

ASIA / PACIFIC

QINGHAI HOH XIL

CHINA



Tibetan antelope (*Pantholops hodgsonii*) © IUCN / Chimed Ochir-Bazarsad

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

QINGHAI HOH XIL (CHINA) – ID N° 1540

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the property under natural criteria.

Key paragraphs of Operational Guidelines:

Paragraph 77: Nominated property meets World Heritage criteria.

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

1. DOCUMENTATION

a) Date nomination received by IUCN: 24 March 2016

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a progress report was sent to the State Party on 20 December 2016. This letter advised on the status of the evaluation process and sought responses/clarifications on a range of issues including clarifications in relation to the delimitation of the property, the justification of boundaries, future plans and management of the transport corridor that crosses the area, commitments in relation to traditional communities within the nominated property, and measures related to the control of poaching, and the use of poison for the control of Pika. A meeting with representatives of the State Party was held at IUCN Headquarters on 20 February 2017 to discuss the response to these questions. A formal response from the State Party to the issues raised in the progress report was received by the World Heritage Centre on 24 February 2017.

c) Additional literature consulted: Various sources, including: Badingqiuying, Smith, A.T., Senko, J. and Siladan, M.U. 2016. *Plateau pika (Ochotona curzoniae) poisoning campaign reduces carnivore abundance in southern Qinghai, China*, *Mammal Study* 41: 1–8. Berger J., Cheng E., Kang A., Krebs M., Li L., Xin Lu Z., Buzhou B., and Schaller G.B. 2014. *Sex differences in ecology of wild yaks at high elevation in the Kekexili Reserve, Tibetan Qinghai Plateau, China*. *Journal of Mammalogy* 95(3): 638-645; Buzzard, P., and Berger, J. 2016. *Bos mutus*. The IUCN Red List of Threatened Species 2016: e.T2892A101293528. Fund, W. 2013. Central Tibetan Plateau alpine steppe. Retrieved from <http://www.eoearth.org/>, accessed in November 2016. Fund, W. 2014. North Tibetan Plateau-Kunlun Mountains alpine desert. Retrieved from <http://www.eoearth.org/>, accessed in November 2016. Harris R.B., Pletscheer K.H., Loggers C.O., and Miller D.J. 1999. *Status and trend of Tibetan plateau mammalian fauna, Yeniugou China*. *Biological Conservation* 87: 13-19. Huang W., Xia L., Yang Q., and Feng Z. 2008. *Distribution pattern and zoogeographical division of mammals on the Qinghai-Tibet Plateau*. *Acta Theriologica Sinica* 28(4): 375-394. IUCN SSC Antelope Specialist Group. 2016. *Panholops hodgsonii*. The IUCN Red List of Threatened Species 2016: e.T15967A50192544.

Schaller G.B., and Wulin L. 1996. *Distribution, status and conservation of wild yak Bos grunniens*. *Biological Conservation* 76: 1-8. Qi D., Chao Y., Guo S., Zhao L., Li T., Wei F., and Zhao X. 2012. *Convergent, Parallel and Correlated Evolution of Trophic Morphologies in the Subfamily Schizothoracinae from the Qinghai-Tibetan Plateau*. *PLoS One* 7(3): e34070. WWF (2016) List of ecoregions. Downloaded from http://www.panda.org/about_our_earth/ecoregions/ecoregion_list/, accessed in November 2016.

d) Consultations: 14 desk reviews received. The mission met with a wide range of stakeholders including national level officials from the Ministry of Housing and Urban-Rural Development and a range of senior technical specialists and scientists. Meetings involved the National Commission of UNESCO, and a visit was made to the IUCN office in China. The main authorities responsible for the property at local level were met, including the Qinghai World Heritage Management Office, Secretary-General of The Party Committee of Yushu Tibetan Autonomous Prefecture, Governor of Yushu Tibetan Autonomous Prefecture, and local mayors and community leaders. Directors and senior technical specialists within the relevant technical departments of the local authorities were also met, and meetings with community representatives included local village committees, herders, as well as staff from schools and museums were held.

e) Field Visit: Chimed-Ochir Bazarsad and Carlo Ossola, 27 October - 6 November 2016

f) Date of IUCN approval of this report: April 2017

2. SUMMARY OF NATURAL VALUES

The nominated property, Qinghai Hoh Xil, is located in Qinghai Province, in the northeast part of the Qinghai-Tibetan Plateau in China. The property is a single and very large contiguous area of 3,735,632 ha and comprises sectors of two adjoining protected areas: Hoh Xil National Nature Reserve in the west and the Soja-Qumar River sub-zone of Sanjiangyuan National Nature Reserve in the east. The nominated area connects these two protected areas via three 20 km wide corridors which span the Qinghai Tibet Highway and Railway, which is a major transport corridor crossing the area from north-south and discussed further in the section on threats below. The sections of this corridor that are not included in the corridors are

designated as buffer zone areas. A further large area of buffer zone adjoins the nominated property in the east and south, and also lies completely within the same two Nature Reserve areas, creating a total buffer zone of 2,290,904 ha. Buffer zones are not designated to the west and north of the nominated property: the nominated property is bordered to the west and northwest by the Changtang National Nature Reserve in the Tibetan Autonomous Region and by the Altun Mountain National Nature Reserve in the Xinjiang Autonomous Region. In the north the property is bordered by the Kunlun Mountains, and for a small part of its boundary by the Golmud Kunlun Mountains National Geological Park.

The Qinghai-Tibetan Plateau is the largest, highest and youngest plateau in the world, and, within this area the nominated property encompasses an extensive area of alpine mountains and steppe systems at elevations of over 4,500m above sea level. The area has a frigid plateau climate, with sub-zero average year-round temperatures and the lowest temperature occasionally reaching -45°C. With its ongoing processes of geological formation, the nominated property includes a large planation surface and basin on the Qinghai-Tibet Plateau. It is the area with the highest concentration of lakes on this Plateau, exhibiting an exceptional diversity of lake basins and inland lacustrine landscapes at high altitude. The very large scale of the area and its substantially natural conditions create an area with exceptional natural beauty, whose aesthetic values are related to the experience of wild nature. The high plateau systems function unimpeded on a grand scale, wildlife is vividly juxtaposed against vast treeless backdrops, and tiny cushion plants contrast against towering snow covered mountains. In the summer, the tiny cushion plants form a sea of vegetation, which when blooming creates waves of different colours. Glacial melt waters create numerous braided rivers which are woven into huge wetland systems forming tens of thousands of lakes. The lakes display a full spectrum of succession stages, forming an important catchment at the source of the Yangtze River and a spectacular landscape.

The geographical and climatic conditions nurture a similarly unique biodiversity. More than one third of the plant species, and all the herbivorous mammals dependent on them are endemic to the plateau, and 60% of the mammal species as a whole are plateau endemics. High levels of endemism within the flora of the property are associated with high altitudes and cold climate and contribute to similarly high levels of endemism within the fauna. Alpine grasslands make up 45% of the total vegetation in the property dominated by the grass *Stipa purpurea*. Other vegetation types include alpine meadows and alpine talus. Over one third of the higher plants found in the property are endemic to the Plateau and all of the herbivorous mammals that feed on these plants are also Plateau endemics. There are 74 species of vertebrates in Hoh Xil, including 19 mammals, 48 birds, six fish, and one reptile (*Phrynocephalus vliangalii*). The property is home to Tibetan antelope

(*Pantholops hodgsonii* - NT¹), wild yak (*Bos mutus* - VU), Kiang/Tibetan wild ass (*Equus kiang* - LC), wolf (*Canis lupus* - LC) and brown bear (*Ursus arctos* - LC) and the Tibetan gazelle (*Procapra picticaudata* - NT), all of which are frequently observed. Large numbers of wild ungulates depend on the property including almost 40% of the world's Tibetan antelope and an estimated 32-50% of the world's wild Yak.

Hoh Xil conserves the habitats and natural processes of a complete life cycle of the Tibetan antelope, including the phenomenon of congregating females giving birth after a long migration. In early summer each year, tens of thousands of female Tibetan antelopes migrate for hundreds of kilometres from wintering areas in Changtang in the west, the Altun Mountains in the north and Sanjiangyuan in the east to Hoh Xil's lake basins to calve. The property secures the complete antelope migratory route between Sanjiangyuan and Hoh Xil, and the calving grounds for other routes. The calving grounds in Hoh Xil support up to 30,000 animals each year and include almost 80% of the identified birth congregation areas in the entire antelope range. During the winter, some 40,000 Tibetan antelopes remain in the property, accounting for 20-40% of the global population.

There is limited human presence in the property, outside of the impacts of the transport corridor, however it should be noted that the area is the location for long-standing traditional grazing, and this is also further discussed below in the section on communities.

3. COMPARISONS WITH OTHER AREAS

The property is nominated in relation to criteria (vii) and (x), and the nomination includes an adequate comparative analysis, which is stronger in relation to the latter of the two criteria.

In relation to criterion (vii), notable features include the presence as part of the world's highest and youngest plateau (however reviewers question if the selected area can claim to be the most exception representation of the plateau), the predominance, diversity and density of lakes, the exceptional hydrological system characterized by a succession of glaciers, marshlands, rivers and lake, and the calving areas of the Tibetan antelope as well as the seasonal migration of a large proportion of the existing population of this species in this area every year. The migration of ungulates in such an ecosystem is also exceptional and a comparison of the migration of mammals over long distances and vast areas is attempted in the nomination dossier. Whilst many other migration phenomena are very impressive and important, it is notable that the nominated property includes one important migration route in its entirety, and extensive calving grounds for other routes, even if they extend beyond the property's boundaries. The observation of the migration in such a remarkable landscape is, of

¹ These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit <http://www.iucnredlist.org>

itself, an exceptional aesthetic experience. The broader scenic values, as enumerated above, are impressive on a global scale, even if, despite the very large size of the area nominated, they can be regarded as being only a small part of the overall area of the Qinghai-Tibet Plateau. Overall the property appears clearly able to make a strong case for the application of criterion (vii) when compared with other properties that have already been listed under this criterion.

IUCN has carefully considered the biodiversity values of the property, including via a comparative analysis undertaken with UN Environment WCMC. IUCN concludes that the biodiversity that characterises the nominated property appears to be of global significance, especially with regard to criteria (x). Compared to existing sites found in the same biome, the nominated site appears to have a relatively low level of biodiversity, however, surveys might still be incomplete. But more importantly, it is home to a high proportion of species endemic to the Qinghai-Tibet Plateau and a significant number of threatened species. The presence of endemic ungulate species such as the Tibetan antelope and Tibetan wild yak is particularly noteworthy, with large populations inhabiting the property. The nominated property is not found in a biogeographical unit which has been mentioned as a gap on the World Heritage list. However, it overlaps with two protected areas listed amongst the most irreplaceable in the world, especially with regard to their importance for mammal and bird species. Both the information provided by the nomination file on the high level of endemism and the results of the irreplaceability analysis suggest that the nominated property is globally important for the conservation of a number of range restricted species endemic to the Tibetan Plateau. As touched on above, this is further demonstrated by exceptionally high irreplaceability scores for the two protected areas that overlap significantly with the nominated property.

Sangjiangyuan National Nature Reserve (which overlaps at 23.4% with the nominated site) encompasses over 10% of the global distribution range of dozens of mammal, bird and amphibian species, making it the most or one of the two most important protected areas for many of these species worldwide, and especially mammals and birds. This includes for instance almost the entire distribution of the Smokey Vole (*Lasiopodomys fuscus* - LC) and Tibetan dwarf hamster (*Cricetulus tibetanus* - LC), and a significant proportion of the range of important mammal species, such as the White-lipped Deer (*Przewalskium albirostris* - VU), the Tibetan antelope or Chiru (*Pantholops hodgsonii* - EN), and the Alpine Musk Deer (*Moschus chrysogaster* - EN). This protected area also protects bird species of great conservation importance, including more than two third of the world distribution of the Tibetan rosefinch (*Carpodacus roborowskii* - LC), as well as one third of the range of the Tibetan bunting (*Emberiza koslowi* - NT), and parts of the range of 44 other birds of conservation importance. Hoh Xil Nature Reserve (which overlaps at 75.7% with the nominated site) contains less species of global conservation importance but is still particularly significant for the conservation of the Wild

Yak (*Bos mutus*) and Ladak Pika (*Ochotona ladacensis* - LC). IUCN considers that, whilst this analysis indicates that there is clear potential to consider extensions to the area nominated, the comparative analysis indicates a strong basis to apply criterion (x) to the property.

Amongst the large review base for the nomination, from various countries and backgrounds, there is a clear view in favour of the application of both criteria that are the basis for the nomination. The nominated property is not nominated in relation to criterion (ix). It overlaps with some biogeographic and biome contexts which are already represented on the World Heritage list, but it also belongs to two terrestrial ecoregions which are not yet represented on the World Heritage list: Central Tibetan Plateau alpine steppe and North Tibetan Plateau-Kunlun Mountains alpine desert. However, it does not overlap with any biodiversity hotspots, wilderness areas, Endemic Bird Areas or Centres for Plant Diversity. A small number of reviewers also noted that a case for criterion (viii) could have been considered.

In summary, IUCN considers that there is a clear basis for the nominated area to justify both of the natural criteria under which it has been nominated. IUCN notes that there are arguments that an even greater area could have been included to further strengthen the values included in the nomination, notably in relation to the adjoining nature reserve areas, and the remainder of the highly irreplaceable protected areas of which the nominated area is part.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property, and its buffer zone lie within two protected areas (Hoh Xil and Sangjiangyuan Nature Reserves), which have the same national legal protection status. The two protected areas are national level nature reserves and are protected by the Regulation of the People's Republic of China on Nature Reserves (adopted 1994). Accordingly, before nomination, the management authorities of both Nature Reserves have been set up with relevant structures and staffing.

After the nomination, the Conservation Regulation of the Hoh Xil Natural Heritage Area in Qinghai Province, was adopted by the Standing Committee of Qinghai Provincial People's Congress, valid from October 2016. The Conservation Regulation regulates planning, protection, management and utilization activities within the territory of nominated property and its buffer zone. According to this regulation an administrative authority for the nominated property will be set up under the Department of Housing and Urban-Rural Development of Qinghai Province to assume protection and management responsibility for the property.

As noted above, two other national level Nature Reserves, Chang Tang and Altun Mountain Nature Reserve, provide further buffering functions, although are not included as a formal World Heritage buffer zone. The Kunlun Mountains provide a natural barrier to the north of the nominated 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 clearly identified but present a number of issues that were raised in the course of the IUCN evaluation, and where supplementary information was requested, and received, from the State Party.

The first issue is that, despite the large size of the property there would be a case, in view of the high irreplaceability scores, to include more of the Sanjiangyuan Nature Reserve in the property, and also to include other neighbouring areas which include additional areas related to the migration of Tibetan antelope, or hold other complementary values of equal or greater significance than the nominated property (such as the Chang Tang Nature Reserve, which is reported to be even more significant for Wild yak than the nominated property). In its reply to IUCN's request, the State Party notes that only the less inhabited parts of Sanjiangyuan Nature Reserve were nominated at this stage, in view of avoiding conflicts with herding use. It further notes that it sees the present nomination serving as a flagship and that Changtang Nature Reserve and Altun Mountains Nature Reserve may be nominated as extensions to the nomination "when conditions permit". IUCN considers that there is a clear basis to consider the nomination as the first step towards a larger site, and recommends that the State Party give consideration to further extensions, that could, *inter alia*, both increase the coverage of migration routes and include more of the most irreplaceable biodiversity conservation values in the adjoining areas.

The second issue is the absence of buffer zone arrangements to the west and north of the property. To the west and northwest the situation is that buffering is provided by the adjacent Nature Reserves (Chang Tang and Altun), but they are not designated as part of the formal World Heritage buffer zone. The State Party's answer (as noted above) implies that there could be consideration to include these areas as extensions to the property in the future. The State Party also indicates that there is institutionalized cooperation between these reserves and those that make up the nominated property, through a functional "conservation union" established in 2010. IUCN considers that this provides a workable means of buffering the property, and given the areas are in different provinces, provides some administrative simplicity. Nevertheless, it is important that the State Party ensures that Chang Tang and Altun function effectively to protect the nominated property, and that the cooperative arrangements are supported and

strengthened, including being adopted at higher institutional levels within the different local administrations.

To the north of the property there is no buffer zone, and the State Party indicates that the remote nature and natural barrier of the Kunlun Mountains renders this unnecessary. IUCN considers that, provided the State Party remains vigilant to ensure that no unexpected threats arise in this area, this is a reasonable position at the present time, but would recommend that the State Party considers further the opportunities to establish a more formalized level of protection for the property in this area.

The third issue is the designation of the buffer zones around the sections of the transport corridor within the property. The specification of these areas is discussed further below in the section on threats. The nomination excludes the majority of the 4km strip along the road corridor (with the exception of the areas managed as migratory corridors) from the nominated property, and gives these areas buffer zone status. These buffer areas that are internal to the property are covered by the same legislation as the rest of the Nature Reserves, and in principle IUCN considers it would benefit the protection of the property if these areas were eventually to be added to be part of the inscribed property, rather than remaining as buffer zones. However, as they will be afforded the same level of strict protection from development as the remainder of the property, IUCN does not regard their inclusion in the property to be an essential requirement prior to possible inscription on the World Heritage List.

Whilst noting both scopes to further improve buffer arrangements, and to also consider future extensions to the area currently nominated, IUCN considers that the boundaries of the nominated property meet the requirements of the Operational Guidelines.

4.3 Management

The nomination notes that the separate administrations of Hoh Xil Nature Reserve and Sanjiangyuan Nature Reserve are the local management authorities for the nominated property. A Qinghai World Heritage Declaration Leading Group and Qinghai World Heritage Management Office is also established to be responsible for the nomination process and guidance for national parks and World Heritage. The nomination outlines the national, provincial and site level responsibilities that are in place and details a number of agencies involved in the nomination process that will be turned into management agencies in charge of the protection of nominated property and the buffer zone should the property be inscribed. Specifically in this regard, the nomination notes that Hoh Xil Nature Reserve Administration and Sanjiangyuan Nature Reserve Administration will be integrated to establish a unified management agency to be responsible for the management of the nominated property and the buffer zone upon inscription. The World Heritage Management Office for the property will be responsible for building cooperation and coordination between the

two nature reserve administrations and other stakeholders, and ensuring that management plans are effectively implemented. As detailed in the nomination, there are a series of plans in place for the area, and a specific management plan related to World Heritage, Qinghai Hoh Xil Property Management Plan (2015-2020), was approved in 2015 based on recognition of a substantial wilderness zone across the large majority of the area, and an exhibition zone in the north-eastern part where activities related to management, and the provision of tourism related opportunities would be focused. The management plan appears to provide an adequate basis for the management of the property. The plan will undergo an anticipated regular review (starting with the first update scheduled for completion in 2020) to allow improvements to be made over time, and to address a number of issues that are further discussed in the different sections of this evaluation report.

There appears to be adequate capacity to implement the management plan with clear commitment from national and provincial levels, and amongst local government. At ground level, the management authorities of the two nature reserves that cover the nominated property are responsible for implementation. Their staff numbers have been increased recently, and the permanent staff in both reserves was noted by the IUCN mission as c.135 (49 staff in Zhiduo Administration Division, 49 staff in Qumalai Administrative Division and 37 staff in Hoh Xil Administrative Division). In addition, there are 13 team members based at village level.

There are a number of means by which management could be strengthened, and deserve attention. A number of these matters were raised and responded to in the request for supplementary information made by IUCN to the State Party, including an extensive discussion on monitoring plans. There appears to be a need to strengthen and focus monitoring efforts (as noted below) and it would be beneficial to institute an ongoing means to track management effectiveness, using methods developed by IUCN through the World Commission on Protected Areas, and ensure systematic feedback into improvements in property management. It would also be desirable to strengthen the participation of the local herding community within management activities, noting there is already some notable engagement. Whilst the good cooperation between the two reserves and the neighbouring reserves to the west is noted, this should be strengthened and institutionalized at a higher level.

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

4.4 Community

According to the nomination, there are 35 households of 156 herders within the nominated property, and 222 households of 985 herders and 250 other residents in the buffer zone. The activities of nomadic herders are a long-standing and traditional use in the property, and has coexisted with the nature conservation values.

The level of involvement of the local communities and users in the preparation of the nomination proposal seems limited and unstructured. The management plan elaborates a section on community involvement and development, including a pilot programme for participative management approaches in Sanjiangyuan Nature Reserve, and there is involvement of local communities in monitoring activities.

The nomination refers to overgrazing, and the introduction of new grazing activities as threats and notes that grassland deterioration and desertification is observed as a result of overgrazing in some parts of the Soja-Qumar sub-zone. Currently the nature reserves are responsible for controlling grazing activities, and the nomination notes that across the large part of the property, the management agency will *“gradually impose a ban on herding among sparse residences in the resettlement area and further consider specific voluntary resettlement policies, locations, compensation mechanisms and other measures that can promote the wellbeing of the resettlements.”* Herders in the buffer zone are being engaged in grassland conservation and livestock reduction policies, and local herders have been organized to participate in the conservation practices.

The evaluation mission heard concern within the local population regarding being displaced or resettled as a result of the nomination process and outcomes, and several reviewers raised the issue as of concern. IUCN considers that it is imperative that questions of rights, access and traditional use are addressed rigorously and carefully by the State Party, in full consultation, and the World Heritage nomination must not be used to justify any deprivation of traditional land use rights of the concerned communities. In response to concerns raised, the State Party has stated unequivocally that there will be no forced relocation or exclusion of the traditional users of the nominated site, whether before or after succeeding in the application for World Heritage site. It will be important that this commitment is put into practice in full. IUCN further recommends that the specific sections on traditional use are strengthened in the management plan, and that the revision of the plan involves an enhanced level of consultation and the direct involvement of representatives of the traditional herding community in governance and decision-taking. IUCN would be pleased to provide further advice regarding appropriate standards and methods in this regard.

4.5 Threats

The property faces a number of threats which require careful attention, as enumerated below.

The most obvious of the threats is the transportation corridor that runs across the nominated property, at the boundary between the two nature reserves. The corridor includes a highway and a railway. The Qinghai-Tibet Highway is a long-standing presence that is heavily used, and severely affects the migration route of the Tibetan antelope from the Sanjaiguyan Nature Reserve to their calving grounds and back, as well as the movement of wildlife in general and the

ecological functioning of the plateau, and thus is an impact on values related to both criteria (vii) and (x). The long-standing management response is that the guards of the Hoh Xil Nature Reserve block the traffic for up to two hours per day during the migration period at passing points to let the animals cross the highway. This intervention is demonstrably effective, as the population of antelopes has been rising. The highway affects also the other population of animals like the Wild yak and other ungulates. No monitoring of the animal mortality due to the highway (and other corridor infrastructure) is in place to assess this impact, and no management response is currently being undertaken for other species.

The traffic on the highway is growing due to development occurring in the Tibet Province, and the road will remain a conflict in the future if relevant management responses are not met. IUCN sought information from the State Party about the status and future plans for the road, and the State Party has confirmed that at the present time there is no committed plan for road upgrading. It would be essential that, should the State Party take action to upgrade the road (including the options to reduce its impact on migration, such as underpasses), that such a project should be subject to a very thorough and careful assessment, involving leading expertise. In the meantime, two clear essential requirements are to maintain the current and apparently effective management of the road, and to monitor continuously its effectiveness. It would also be important to improve the level of monitoring of the impacts of the road on wildlife, including tracking details of roadkill, in order to also consider if impacts on other species than the Tibetan antelope require enhanced protection measures.

The Qinghai-Tibet Railway, in contrast to the road, is a relatively recent construction that addressed the migration routes through the creation of underpasses which are very large and effective. As with the road there is a need to provide continuous monitoring of the effectiveness of wildlife passage to ensure that the current measures remain effective.

Power supply lines are also included within the transport corridor, and are a potential treat to birds. The authorities in charge of the national grid have taken measures to assess threats and provide measures to discourage bird strike, but there is a need to both monitor and report on their effectiveness, and to consider that as the environment evolves, some bird species may become settled in the property requiring different measures to be considered.

A further key issue raised with the State Party was the status of parts of the transport corridor as buffer zone. The State Party has stated to IUCN that there is no intention that those areas of the corridor that are buffer zone would be subject to any additional development pressures and are managed in the same way as the rest of the corridor, with the exception that they are not areas where migration corridors are provided across the road. In the view of IUCN it would be more effective to have the whole of the transport corridor

included in the nominated property, in order to ensure that the property managers retain the maximum level of control over the potential environmental impacts on Outstanding Universal Value from the current operation of the corridor, and any proposed upgrading of this infrastructure.

The IUCN mission noted concern regarding poisoning campaigns for the eradication of the small mammal *Pika ochtona*, which is a current threat of medium severity to the biodiversity. There is mounting evidence that Pikas are a keystone species that provide critical ecological services in the alpine meadow ecosystem. Thus poisoning would potentially impact on the functioning of the ecosystem and on the biodiversity of the nominated property. No organised management response to Pika is in place, although it is understood that the Hoh Xil Nature Reserve Administration has in the past refused to put in place eradication campaigns, and not accept financial subsidies, thus this issue has been primarily related to practice in Sanjiangyuan Nature Reserve. In response to a concern raised by IUCN, the State Party notes that no poisoning will be planned in the nominated area and the buffer zone.

Division of land and fencing campaigns led by the government, for husbandry purpose as well as anti-desertification and wetland protection purposes, are notable current threats, as fencing disrupts the migration route of Tibetan antelope and the displacement of the wildlife in the nominated property and in the buffer zone. Some actions are undertaken by the reserves and NGOs to remove the fences, but many are still in place. Reported illegal settlement to the south of the property is also resulting in fencing. It will be imperative that the State Party takes care to ensure that fencing that would threaten the migration routes for animals breeding in the property is not permitted or promoted at any point, and acts to manage any existing fencing.

Intensive grazing and human-wildlife conflict is also a current threat in part of the property, within Sanjiaiguyan Nature Reserve. Sheep and cattle compete with wildlife for food and heavy grazing can cause the degradation of the grassland ecosystem. The government has an effective policy for reducing animal husbandry offering incentives and compensation to not graze the land to the relevant households. The IUCN mission understood that grazing intensity has fallen substantially in the last years, and thus it is recommended that this present policy is continued. However, it is important to note, as discussed above, that a distinction should be made regarding the support for long-standing traditional grazing at intensities that can be supported by the natural ecosystem, in order to respect and protect legitimate traditional use and the rights associated with it.

The nominated property is impacted as a result of climate change, and the IUCN mission sought to clarify the situation as it is currently understood and the intended management responses. In past decades, the recorded average temperature and average precipitation in the Hoh Xil reserve area rose

significantly. From 1961 to 2015, the annual average temperature change is 0.34°C per decade, and the recorded average annual precipitation increased by c.5 mm per decade. With this rapid change, glaciers, permafrost, rivers, lakes, wetlands and springs have responded accordingly, offering what is a dramatic example of terrestrial landscape change and a rare record of geomorphic processes. The primary productivity of the nominated property appears to have increased, new rivers and lakes and marshlands have emerged, offering new habitats to ungulates and water birds. The change of landscape also resulted in changes to the movement patterns of ungulates and migratory birds. Practical management responses are difficult to put in place in relation to these trends, as the situation requires first to be understood, and the underlying knowledge and science base is rapidly evolving. At the present time it is firstly essential to put in place a strengthened and coordinated programme of monitoring of the effects of climate change, and to consider the options for management responses. Considering the large scale of the property, there is a significant opportunity to provide information about change, and lessons regarding response, that would be of international interest.

For the moment there are very few tourists that visit the nominated property, due to the combination of altitude and the challenging conditions. The authorities are investing in new infrastructure, such as a view point on the motorway and new visitor centre at the Sonam Dhargay Station. A simple tourism strategy which proposes a limitation of the visitor numbers is defined in the management plan, but no specific measures are defined to achieve this. Given the scale of the site and the limited current activity, tourism does not appear to be a particularly significant threat at the present time, however a more elaborated tourism strategy is clearly needed and should be developed as the management plan is reviewed. It would be important that tourism opportunities are linked more widely to the activities of local communities in the buffer zones of the nominated property, and to wider tourism plans in Qinghai and its neighbours. World Heritage related strategies should be connected to the wider economic development of the local area in the most relevant way.

The IUCN mission noted that the invasive species *Stellera chamaejasme*, which is a poisonous plant that invades areas of degraded vegetation, is a threat to the ungulate. As this species is also problematic for livestock, its control relies on preventing overgrazing and grassland degradation, and requires further monitoring and study to improve management responses.

IUCN sought information on the actions taken to limit poaching in the property, which has been recorded as a past concern, and the State Party reports on this in its supplementary information. The current situation appears to be under control with an adequate level of patrolling that should be maintained, and results monitored and reported on.

In conclusion, IUCN considers that the integrity, protection and management of the nominated extension meet the requirements of the Operational Guidelines.

5. ADDITIONAL COMMENTS

5.1 Cultural values

The IUCN mission noted that, in addition to the traditional grazing practices, there are tangible and intangible cultural attributes within the nominated property, including sacred mountains and sites, of local and national significance. Every village has its sacred places and some of them are inside the property and the buffer zone, mainly prayer sites linked to natural features like caves, hills or mountains. Other cultural values are related to the traditional husbandry methods and to the intangible values embedded in this exceptional landscape. For many in the local population, Hoh Xil represents the birthplace of ancestors, and for the Tibetan population this plain represents a legendary hunting ground. More recently, the creation of Hoh Xil Nature Reserve has become a focus of conservation efforts to save Tibetan antelopes and the place is symbolic of the roots of modern nature protection in China. Sonam Dhargye, who was killed by poachers in 1994 while leading a patrol to protect antelopes, is recognized as a national hero. IUCN notes that the cultural and spiritual values of the area should be recognized and included in planning management strategies for the nominated property, noting the intimate linkage they have with the nature conservation values that are the basis for the nomination.

6. APPLICATION OF CRITERIA

Qinghai Hoh Xil has been nominated under natural criteria (vii) and (x).

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

Qinghai Hoh Xil is situated on the Qinghai-Tibetan Plateau, the world's largest, highest, and youngest plateau. The nominated property is a place of extraordinary beauty at a scale that dwarfs the human dimension, and which embraces all the senses. The contrast of scale is a recurring theme in Hoh Xil as high plateau systems function unimpeded on a grand scale, wildlife is vividly juxtaposed against vast treeless backdrops and tiny cushion plants contrast against towering snow covered mountains. In the summer, the tiny cushion plants form a sea of vegetation, which when blooming creates waves of different colours. Around the hot springs at the foot of towering snow covered mountains, the smells of dust, ash and sulphur combine with the sharp cold wind from the glacier. Glacial melt waters create numerous braided rivers which are woven into huge wetland systems forming tens of thousands of lakes of all colours and shapes. The lake basins comprise flat, open terrain incorporating the best preserved planation surface on the Qinghai-Tibet Plateau as well as an

unparalleled concentration of lakes. The lakes display a full spectrum of succession stages, forming an important catchment at the source of the Yangtze River and a spectacular landscape. The lake basins also provide the major calving grounds of the Tibetan antelope. In early summer each year, tens of thousands of female Tibetan antelopes migrate for hundreds of kilometres from wintering areas in Changtang in the west, the Altun Mountains in the north and Sanjiangyuan in the east to Hoh Xil's lake basins to calve. The property secures the complete antelope migratory route between Sanjiangyuan and Hoh Xil, supporting the unimpeded migration of Tibetan antelope, one of the endangered large mammal species endemic to the Plateau.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

High levels of endemism within the flora of the property are associated with high altitudes and cold climate and contribute to similarly high levels of endemism within the fauna. Alpine grasslands make up 45% of the total vegetation in the property dominated by the grass *Stipa purpurea*. Other vegetation types include alpine meadows and alpine talus. Over one third of the higher plants found in the property are endemic to the Plateau and all of the herbivorous mammals that feed on these plants are also Plateau endemics. There are 74 species of vertebrates in Hoh Xil, including 19 mammals, 48 birds, six fish, and one reptile (*Phrynocephalus vliangalii*). The property is home to Tibetan antelope, Tibetan wild yak, Tibetan wild ass, Tibetan gazelle, wolf and brown bear, all of which are frequently seen. Large numbers of wild ungulates depend on the property including almost 40% of the world's Tibetan antelope and an estimated 32-50% of the world's wild yak. Hoh Xil conserves the habitats and natural processes of a complete life cycle of the Tibetan antelope, including the phenomenon of congregating females giving birth after a long migration. The calving grounds in Hoh Xil support up to 30,000 animals each year and include almost 80% of the identified birth congregation areas in the entire antelope range. During the winter, some 40,000 Tibetan antelopes remain in the property, accounting for 20-40% of the global population.

IUCN considers that the nominated property meets 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/17/41.COM/8B and WHC/17/41.COM/INF.8B2;

2. Inscribes Qinghai Hoh Xil (China) on the World Heritage List under natural criteria (vii) and (x).

3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis:

Qinghai Hoh Xil is located in the northeast corner of the vast Qinghai-Tibetan Plateau, the largest, highest and youngest plateau in the world. The property covers 3,735,632ha with a 2,290,904ha buffer zone and encompasses an extensive area of alpine mountains and steppe systems at elevations of over 4,500m above sea level. Sometimes referred to as the world's "Third Pole", Hoh Xil has a frigid plateau climate, with sub-zero average year-round temperatures and the lowest temperature occasionally reaching -45°C. With its ongoing processes of geological formation, the nominated property includes a large planation surface and basin on the Qinghai-Tibet Plateau. It is the area with the highest concentration of lakes on the Plateau, exhibiting an exceptional diversity of lake basins and inland lacustrine landscapes at high altitude. The sweeping vistas and stunning visual impact of this harsh and uninhabited wild landscape seem a place frozen in time. Yet it is a place that illustrates continually changing geomorphological and ecological systems.

The unique geographical formation and climatic conditions of the nominated property nurture a similarly unique biodiversity. More than one third of the plant species, and all the herbivorous mammals dependent on them are endemic to the plateau, and 60% of the mammal species as a whole are plateau endemics. The frigid alpine grasslands and meadows surrounding Hoh Xil's lake basins are the main calving grounds for populations of Tibetan antelope from across the plateau and support critical migration patterns. The property includes a complete migration route from Sanjiangyuan to Hoh Xil. This route, despite being challenged by crossing the Qinghai-Tibet Highway and Railway, is the best protected among all migration routes of Tibetan antelope known today.

Inaccessibility and the harsh climate have combined to keep the property free from modern human influences and development while at the same time supporting a long-standing traditional grazing regime that coexists with the conservation of nature. Nevertheless, this "Third Pole" of the world appears to be suffering from the impact of global climate change with disproportionately warming temperatures and changing precipitation patterns. The ecosystems and geographic landscapes are extremely sensitive to such a change and external threats need to be controlled to allow ecosystems to adapt to environmental change.

Criteria

Criterion (vii)

Qinghai Hoh Xil is situated on the Qinghai-Tibetan Plateau, the world's largest, highest, and youngest plateau. The property is a place of extraordinary beauty at a scale that dwarfs the human dimension, and which embraces all the senses. The contrast of scale is a recurring theme in Hoh Xil as high plateau systems function unimpeded on a grand scale, wildlife is vividly juxtaposed against vast treeless backdrops and tiny cushion plants contrast against towering snow

covered mountains. In the summer, the tiny cushion plants form a sea of vegetation, which when blooming creates waves of different colours. Around the hot springs at the foot of towering snow covered mountains, the smells of dust, ash and sulphur combine with the sharp cold wind from the glacier. Glacial melt waters create numerous braided rivers which are woven into huge wetland systems forming tens of thousands of lakes of all colours and shapes. The lake basins comprise flat, open terrain incorporating the best preserved planation surface on the Qinghai- Tibet Plateau as well as an unparalleled concentration of lakes. The lakes display a full spectrum of succession stages, forming an important catchment at the source of the Yangtze River and a spectacular landscape. The lake basins also provide the major calving grounds of the Tibetan antelope. In early summer each year, tens of thousands of female Tibetan antelopes migrate for hundreds of kilometres from wintering areas in Changtang in the west, the Altun Mountains in the north and Sanjiangyuan in the east to Hoh Xil's lake basins to calve. The property secures the complete antelope migratory route between Sanjiangyuan and Hoh Xil, supporting the unimpeded migration of Tibetan antelope, one of the endangered large mammal species endemic to the Plateau.

Criterion (x)

High levels of endemism within the flora of the property are associated with high altitudes and cold climate and contribute to similarly high levels of endemism within the fauna. Alpine grasslands make up 45% of the total vegetation in the property dominated by the grass *Stipa purpurea*. Other vegetation types include alpine meadows and alpine talus. Over one third of the higher plants found in the property are endemic to the Plateau and all of the herbivorous mammals that feed on these plants are also Plateau endemics. There are 74 species of vertebrates in Hoh Xil, including 19 mammals, 48 birds, six fish, and one reptile (*Phrynocephalus vliangalii*). The property is home to Tibetan antelope, wild yak, Tibetan wild ass, Tibetan gazelle, wolf and brown bear, all of which are frequently seen. Large numbers of wild ungulates depend on the property including almost 40% of the world's Tibetan antelope and an estimated 32-50% of the world's wild yak. Hoh Xil conserves the habitats and natural processes of a complete life cycle of the Tibetan antelope, including the phenomenon of congregating females giving birth after a long migration. The calving grounds in Hoh Xil support up to 30,000 animals each year and include almost 80% of the identified birth congregation areas in the entire antelope range. During the winter, some 40,000 Tibetan antelopes remain in the property, accounting for 20-40% of the global population.

Integrity

Qinghai Hoh Xil covers an extensive area which is virtually free of modern human impact. The extreme climatic conditions coupled with its inaccessibility combine to protect what is the last refuge for many globally significant plateau-dependent species. The design of the property accommodates the distribution ranges of large mammals and it is of a size that has a

better than normal chance of buffering ecosystem changes due to global climate change. The property supports a large part of the total extent of the life cycle and migration routes of the Tibetan antelope. Despite the very large size there are opportunities to further extend the property, to encompass additional significant natural areas. There is no buffer zone established to the west and north of the property because the property is adjacent to three existing well protected areas in Qinghai Province, the Tibetan Autonomous Region and in Xinjiang Autonomous Region, but this implies the need for these adjacent areas to remain effectively conserved in view of their direct link to the conservation of the property.

The west section of the property, the Hoh Xil National Nature Reserve, is completely uninhabited and thus remains in a pristine state; the east section, the Soja-Qumar River sub-zone of Sanjiangyuan National Nature Reserve, is also in near pristine state. This area supports the traditional nomadic lifestyles of Tibetan pastoralists who have coexisted with its conservation for a long time, and these communities have demonstrated a strong commitment through various initiatives to participate in conservation efforts. A few self-guided tourists (mostly in summer) along the Qinghai-Tibet highway do not significantly affect the integrity of the property. In addition, with strict enforcement by the authorities, the number of large poaching and illegal mining incidents has been substantially halted.

A notable challenge in the protection of the property is the highway and a railway that connect Qinghai and Tibet, and which pass through the eastern section of the property from the north to the south. Animal migration in this area is facilitated via the construction of corridors and active management of the transport corridor during the migration season. These measures have helped Tibetan antelope and other species adapt to the changes quickly and there is no evidence that the migratory patterns have been adversely disrupted.

Climate change presents a potential threat to the integrity of the property's endemic species and ecosystems. The site's vastness and marked elevation gradients should contribute substantial resilience to ensure the impact from human activity and invasive species can be well managed, nevertheless records show a notable rise in average temperature in the 60 years prior to inscription on the World Heritage List. As a consequence, the Qinghai- Tibetan Plateau ecosystem is facing significant change for example the melting of permafrost and glaciers, encroachment of alpine shrub into the alpine meadows, and desertification of grassland. In the meantime, numerous new hot springs and faults are being formed following earthquakes. Glacial melting and increased precipitation have flooded one natural lake shore and formed new lakes downstream creating habitats in a state of dynamic flux. These geological and ecological dynamics offer a rare opportunity for scientific observations and long-term research. Warming temperatures may lead to species from lower altitudes moving up into new habitat refugia on the Plateau. Warmer conditions may also trigger greater pressure

from human settlements moving into previously inhospitable areas.

Protection and management requirements

All areas within the nominated property are state-owned and are protected areas at the national-level. A management system and a coordination mechanism have been established to ensure human and financial resources by engaging the support of central and local governments, communities, NGOs, and research institutions. Concerted efforts from these stakeholders, plus central and local legal protection, have effectively maintained the natural state of wilderness in the property and have ensured the ongoing survival of its resident species.

The conservation and management of the property will be guided by the Qinghai Hoh Xil Property Management Plan. This plan specifies a vision and objectives to maintain and enhance the Outstanding Universal Value of the property as well as a series of management activities aimed at improving protection. The plan recognizes and actively involves local Tibetan herders living in the property and buffer zone in conservation, management, and educational efforts. The plan addresses a range of issues concerning monitoring, public promotion, sustainable tourism development and, importantly, long term management along the transport corridor that crosses the property and its buffer zones.

The property benefits from an integrated management agency that coordinates efforts from central, provincial, municipal, and local authorities. Sufficient staff with multiple background and relevant experience will be provided to guarantee the conservation and management of the property. It will be of great importance that the responsible national and provincial authorities ensure that any development and changes to the transport corridors are fully assessed prior to implementation to protect the integrity of the property, including the migration routes that cross these transport routes.

4. Notes that the maintenance of the integrity of the wildlife migratory routes that cross the property is of central importance to the protection of the Outstanding Universal Value and requests the State Party to:

- a) closely monitor the effectiveness of measures to facilitate migratory patterns across the corridor and adapt management interventions accordingly;
- b) ensure that any proposed developments and/or changes to the management within the transport corridor, in both the property and the areas designated as buffer zones, are subject to rigorous prior planning and Environmental and Social Impact Assessment so as to ensure migratory patterns function unimpeded; and
- c) consider the future addition into the inscribed property of areas of the transport corridor currently designated as buffer zones, if warranted, to provide additional protection to migratory patterns.

5. Requests the State Party to focus monitoring and management actions on threats with a high potential to impact Outstanding Universal Value such as climate change, wildlife poaching and the inappropriate poisoning of the Pika population.

6. Commends the State Party and all stakeholders involved for their commitment to the protection of the large-scale conservation values of the Qinghai-Tibet Plateau including the integration of traditional nomadic pastoralists into conservation efforts and welcomes the commitment made by the State Party that no forced relocation or exclusion of the traditional users of the nominated site will be undertaken or pursued.

7. Encourages the State Party to expand collaboration within the 2010 cooperative framework established between Hoh Xil National Nature Reserve and Sanjiangyuan National Nature Reserve in Qinghai, Changtang National Nature Reserve in Tibet and Altun Mountains National Nature Reserve in Xinjiang, and to consider progressive additions to the inscribed property from these protected areas to add attributes of Outstanding Universal Value and/or improve integrity, protection and management.

Map 1: Nominated property and buffer zone

