed as Vulnerable species on the IUCN Red List of Threatened Species. There are no species assessed as Critically Endangered present in the nominated property. Species noted as Endangered have a wide distribution range across the Middle East and Africa; thus, the nominated property alone would not appear to adequately represent these species. Out of the six species listed as Vulnerable, three species are the iconic keystone species of the Arabian Oryx, Arabian Sand Gazelle and the Arabian Mountain Gazelle, each having 19%, 25% and 2% respectively of its total worldwide population present within the nominated property. IUCN considers that the biodiversity values of the nominated property, whilst significant are not sufficient to meet criterion (x) and they would be more appropriately recognized under criterion (ix) as part of an intact desert ecosystem.

IUCN considers that the nominated property does not meet this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopts the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC/23/45.COM/8B and WHC/23/45.COM/INF.8B2,
2. Inscribes 'Uruq Bani Ma'arid, Saudi Arabia, on the World Heritage List on the basis of **criteria (vii) and (ix)**;
3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

'Uruq Bani Ma'arid is situated at the western edge of Ar-Rub' al-Khali, known to be the largest continuous sand sea on Earth. The property's hyper-arid desert represents iconic wilderness of Arabia and conserves one of the Earth's most spectacular desert landscapes with a wide variety of wildlife habitats. It harbours greater biological diversity than any other part of Ar-Rub' al-Khali and features one of the world's largest longitudinal sand dune systems overlying a dissected limestone plateau, and the southern end of the Tuwayq Escarpment with its vegetated wadis, gravel plains, and inter-dune corridors. The gradient of natural habitats embraced within the property forms the building blocks of a functioning ecological network of patterns and processes supporting the survival and viability of key plant and animal species of global importance, including successfully reintroduced species. 'Uruq Bani Ma'arid is the last place where Arabian Oryx were observed in the wild, and it is now the focus of an intensive and successful reintroduction program for Arabian Oryx and other keystone species, such as the Arabian Sand Gazelle, and the Arabian Mountain Gazelle.

Located at the southern end of the Jabal Tuwayq limestone escarpment, the area covered by the property exemplifies the interaction of Ar-Rub' al-Khali's dunes with the escarpment creating a topographic diversity that distinguishes the property from the surrounding areas of the Ar-Rub' al-Khali. Where the dynamic sand dunes witness the process of species adaptation to extreme physical environments, the more stable escarpment provides the sporadic refuge needed for the survival of the property's free-ranging species. In total, the property encompasses 1.27 million hectares of intact desert ecosystems with a buffer zone of 80,600 hectares.

Criterion (vii)

'Uruq Bani Ma'arid is an iconic hyper-arid sand desert representing the largest sand sea on Earth, Ar-Rub' al-Khali. Where the sands meet the Tuwayq escarpment, they form an extraordinary spectrum of juxtaposed contrasts and fusions of forms and colours. 35 longitudinal sand dunes ('uruq in Arabic) reach up to 200 km in length and rise up to 170 m in height. Their wavelength ranges between 2.5 and 4.5 km. The property is also distinguished by the widespread

presence of zibars, which are particularly well-developed in the property. Zibars are features that are generally of low relief, without well-formed slip faces, and composed of coarse and relatively poorly-sorted sand.

The property serves as an ecological refuge for iconic wildlife of the desert and offers a world-class panorama of the windblown sands of the Ar-Rub' al-Khali desert, with some of the world's highest longitudinal dune fields, and inter-dunal corridors, eastward-flowing high vegetation wadis, the Tuwayq Escarpment engulfed by westward flowing sands, and low sand plains to the west of the escarpment. A wide spectrum of colour harmonies derives from the resonance of contrasting hues of the sand grains in the ripples that cover the dunes. A true portrait of the desert where the light-coloured Arabian Oryx (or wudayhi, meaning clear in Arabic) contrasts against the large-scale and dramatic backdrop of the hyper-arid environment.

Criterion (ix)

The varied topography of the property creates a wide range of wildlife habitats and niches, including ecological refuges to the Arabian Oryx, Arabian Sand Gazelles and Arabian Mountain Gazelles, successfully reintroduced into their natural habitats after decades of extinction in the wild, with each having 19%, 25% and 2% respectively of their total worldwide population present within the property. The animal populations are completely free ranging in a huge area with a high level of ecological integrity. Ingenious adaptations by plant and animal species to the hostile environment and speciation processes can be observed. The Arabian Sand Gazelle is adapted to great extremes of temperature and drought and the Arabian Oryx is able to adapt to rising temperatures. The property counts 526 recorded species at the time of inscription, forming an intact ecosystem. The Tuwayq Escarpment and its associated network of inland wadis play a vital role to support woody perennial plants, which are essential as feeding and shelter areas for the flagship species.

Whilst low on biodiversity compared to other desert properties globally, 'Uruq Bani Ma'arid appears to exhibit the richest flora in the Ar-Rub' al-Khali with 118 plant species recorded and a high level of endemism. The area also hosts five reptile species endemic to Arabia and it is a critical site for plant conservation, with locally endemic, near-endemic, regionally endemic and/or regional range-restricted taxa.

Integrity

The property stands out due to its large size and high level of integrity with impacts from tree-cutting, overgrazing, hunting and other drivers of desertification largely being absent. The vast area of the property ensures representation of the hyper-arid desert ecosystem with all its elements covered and subject to undisturbed evolution. The trophic network is intact and in balance. However, it is important to note the fragile nature of the property's ecosystem, especially in the context of climate change.

The configuration of 'Uruq Bani Ma'arid, combining sand dune systems with an escarpment and incised plateau creates an exceptional "edge effect" for the survival of wildlife in a hyper-arid environment. Integrity is maintained thanks to the property's remoteness and long distance to major developments. A rugged terrain and harsh climate have deterred permanent human residence and large-scale resource use.

Protection and management requirements

The property is congruent with the 'Uruq Bani Ma'arid Protected Area, which effectively protects flagship species. It is important to maintain the high level of intactness of the property and to ensure the desert ecosystem remains undisturbed and will not be affected by camel grazing and illegal wildlife hunting. It is excluded from oil and gas exploration and extraction, which is confirmed by Royal endorsement. Requirements of environmental audit, rehabilitation of former quarry sites, and needs to monitor private farms in the vicinity of the protected area are receiving adequate attention at the time of inscription.

In 1996, 'Uruq Bani Ma'arid was designated a protected area by Royal Decree and it enjoys the highest level of protection at the national level. The property is entirely state-owned with no private lands or land claims within its boundaries. It is adequately protected by national legislation. The main legislative framework is the national environmental protection law of 2020, which represents a legal umbrella. It is executed through several bylaws, including an updated protected areas bylaw, ratified by the Government in September 2021, which is the main legislative instrument pertaining to protected areas. The National Centre for Wildlife is the national authority in charge of proposing, managing, and supervising protected areas. Other legislative frameworks regulate human activities primarily outside protected areas, including the national wildlife hunting regulation, wood cutting regulation, environmental violations and penalties regulation, environmental licensing for the construction and operation of development activities regulation, and the environmental rehabilitation and degraded and polluted sites regulation. Increased camel grazing, occurring in the sustainable resource use zone, and illegal wildlife hunting are the main activities that could become a concern. They are both adequately addressed by the management team at the time of inscription. A buffer zone to the west protects the property against environmental degradation from nearby development activities.

A three-year management plan guides the property's transition from a national protected area to a World Heritage property. Implementation started in 2021 and all required human, financial, and logistical resources have been allocated, along with national and international technical expertise. On-site management is guaranteed by more than 140 staff and sustainable funding is provided by the Government. In 2021, an updated zoning plan was developed, representing a ten-year conservation vision for the protected area as a natural World Heritage property. This will ensure the highest level of integrity and effective long-term protection of the property's natural values and

attributes. At the time of inscription, the property is divided into four distinctive zones balancing conservation and sustainable development objectives: wilderness zone (54%), nature-culture ecotourism zone (2%), sustainable resources use zone (44%), and the general use zone (less than 0.5%), in addition to a buffer zone of 80,600 hectares.

4. Requests the State Party to:

- a) Ensure that no projects are developed in the buffer zone and/nor within the property area that could negatively impact the Outstanding Universal Value of the property,
- b) Rehabilitate the two quarrying sites inside the buffer zone, as planned,
- c) Continue consultations with the local communities to ensure camel grazing remains at sustainable levels,
- d) Monitor and respond to any negative impacts from the established cement works located within the property's buffer zone,
- e) Submit the updated management plan for 2024-2028 to the World Heritage Centre, once it becomes available.

Map 1: Nominated property and buffer zone.

