ASIA / PACIFIC

TAJIK NATIONAL PARK (MOUNTAINS OF THE PAMIRS)

TAJIKISTAN

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

TAJIK NATIONAL PARK (MOUNTAINS OF THE PAMIRS) (TAJIKISTAN) ID No. 1252 rev

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

Key paragraphs of Operational Guidelines:
77 Property meet natural criteria.
78 Property meets conditions of integrity and protection and management requirements.

Background note: In 2009/2010 a smaller percentage of the Tajik National Park (TNP) was nominated as Tajik National Park (Mountains of the Pamirs). The nominated property was 1,266,500 ha with a buffer zone of 1,385,174 ha, both areas within the boundaries of the TNP. The IUCN evaluation and Committee decision noted that the property met criteria (vii) and (viii) and that these values could be strengthened by adding additional areas in the TNP. The IUCN evaluation concluded that the property did not meet criteria (ix) and (x). The Committee deferred the nomination to allow the State Party to refocus a nomination on criteria (vii) and (viii) with redefined boundaries; improve the comparative analysis to justify Outstanding Universal Value; provide a clear commitment and plan to improve resourcing; and to prepare and implement an effective management plan. The Committee requested the State Party to keep open the possibility of a future transnational nomination for the Pamir Mountains with neighbouring countries (Decision 34COM 8B.3).

1. DOCUMENTATION

a) Date nomination received by IUCN: 25 March 2012

b) Additional information officially requested from and provided by the State Party: Following the technical evaluation mission the State Party was requested to provide supplementary information on 20 December 2012. The information was received on 12 February 2013. IUCN requested the State Party to confirm its commitment and provide details on proposals to increase staff numbers to more adequate levels as foreseen in the next 5-year management plan for the property.

c) Additional literature consulted: Appleton, M.R. et al. (2012) **Biodiversity: Delivering results in Europe and the CIS.** UNDP, Bratislava, Slovakia. BirdLife International (2012a) **Important Bird Areas factsheet: Bulunkul and Yashilkul lakes and mountains.** Downloaded from http://www.birdlife.org on 19/11/2012. BirdLife International (2012b) **Important Bird Areas factsheet: Karakul lake and mountains.** Downloaded from http://www.birdlife.org on 19/11/2012. Breu, T. and H. Hurni (2003) **The Tajik Pamirs: Challenges and Sustainable Development in an Isolated Mountain Region.** Centre for Development and Environment (CDE), University of Berne, Switzerland. Conservation International (2012) **Mountains of Central Asia.** Hotspot description. Online: http://www.conservation.org/where/priority_areas/hotspots/europe_central_asia/Mountains-of-Central-Asia/Pages/default.aspx. Fisher R.D. 1995. **Earth's Mystical Canyons.** Sunracer Publications Tucson. 152 p. IUCN, 2009 **IUCN Technical Evaluation: Tajik National Park (Mountains of the Pamirs) (Tajikistan)** ID No. 1252; Magin, C. (2005) **World Heritage Thematic Study for Central Asia – A Regional Overview**. IUCN, Gland.; Middleton, R. & Thomas, H. (2008) **Tajikistan and the High Pamirs**. Odyssey Books & Guides.; Republic of Tajikistan (2012) **Tajik National Park (Mountains of the Pamirs)**, Nomination document, 190pp + maps; Thorsell, J. & Hamilton, L. (2002) **A Global Overview of Mountain Protected Areas on the World Heritage List**. IUCN, Gland. UNEP-WCMC (2009) **Tajik National Park (Mountains of the Pamirs) Comparative Analysis** (revised 1st draft). WWF (2012) Ecoregion descriptions. Online: http://worldwildlife.org/biomes

d) Consultations: 15 external reviews. The mission met with representatives of the Committee on Environmental Protection, Tajik National Commission for UNESCO, regional authorities in Murgab and local communities in Poi Mazar and Karakul, as well as national park staff and key private stakeholders.

e) Field visit: Les Molloy and Sarangoo Radnaaragchaa, 16-26 August 2012

f) Date of IUCN approval of this report: April 2013

2. SUMMARY OF NATURAL VALUES

The property is nominated under the name Tajik National Park (Mountains of the Pamirs), and is located in the eastern part of Tajikistan, mostly in the province of Gorno-Badakhshan (districts of Vanch, Rushan, Shugnan and Murgab) and, in the north-western sector, parts of Tavildara and Jirgatal Districts. The nominated property comprises the entire Tajik

National Park (TNP), an area of 2,611,674 hectares. There is no formal buffer zone as the remoteness and rugged character of the sparsely-inhabited surrounding mountains are considered to constitute an adequate physical buffer. The northern boundary of the park is the Alai Range which forms the border with Kyrgyzstan and contains the park's second highest peak, the 7134m Istiqlol Peak. In the east, the Sarykol Range and Kunlun Shan of Xinjiang (China), with peaks like Kongur Tagh (7719m) and Muztag Ata (7546m), form a natural and political boundary. To the south lie the Hindu Kush of Afghanistan and, at its western extremity, the park boundary almost reaches down to the canyon of the Panj River at 2000m altitude.

The Pamir Mountains are part of the Central Asian highlands. In the Eastern Pamir the mountain relief is superimposed on a high plateau. While the heights of the peaks above sea level average over 6,000m, their relative heights above the gently-undulating plateau in most cases do not exceed 1,500-1,800m. The massifs have mainly rounded contours, and the wide flat-bottomed valleys between them are generally occupied by clear meandering rivers. In contrast, the relief of the Western Pamir is high-mountains capped by extensive snowfields and glaciers, with deep, narrow ravines flanked with huge talus slopes and containing large turbulent rivers laden with glacial silt and prone to flooding during the summer thaw. The highest peak in the nominated property is 7,495m Ismoil Somoni.

The Pamir Mountains lie at the centre of the 'Pamir Knot', the term used by geographers to describe the tangle of the highest mountain ranges on the Eurasian continent. Huge tectonic forces stemming from the collision of the Indian-Australian plate with the Eurasian Plate have progressively thrown up the Himalaya, Karakoram, Hindu Kush, Kunlun and Tien Shan mountain ranges – all radiating out from the Pamir Mountains. Along with the Karakoram Mountains, the Pamir region is one of the most tectonically-active locations in the world. The Pamir highlands include some of the most active faults in Central Asia, making them subject to frequent strong earthquakes.

The climate of the Pamirs is sharply continental with high variations in seasonal temperatures from extremes of -63°C to +31°C. The high mountain ranges surrounding the park shield it from the humid air masses coming in from the west and south making the Pamir Mountains particularly arid compared with most of the Tibetan Plateau and the other high ranges of Central and South Asia. In the eastern Pamir the low mean annual precipitation varies from 63mm to 117mm. In the western Pamir total precipitation is considerably higher – 300 to 500mm on leeward slopes and increasing to 1,200 to 1,800mm on windward slopes. Due to the intense solar radiation, arid climate, low temperatures and limited precipitation, the eastern part of the park is considered to be a cold high-mountain desert. Here, the average annual temperature is below zero, diurnal temperature amplitude is as large as 30°C, and the frost-free period is only 40-80 days.

A wide range of glacial landforms and processes occur within the park. There are 1,085 recorded glaciers, with more than 1000 exceeding 1.5 km in length and a dozen exceeding 20 km. The majority are found in the western mountains of the core zone, including the longest valley glacier outside of the Polar Regions, the Fedchenko Glacier which is 77 km in length.

TNP contains 170 named rivers and more than 400 lakes. Virtually all of these rivers flow into the major Panj and Vakhsh Rivers, which combine to form the Amu Darya River which flows ultimately to the Aral Sea. The largest lakes within TNP are Karakul, Sarez and Yashikul. Sarez Lake is not only the largest freshwater lake in the Pamir Mountains in terms of water volume (17 km^3) but also in all of Central Asia. However, Karakul Lake is the largest of the Pamir's lakes in terms of surface area; located at almost 4,000m altitude, it is considered one of the highest salt lakes in the world. It lies within a circular basin with a rim diameter of 52 km, which is interpreted as the crater formed as a result of the impact around 25 million years ago of a large meteorite.

Two floral regions of Asia meet in the nominated property; the western Pamir belongs to the Southwestern Asia floristic region while the flora of the eastern Pamir is typical of the Central Asian floristic region. A total of 639 higher plants (belonging to 57 families) have been documented in the core of the park but this increases to reportedly 2,100 species when the lower non-core (22% by area) zones are included. The main families of plants are Poaceae (32 genera, 92 species), Asteraceae (118 species) and Brassicaceae (34 genera, 64 species). There are three altitudinal vegetation zones within the nominated property: the *subalpine* zone below 4,200m, dominated by teresken and feather-grass steppes; the *alpine* zone between 4,200 and 4,800m, dominated by semi-shrub tanacetium; and the *nival* belt above 4,800m with virtually no vegetation cover. Six different types of vegetation occur in the property, including teresken and wormwood deserts, talus and rock outcrop plants, and localized areas of steppe and riverine meadows. TNP is also considered an important centre for wild forms of cultivated plants and belongs to the 'Vavilov Centre of Central Asia', one of 11 global 'Vavilov Centres'. The plant varieties of particular agricultural importance in TNP are wheat in the Bartang Valley and the 'walnut-apple-cherry' woodlands of the Tavildara section of the park.

The harsh environmental conditions of the park support only a relatively poor fauna with a moderately high degree of endemism, all typical of Central Asia's fauna. The fish fauna of the Pamir belong to an ancient group characterised by low diversity, resistance to low temperatures, high endemism and a lack of predatory species. A total of 162 bird species have been observed in TNP, with 25 residents all year round. Nationally rare and threatened birds include mountain goose, Himalayan griffon, bearded vulture, golden eagle, Central Asian saker falcon, and Tibetan snow cock. The park is also the habitat of 33 mammal species, the most noteworthy being the Marco Polo subspecies of Argali, with a population of 5400

estimated from the 2010 wild animal survey. There are also an estimated 120 Snow Leopards, 4200 Siberian Ibex, and smaller numbers of Tibetan Wolf, Turkestan Lynx, Tian Shan brown bear, and otter.

3. COMPARISONS WITH OTHER AREAS

The property has been nominated under criteria (vii), (viii) and (x). With an area of 2,611,674 ha and covering some 18% of Tajikistan's land area, TNP is the largest high mountain protected area of the Eurasian continent and among the largest protected areas in Central Asia. The park has been identified in a number of previous gap analyses as having potential for inclusion on the World Heritage List. In particular, the IUCN thematic study for Central Asia noted it had been considered by three out of five gap analyses as a possible priority.

In landscape terms, the outstanding feature of TNP is the juxtaposition within one protected area of extensive high plateaux in the east and rugged glaciated mountains with deep gorges in the west. The Pamir Plateau between 3500m and 4500m covers 1,150,000ha (or 44% of the area of TNP) and most of it accords with Udvardy's 'cold winter desert' biome which is currently poorly-represented on the World Heritage list. The High Plateau of Tibet is the largest alpine plateau of the world but its vast Chang Tang Nature Reserve is not presently on China's tentative list. The high plateaux of TNP are not comparable to this Tibetan protected area in terms of size, but they are of comparable height and much drier than most of the Chang Tang. Furthermore, unlike the Tibetan Plateau, TNP boasts a remarkable combination of deep canyons, braided rivers, glaciated peaks and high plateaux within the one protected area. Within the property, the Kokuibel gorge near Ghudara has an altitudinal difference of more than 2600m between its valley bottom and highest point. The canyon of the Bartang River is more than 3300m in depth placing it within the top five deepest canyons on earth. This diversity of landscape differs from the other temperate zone mountainous World Heritage sites. The mountains of the nominated property are much more extensive than the Himalayan sites although the Pamir range is much smaller than the Tibetan Plateau. The nominated property concentrates and protects the full range of Central Asian landscapes, from the highest altitude plains and peaks to the deciduous forests of the deep river valleys.

TNP includes the highest peaks of the Central Asian region: three mountains exceed 7000m asl in height and over 40 exceed 6,000m. The only comparable Central Asian peaks and glaciers lie 800km to the north-east in the western Tian Shan on the border of China (Xinjiang) and Kyrgyzstan. Here the Tomur area includes the peaks of Tomur Feng (7439m) and Khan Tengri (6995m) along with 670 recorded glaciers, with the two largest exceeding 300km^2 (compared with 700km^2 for Fedchenko). Only two existing World Heritage properties include higher peaks than TNP: Sagarmatha (Mount Everest: 8848m) in Nepal and Nanda Devi (Nanda Devi: 7817m) in India. There are no existing natural World Heritage properties in close proximity to TNP; Nanda Devi is over 1,000 km away and The Golden Mountains of Altai (Russian Federation) over 1,500 km distant. However, outside listed World Heritage sites, there are other comparable peaks to those in TNP in the much closer 'Pamir Knot' ranges dividing Central Asia from South Asia. The closest are Kongur Tagh and Mustagh Ata at the western end of the Kunlun Shan 300 km to the east, and Tirich Mir (7690m) in the Hindu Kush 300 km to the south. The Karakoram Mountains 500 km to the SE in northern Pakistan have 17 peaks higher than Ismoil Somoni (with four above 8000m) and are considered the most heavily glaciated mountains outside the Polar Regions. The Karakoram Mountains are also the location of the three longest temperate zone glaciers after Fedchenko: Siachen (70 km), Biafo (63 km) and Baltoro (62 km). The Fedchenko Glacier is recognized as the longest glacier in the world outside of the Polar Regions. For comparison: the length of the Aletsch Glacier in Switzerland, the largest glacier in western Eurasia, is much less (23 km).

Two other comparable Inner Asia high mountain sites occur on tentative lists: a trans-national 'Mountains of Western Tien-Shan' straddling the western portions of the Tian Shan in Uzbekistan, Kyrgyzstan and Kazakhstan; and the 'Karakorum-Pamir' in Xinjiang, China. The former lacks the extent of high mountains and glaciers in TNP but the Chinese site bears serious comparison because it is an equally-active tectonic zone, has an alpine desert character, belongs to the same Udvardy biogeographical province of 'Pamir-Tianshan Highlands', and includes the outstanding peaks of Kongur Tagh and Mustagh Ata discussed above. Reviewers have also noted the importance of the TNP to the study of tectonic subduction. Specifically the nominated property offers a rare opportunity to test longstanding hypotheses about mountain building including the phenomenon of subduction initiated and sustained in continental lithosphere. This is of the utmost importance, because our current understanding of global plate tectonics is based on the sinking of oceanic lithosphere (the rocks of the sea floor) as the primary source of forces to move plates. It has long been assumed that continental rocks do not behave in the same way, so incontrovertible proof of subduction in the Pamir would require rethinking the most fundamental theory of the solid earth.

Karakul Lake, at 3923m altitude in the core zone of TNP, is the largest high endorheic (closed) lake in Central Asia. There are larger saline closed lakes on the Tibetan Plateau but the only currently World Heritage listed large closed lakes in Central Asia occur at much lower altitudes distant from the mountains – 'Uvs Nuur' (759m) in Mongolia/Russian Federation and Lake Tengiz (c.120m) in 'Saryarka – Steppe and Lakes of Northern Kazakhstan'. The largest mountain lake (by area) in Central Asia, Issyk Kul in Kyrgyzstan, is also lower in altitude (1606m) and freshwater in character. Lake Sarez, in the core of the park is a natural landscape phenomenon, the product of a magnitude 9 earthquake in 1911, which generated a six billion tonne landslide forming the highest natural

dam in the world, the 567m Uzoi dam, across the Murgab River. Because of the highly dynamic tectonic environment of TNP, Lake Sarez (3239m) is considered potentially very unstable and a potentially serious threat to the safety of populations in the Amu Darya River environs downstream.

Only 10% of TNP is covered by biogenic landscapes (i.e. landscapes formed under the influence of living organisms), the rest is largely barren rock or ice. The nominated area is part of the large terrestrial biodiversity hotspot "Mountains of Central Asia", which covers over 860,000 km^2 and includes two of Asia's major mountain ranges, the Pamirs and the Tian Shan. The flora of this hotspot is a mix of Boreal, Siberian, Mongolian, Indo-Himalayan and Iranian elements. There are more than 5,500 known species of vascular plants in the hotspot, about 1,500 of which are endemic. However, TNP only covers 3% of the hotspot with 639 plant species (12%), in 57 families and 248 genera, occurring in the nominated property. TNP is also part of a WWF priority ecoregion "Middle Asian Montane Woodlands and Steppe" however, many other sites on other Tentative Lists also exist within this ecoregion and have arguably higher levels of species richness. The nomination quotes 2,100 plant species as occurring within TNP, however, this figure may be inflated and has been challenged by a number of reviewers noting it may be for the Gorno Badakhshan Autonomous Oblast as a whole. Only 2,200 plant species are noted for this area as a whole.

It is also difficult to assess the global significance of TNP's wild varieties of crop plants in the Central Asian 'Vavilov Centre of Diversity'. Similar claims of outstanding universal value are made for "wild fruit forests" in the mountains of Xinjiang Tianshan, and there are similar centres of diversity elsewhere in the mountains of Central Asia (Afghanistan, Uzbekistan, and extending into north-west India and northern Pakistan).

Endemism is high in the hotspot's amphibians and freshwater fishes but the alpine cold desert environment of TNP is understandably poor in numbers of these vertebrate groups. Of the 143 mammal species recorded in the hotspot, only 33 (23%) occur in the nominated property; of the 489 bird species, 162 (33%) occur in the park but only 25 are considered resident all year round.

Although the nominated property is of international importance in relation to threatened mammal and bird species, it is not outstanding or at the highest global level of value. The nomination states that TNP has a population of 120 Snow Leopard but many existing (and proposed) World Heritage properties in Inner Asia, such as The Golden Mountains of the Altai, Nanda Devi and Valley of Flowers National Parks, Sagarmatha National Park, Uvs Nuur Basin, and Xinjiang Tianshan are habitats for this iconic mammal. At the subspecies level, TNP is home to a significant population of Marco Polo Argali, a subspecies of the globally threatened Argali Sheep. Recent surveys report 5400 individuals in the park, with their preferred territory the high plateaux in the east.

In summary, Tajik National Park stands out as a very large protected area encompassing almost all of one of the world's highest mountain ranges, with an outstanding landform juxtaposition of heavily-glaciated high peaks and high plateaux with alpine desert character. Some of this physical/climatic character is shared with two other properties (China's 'Xinjiang Tianshan' and 'Karakorum-Pamir') but they also differ significantly by lacking some of the landform diversity of TNP, or they are much less arid. In terms of criterion (x), TNP does not compare favourably with the region's other tentative-listed sites in relation to biodiversity richness, despite its large size. The biodiversity richness of other comparable properties is higher, for example: Three Parallel Rivers (China); Golden Mountains of the Altai (Russia); Altyn-Emel State National Natural Park (Kazakhstan); the Mountains of the Western Tien Shan (Transboundary nomination of Uzbekistan, Kyrgyzstan, Kazakhstan); and Chatkal State Biosphere Reserve (Uzbekistan). Xinjiang Tianshan (China) contains a more diverse range of ecosystems, bioclimatic contexts and altitudinal variation than TNP.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1 Protection

The entire area of the TNP is nominated for the inscription. TNP was established under the Natural Protected Areas Law of the Republic of Tajikistan, No. 329, 1996 and the Order of State Directorate of Natural Protected Areas, No. 147, 2005. The status of TNP is 'state republican natural park (national park)'. The Law on Natural Protected Areas prohibits any mining and construction activities, cutting of woody plants, ecologically harmful activities, changes of the hydrological regime, construction of roads, pipelines, transmission and other communication lines that are not related to park management and the introduction of living organisms.

The category of national parks has the highest protection status in Tajikistan. As such, the main purpose of the TNP is: to preserve outstanding natural landscapes and biodiversity with particular attention to rare and endangered species; to protect cultural and historical monuments; conduct education and research activities and promote sustainable use of natural resources.

TNP is owned by the State but there are land parcels traditionally used by Kyrgyz communities near Karakul Lake. The boundaries of the park are well known to them and the importance of maintaining ecologically-sustainable levels of grazing by Kyrgyz herders is respected by the park administration. Kyrgyz communities have retained many of their traditional grazing rights and unlike other communities outside the park area they do not pay any land use taxes. Most of this traditional grazing occurs in the 'traditional use' and 'limited economic use' zones in the eastern part of the park. However, some seasonal grazing occurs within the core zone but is likely to be phased out or further restricted.

IUCN considers the legal protection status of the nominated property meets the requirements set out in the Operational Guidelines

4.2 Boundaries

The 2010 deferment by the WHC of TNP's nomination recommended that the State Party "re-consider the design of the boundaries of the nominated property and its buffer zone….." IUCN's 2010 evaluation report was critical of only part of TNP being nominated, with large areas of high plateau and lake landscape being excluded as buffer (particularly in the east around Karakul Lake, and the south-east around Yashikul Lake).

This situation has been rectified in the current nomination by the inclusion of the entire TNP, with no need for a formal buffer zone because of the excellent level of physical integrity of the property. However, there is still no adequate demarcation or signalling of the boundaries of the national park on the ground. As a minimum, it is appropriate to at least clearly mark the boundaries at the most frequented entry points.

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

4.3 Management

The State Agency of Natural Protected Areas carries out the management and coordination of all activities in the park. Three regional offices operate within the TNP, namely: the regional office for Gorno-Badakhshan Autonomous Region (that covers four districts), and the Tavildara and Djirgatal regional offices. Management capacity has been supported by an UNDP/GEF project and by Flora and Fauna International. Funded training has focused on capacity-building of staff for protected area management, biodiversity conservation and development of a management plan. Furthermore, training has been organized on wildlife monitoring through support from the secretariat of the Bonn Convention on Migratory Species.

The total budget of the park for 2012 is only USD 183,200. This financing mainly comes from the state budget, and includes revenue from tourist activities within the park and a special fund administered by the Committee for Environmental Protection. Despite an increased budget linked to approval of the management plan and donor funding of several small-scale projects there is a danger that the management plan will not be fully implemented as only half of the necessary budget is available. However, Government officials confirmed that each year the budget has been increased. Furthermore, a recent initiative from the Committee for Environmental Protection revised the Law on Natural Protected Areas to legally provide for financial sustainability for the national park.

There are 54 staff in the TNP management team: including 3 directors, 3 chiefs of regional offices, 12 specialists, 19 rangers and 17 administration and support people. The majority of staff, especially rangers, are selected from local people. Fifteen of the staff have tertiary qualifications, and a fairly good level of technical capacity has been achieved in other staff through various on-the-job training. The park authority acknowledges that due to its vast territory the current number of staff is insufficient. Supplementary information provided by the State Party provides assurances that an additional 5 staff positions will be recruited annually over the life of the 2012-2016 management plan. Furthermore, the State Party also assures that an additional 10 ranger positions have been approved within the 2013 budget.

The current management plan, which covers the period 2012-2016, has been approved by the Chairman of the Committee for Environmental Protection under the Government of Tajikistan. The plan identifies the primary goals of park management and proposes activities on law enforcement, wildlife management, recreation, scientific research and monitoring, environmental education and the participation of local communities. This document is adequately guiding the management of the nominated property. The national park has been divided into four zones that vary according to the grade of protection and allowed permitted activities within it. These include: a core zone (77.7% of the TNP), traditional use zone (10.3%), limited economic use zone (9.8%) and a recreation zone (2.2%). It should be noted that the figures in the nomination document for the first three zones had been incorrectly calculated from the zoning map. They have been recalculated, meaning that the tabulated figures for the core zone have increased from 64.6% to 77.7%; traditional use increased from 4.9% to 10.3%; and limited economic use decreased from the previously stated 28.3% to 9.8%.

Law enforcement is considered effective and is carried out by a team of 19 park rangers, all recruited from local communities. There are also local community members who are working as volunteer rangers. In addition, the park cooperates with the guards/inspectors from the district and regional offices of the Department of Environmental Protection in Gorno-Badakhshan Autonomous Oblast in carrying out law enforcement measures. Because most of the park is a remote wilderness area, which is highly inaccessible and for much of the year under snow, the small local populations are considered to have negligible impact on the core area. Five years ago the government conducted a campaign to confiscate firearms and combat poaching. Since then illegal hunting has decreased but there are anecdotal reports that it is still carried out periodically by military personnel.

IUCN considers the management of the nominated property would benefit from being strengthened but appears to be adequate to meet the requirements set out in the Operational Guidelines.

4.4 Community

Communities living within and adjacent to the TNP seem well informed about the World Heritage nomination and believe that the inscription will positively influence their lives, especially through increased tourism opportunities. However, during the meetings they stated their belief that poor roads and other infrastructure, and severe weather conditions, are the main impediments to tourism development. In addition, some considered that poor and unreliable information for tourists, inadequate advocacy and communication, competition between guesthouses, and poor service in general all inhibited tourism development. Communities seemed satisfied that they were consulted during the preparation of both the nomination document and management plan.

An agreement has been signed between the administration of TNP and the Heads of three *Jamoats* of the Vanj and Murghab Districts to receive support from the local communities on the protection of rare and endangered species within the park and to allow communities to use natural resources according to the different zoning. Trophy hunting could be an effective conservation management tool and provide a significant source of revenue for both national park management and local communities. However, there is no business plan developed for the national park and the concept needs to be developed further, leading to hunting management that encompasses all necessary elements of a science-based approach to game and habitat management and a tight regulatory framework. IUCN is pleased to have been made aware of plans to conduct a feasibility study into community-based trophy hunting. This study will be conducted in 2013 within framework of the German international aid (GIZ) Regional Programme "Sustainable Use of Natural Resources in Central Asia".

4.5 Threats

Traditional activities on the Pamir Plateau of haymaking and the collection of the slow-growing teresken plants for household fuel, are claimed to have an insignificant negative impact on the core area of the park. However, around the town of Murghab, which is home to half of the treeless plateau's human population, a fuel crisis has steadily developed since the withdrawal of coal supplies after the collapse of the Soviet Union in 1990. An area of 70-80 km in circumference has been almost completely cleared of combustible vegetation and it is of critical importance that the park authorities work with the local authorities to stop trucks penetrating into the core zone and undertaking this unsustainable harvest of teresken. To address this issue the Government is taking some measures, such as providing subsidies to local people to purchase coal and building small to medium scale hydro power plants in the Murghab region. Despite these measures the exploitation of teresken remains the main threat to the fragile high plateau environment. Therefore, a long-term strategy needs to be elaborated to provide alternative fuel resources to the local population and control the teresken cutting.

The management of the unique hazard posed by any catastrophic release of the waters of Lake Sarez is the responsibility of an Emergency Department, rather than the park administration. A complex network of sensors is in place and electronic signals indicating failure of the Uzoi Dam would be relayed by satellite to a co-ordination centre tasked with broadcasting warnings to downstream populations.

In summary, IUCN considers the nominated property meets the overall conditions of integrity and protection and management requirements as outlined in the Operational Guidelines.

5. ADDITIONAL COMMENTS

IUCN notes the previous deferral of this property has led to a positive response to achieve the work necessary for the property to meet the requirements for inscription on the World Heritage List, and to benefit from advice from IUCN and other partners. This is a model example of the importance and constructive nature of the deferral mechanism for nominations with potential, but which require further work prior to inscription, and should be noted, and the response of the State Party commended.

6. APPLICATION OF CRITERIA

The Tajik National Park (Mountains of the Pamirs), Tajikistan, has been nominated under natural criteria (vii), (viii) and (x):

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

The Pamir Mountains are the third highest mountain ecosystem in the world after the Himalaya and Karakorum Ranges and include the world's longest valley glacier outside of the Polar Regions. Among existing World Heritage properties, TNP offers an unspoiled glaciated mountain wilderness at a scale partly matched by Los Glaciares in the Neotropical realm and Te Wahipounamu (SW New Zealand) in the Antarctic realm, and surpassed only by Kluane/Wrangel-St.Elias/Glacier Bay/Tatshenshini Alsek in the Nearctic. The nominated property represents one of the largest high mountain protected areas in the Palearctic Realm. Among the many, often large, glaciers of Inner Asia, the Fedchenko Glacier is a spectacular example at the global level. The visual combination of some of the deepest gorges in the world, surrounded by rugged glaciated peaks, as well as the alpine desert and lakes of the Pamir high plateaux adds up to an alpine wilderness of exceptional natural beauty and the extreme aridity of the climate has kept the area virtually free of impacts from agriculture and permanent human settlement.

In addition two natural features: Lake Sarez and Karakul Lake are superlative natural phenomena. Lake Sarez, impounded behind the highest natural dam in the world, is one of the youngest large high altitude lakes in the world. It is of exceptional geomorphic

interest and a potential major hazard to millions of people downstream. Lake Karakul is likely to be the highest large lake of meteoric origin.

IUCN considers that the nominated property meets this criterion.

Criterion (viii): Earth's history and geological features
Tajik National Park boasts high plateaux in the east and rugged high peaks with deep gorges in the west. The Pamir Mountains are a major centre of glaciation on the Eurasian continent and TNP hosts the longest valley glacier of the temperate latitudes. The juxtaposition in one protected area of so many high mountains, valley glaciers, and deep river gorges alongside the cold continental desert environment of the high plateau landforms provides for a unique geomorphic environment. A wide range of glacial and periglacial landforms and processes are apparent including rock glaciers of different kinds, areas of extensive permafrost and patterned ground.

Like the Karakoram and Hindu Kush mountains, the Pamir highlands are subject to frequent and strong earthquakes and the highly active tectonics have produced a geologically dynamic terrain. The most impressive result of this tectonic activity is Lake Sarez, near the centre of the nominated property. It was created by an earthquake-generated landslide of an estimated six billion tonnes of material and is possibly the youngest deep water alpine lake in the world. It is of considerable scientific significance because of the on-going geological processes which influence how it stabilizes, and what sort of lacustrine ecosystem develops over time. Furthermore the TNP offers a unique opportunity for the study of plate tectonics and continental subduction phenomena.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species
While the biodiversity of the Central Asian mountains is recognized as of global significance, Tajik National Park alone does not appear to be the most biologically diverse and/or representative site of the region. Due to its high elevation and aridity, the property has relatively low species diversity for both flora and fauna. While there may well be important information gaps for many species groups due to the remoteness and inaccessibility of the mountains, it seems unlikely that TNP's diversity can match or exceed that of existing (or proposed) high mountain World Heritage properties in Inner Asia. The same holds true with regard to endemism. Despite its large size, the nominated property does not compare favourably with some other Tentative List sites in the region in relation to biodiversity values. TNP is home to only a small number of globally threatened species.

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

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following decision:

The World Heritage Committee,

1. Having examined Documents WHC-13/37.COM/8B and WHC-13/37.COM/INF.8B2;

2. Inscribes the **Tajik National Park (Mountains of the Pamirs), Tajikistan,** to the World Heritage List under natural criteria (vii) and (viii);

3. Adopts the following Statements of Outstanding Universal Value:

Brief synthesis
Tajik National Park (2,611,674 ha in area) encompasses almost the entire Pamir Mountains, the third highest mountain ecosystem in the world after the Himalaya and Karakorum Mountains. The Pamir Mountains lie at the centre of the 'Pamir Knot', the term used by geographers to describe the tangle of the highest mountain ranges on the Eurasian continent. Huge tectonic forces stemming from the collision of the Indian-Australian plate with the Eurasian Plate have progressively thrown up the Himalaya, Karakoram, Hindu Kush, Kunlun and Tien Shan – all radiating out from the Pamir Mountains. Along with the Karakoram Mountains, the Pamir region is one of the most tectonically-active locations in the world.

Tajik National Park stands out as a very large protected area, with a stark treeless landscape of exceptional natural beauty. The outstanding scenic values are enhanced by the landform juxtaposition of heavily-glaciated high peaks and high plateaux with an alpine desert character. The property contains a number of superlative natural phenomena, including: Fedchenko Glacier (the longest glacier in the world outside of the Polar Regions); Lake Sarez (a very high, deep lake impounded just over a century ago by a severe earthquake which generated a huge landslide forming the Uzoi Dam, the highest natural dam in the world); and Karakul Lake, likely to be the world's highest large lake of meteoric origin.

Criteria
Criterion (vii)
Tajik National Park is one of the largest high mountain protected areas in the Palearctic Realm. The Fedchenko Glacier, the largest valley glacier of the Eurasian Continent and the world's longest outside of the Polar Regions, is unique and a spectacular example at the global level. The visual combination of some of the deepest gorges in the world, surrounded by rugged glaciated peaks, as well as the alpine desert and lakes of the Pamir high plateaux adds up to an alpine wilderness of exceptional natural beauty. Lake Sarez and Lake Karakul are superlative natural phenomena. Lake Sarez, impounded behind the highest natural dam in the world, is of great geomorphic interest. Lake Karakul is likely to be the highest large lake of meteoric origin.

Criterion (viii)
The Pamir Mountains are a major centre of glaciation on the Eurasian continent and Tajik National Park illustrates within one protected area an outstanding juxtaposition of many high mountains, valley glaciers, and deep river gorges alongside the cold continental desert environment of the high Pamir Plateau landforms. An outstanding landform feature of the property's geologically dynamic terrain is Lake Sarez. It was created by an earthquake-generated landslide of an estimated six billion tonnes of material and is possibly the youngest deep water alpine lake in the world. It is of international scientific and geomorphological hazard significance because of the on-going geological processes influencing its stability, and the sort of lacustrine ecosystem which will develop over time. Tajik National Park furthermore offers a unique opportunity for the study of plate tectonics and continental subduction phenomena thereby contributing to our fundamental understanding of earth building processes.

Integrity
The property comprises the entire area of the Tajik National Park and, because of its large size, mountainous and alpine desert character, and remoteness from human settlements, the property is considered to have an outstandingly high level of physical integrity. Consequently there is no need for a formal buffer zone. The defined core zone of TNP makes up nearly 78% of the property, with the other three sustainable 'limited use' zones ranged around the periphery of the park. Tajik National Park is owned by the State and, as a national park, it has the highest legal protection status in Tajikistan.

Protection and management requirements
The legislative framework and management arrangements for the property are comprehensive and clear and all activities that could threaten the integrity of the property, including mining, are legally prohibited.

There is a medium-term management plan approved by the Government and the State Agency of Natural Protected Areas is responsible for coordination of all activities in the park. The implementation of the management plan involves the participation of local communities and their traditional rights over the use of natural resources are respected. The zoning of the property accommodates both traditional and biodiversity conservation needs. The financing for the park comes largely from national sources with a minor contribution from donor funded projects.

Inscription on the World Heritage list presents an increased opportunity to the State Party to develop ecotourism. Therefore, long-term protection and management requirements for the property include the need to prevent negative impacts from tourism whilst accommodating any increased visitation to the property through the provision of quality visitor services.

There is a need for secured and adequate financing for the park to fully implement the management plan and carry out law enforcement measures. Since Government sources are limited, alternative sources of funding need to be investigated. In this respect, the concept of trophy hunting management needs to be developed, as trophy hunting could be an important supplementary income source for the management of the park. However, it should encompass all necessary elements of a science-based approach to game and habitat management, involve independent and external experts, and have a tight regulatory framework.

The property requires an effective long-term monitoring programme, including defined key indicators of the conservation and habitat health of the property.

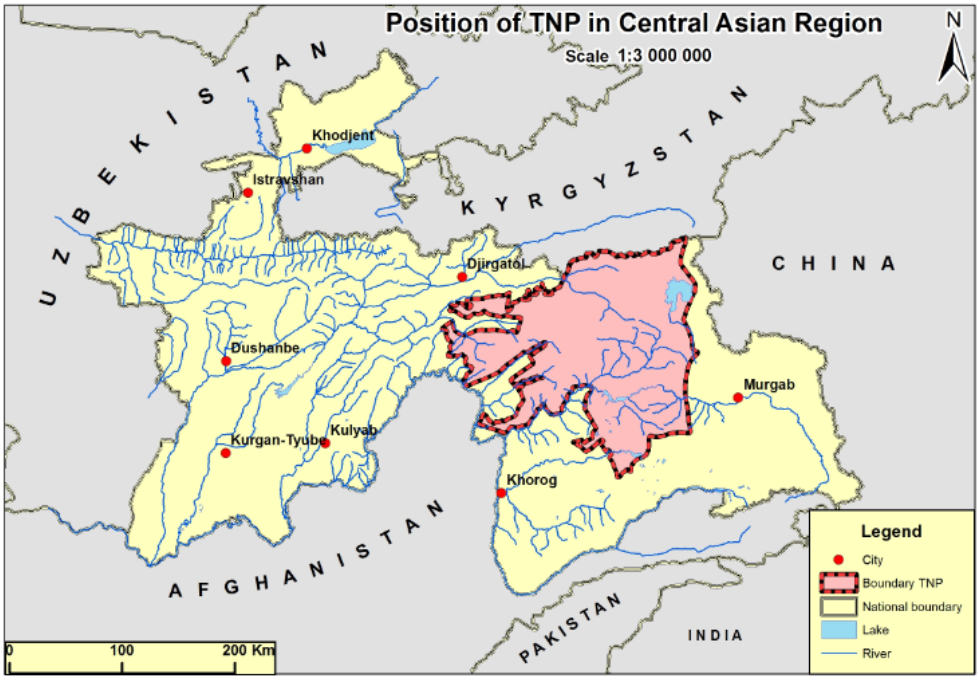
4. Commends the State Party on its continued and responsive efforts to improve protection and management of the property, in particular for the development and future implementation of the management plan;

5. Recommends the State Party to marshal the necessary human and financial resources to ensure effective long term protection and management in accordance with the property's management plan and to explore options to secure additional international financial assistance for capacity building;

6. Encourages the State Party to cooperate with the neighbouring State Party of Kyrgyzstan to develop improved and sustainable tourism programmes which enhance visitor services, income and which foster community-based tourism development;

7. Encourages the State Party to cooperate with neighbouring State Parties, the World Heritage Centre and the Advisory Bodies to undertake a regional comparative biodiversity and geodiversity study of Inner Asian high mountains and deserts and to conduct a regional expert workshop with a view to developing opportunities for future transnational potentially serial nominations.

Map 1: Nominated property location



Map 2: Nominated property and buffer zone