

# Conservation Measures in Afghanistan

## Part 1

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### 1. Introduction

Situated in central Asia, Afghanistan is a landlocked country of 652,864 sqkm, that shares borders in the north to central Asian republics of Uzbekistan, Tajikistan, and Turkmenistan, Iran in the west, Pakistan and China in the south, southeast and northeast. The geographical features of the country including its landlocked nature, mountainous terrain, large desert area, limited cultivated land and scattered resources, often isolated human settlements render economic development of the country costly and difficult. The country eventually rises from the hot arid plains along the Amu Darya and the Seistan Basin (400m altitude), through mountain ranges of the central and northeast, where many peaks exceed 6,000 meters to mount Zebak and the highest points in the Pamirs at 7,484 meters<sup>1</sup>.

The central and eastern part of the country consists of mountains, rivers and green valleys within the mountain slopes, wide desert in the west and southwest and form unique characteristics of the country. Mountains cover  $\frac{3}{4}$  part of its total area. This range joins the Himalayan and western Asian ranges<sup>2</sup>.

Geographical structure of Afghanistan within the mountain ranges, plain and sandy desert causes change in climate. Generally the climate is dry and makes variation in temperature of the day and night time. Afghanistan has a semi arid steppe climate with cold winters and dry summers. The Indian monsoon rain influences a narrow belt in eastern Afghanistan and allowing development of variable forest. The annual precipitation ranges from 100-1000mm. The seasonal distribution of precipitation is of the Mediterranean type, generally in the spring and dry period of the five months in summer. The temperature regime is of the continental type, with hot characteristic. Afghanistan is rich in climatic diversity which is mostly dependent on temperature regimes that varies sharply with altitude (vertical zone). The moisture distribution varies with aspects, that the southern slopes appearing drier and less vegetated than the northern slopes. In addition, the distribution of snow, ice glaciers and location of isolated peaks, lakes and valleys further modify the local climate to form climatic diversity on micro-scale. Such a complexity of climate and soil have produced an equally divers ecosystem with equally diverse flora and fauna as well as ecological processes. It is imperative that such diversity be preserved.

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<sup>1</sup> Geography of Afghanistan

<sup>2</sup> (The Asia's physical map indicates that the central Asian mountains are the highest peaks in the world of which the eastern ranges are higher than the western tip and laid westward).

## **2. Physiography**

The main physiographic regions of Afghanistan are:

1. The desert region (500-1000m elevation) of Dash-e-Margo, a desolate steppe with salt flats and Registan desert covered by windblown sand on the southwestern side of the HinduKush mountain range.
2. The steppe and semi-desert region (900-1800m elevation) between the desert and central highlands on the southern portion of the HinduKush mountain range
3. Central highlands (2000-7000 m elevation), part of the great Alpine-Himalayan mountain chain. This region covers an area of approximately 256,000 sqkm. Most of the forests of Afghanistan is located in this region.
4. The semi-arid plains along Oxus river (300-400m elevation) on the north side of the HinduKush, part of the central Asian steppes. This region covers an area of approximately 6,400sqkm.
5. The sub-tropical region (400-1200m elevation) of the eastern part of Afghanistan

## **3. Fauna of Afghanistan**

The Afghan fauna is characterized by many rare and genetically important species adapted to arid steppe or mountains such as Marco Polo sheep, Urial, Ibex, wild Goat, Markhor, Bactrian deer, black & brown bears, Snow leopard, Feral yak, Red fox, Siberian crane, Greater flamingo, Houbara bustard, Great bustard etc. Further to the list, there are thousands of waders, ducks and other waterfowls, reptiles, amphibians and wide range of domestic animals. Fish and amphibians are scarce. The large herds of wild asses and Gazelle, which until recent times populated the steppes have been almost exterminated by hunting. Similarly, their predators the Cheetah and Hyena have declined and migrated to other countries.

The Environment Law of the Islamic Republic of Afghanistan requires the National Environmental Protection Agency (NEPA) to list Protected and Harvestable wild species under Chapter 6, §47, Items 1-4. A Protected species is defined as having “unfavourable conservation status” or a species whose “occurrence in the country has been newly discovered”. According to the Environment Law, Protected species remain so listed until their conservation status has been determined as “favourable” (see §4, Item 12) and may only be harvested under a permit issued by the Government of Afghanistan. Totally 149 species has been assessed and declared as protected and harvestable species under the Afghanistan Wildlife Executive Committee. Below is some of key species that have been outlined in this article.

### **3.1. Ibex (Capra Sibirica)**

Historically, ibex occurred throughout the Afghan Hindu Kush and its outlying ranges. Reports indicate their occurrence in Nuristan from Darya Chaman, Paron Valley, north of

Nichingal Valley and in the east from Barge Matal on the Katigal River. Their survey also revealed seasonal movements to and from Badakhshan, with ibex arriving in late September and returning to the Northern Provinces in May. Currently, ibex occur in two populations within Afghanistan. The first population is widely distributed throughout Badakhshan Province in the Afghan Pamir and along the Panj River in the northeast (IUCN 2008). According to the Plan of Work Protected Areas project by WCS, available habitat for this population is estimated at 30,000 square kilometers (WWF Ecoregions <http://www.worldwildlife.org/wildfinder/>). The second much smaller and isolated population occurs in Bamyan Province in and around Ajar Valley. WCS estimates available habitat in this area is about 28,000 square kilometers.

### **3.1.1 Afghanistan population estimate**

**Badakhshan:** During the official visits in Wakhan Corridor and Pamirs, the Wakhies and Kirghiz communities reported healthy distribution of the species (Malikyar 2014,206). Shackleton (1997) estimated about 20,000 ibex in Afghanistan and the western Himalayas. The density estimates of 0.3-1.2 ibex per square kilometer and an estimate of 30,000 square kilometer of available habitat in Badakhshan, ibex populations in this region of Afghanistan may number between 9,000-36,000. Recent surveys completed by WCS in the Pamirs in Badakhshan indicate ibex are fairly abundant and least concern. Winnie completed the most recent survey in October 2008 and found large herds (20-60 individuals) in remote valleys of the Big Pamir.

**Bamyan province:** As most secure areas and adaptive community, Bamyan province is the safest habitat of *Capra Siberica* compare to the habitats elsewhere in the country (Malikyar 2015). In the 1970s, an estimated 5,000 individuals may have seasonally occurred in Ajar Valley (Shank et al. 1977 in IUCN 2008). However, Shank (pers comm.) estimates this population now numbers less than 250 individuals.

**3.1.2 Afghanistan population trends:** There is no major difference in the population of the species as reported in the past years (Malikyar 2017). Shank (pers comm.) estimates a decline of 10% per year over last 35 years in Ajar, and that overhunting will continue to cause a 10% decline per year in Ajar in the future. A trend for the Badakhshan population is unknown.

**3.1.3. Threats:** Threats to ibex include overhunting, competition from domestic livestock, and possibly alienation from critical watering holes (Shank per comm.). Ibex are hunted for recreational purposes and subsistence (Fox et al. 1991, Shank pers comm.). Livestock compete for resources and potentially facilitate disease exchange between wild and domestic populations (Fedosenko and Blank 2001). Bagchi et al. (2004) found that ibex, free-ranging horses, and domestic goats/sheep utilized similar habitat and had similar diets implying direct competition between these species.

## 3.2. Kashmir Musk deer (*Moschus cupreus*)

Comprehensive population or distribution data on *Moschus cupreus* does not exist in Afghanistan; however, it is well known that this species is heavily poached for food and for musk (IUCN (2008) estimated at least a 50% decline in 3 generations given current exploitation levels. Afghan populations are most likely declining at a rate faster than 50% in 3 generations because of the rapid depletion of forest habitat occurring in Nuristan (UNEP 2003). Given this suspected rate of decline, *M. cupreus* qualifies for endangered under Criterion A.

**3.2.1. Afghanistan Distribution:** Musk deer have been recorded from oak and conifer forests in Nuristan between 1500-3000 m (Green 1986). Source information for musk deer distribution in Afghanistan comes mostly from interviews with local people. Habibi (2003) records reports of musk deer in Parun valley near Pashki (Nuristan) and from areas in Nisheigram, Maktosho, and Kamu (Nuristan).

**3.2.2. Afghanistan population estimate:** Camera Trap program in Kunar and Nuristan has not recorded cases of *M. cupreus*. It is considered to be rare in the area in conifer and oak forests between 1500-3000 m (NEPA/WCS 2006) Green (1986) suggested that density measurements for the Himalayan musk deer would be similar to those of the Siberian musk deer (0.6 per square kilometer); however, given the relative lack of data on this species in Afghanistan this density estimate may or may not reflect current conditions. WCS conducted camera trapping surveys and interviews with locals in Nuristan during 2007. Although musk deer were not captured on any camera traps, locals from Nuristan reported they were widely known and hunted in the area (WCS/USAID Afghanistan Biodiversity Conservation Program).

**3.2.3. Afghanistan population trends:** *M. cupreus* is distributed over a relatively small area in India, Pakistan, and Afghanistan (IUCN 2008). Although there are no formal data to make estimates, AWEC made efforts to follow IUCN figures and make an estimation of the species, with no success due to security (2015/NEPA/Malikyar). to determinations about possible declines. Populations in Afghanistan are probably doing about the same or worse as neighboring populations in India and Pakistan. According to IUCN (2008), based on exploitation rates, populations in Afghanistan, Pakistan, and India may be facing declines of at least 50% over three generations if not greater.

**3.2.4. Threats:** The two greatest threats to the musk deer (generally) and Himalayan musk deer (specifically) are overhunting and habitat loss (Green 1986, Nowak 1999, CITES 2000, IUCN 2008). Musk, the substance produced by males in their musk gland, has always been greatly valued by humans for its odor. Europeans

have used it in perfume since the 4<sup>th</sup> century and records show that by the 7<sup>th</sup> century, Arabs were mixing it with mortar to construct mosques (Shrestha 1998, CITES 2000). Musk is also used in Traditional Chinese Medicine and has been documented in over 300 pharmaceutical preparations (Yang et al. 2003). Between 1974 and 1980, studies estimate that around 200 kg of musk was traded internationally every year, which represents between 5,350-16,000 deer (or an estimated 18-53% of the total Himalayan population at that time) (Green 1986). From 1974-1983, Japan, the largest importer of musk making up almost 85% of the market, was importing nearly 4.2 million USD worth of musk per year (Green 1986). In 1986, musk was reported as one of the most expensive animal products in the world earning up to 45,000 USD per kilogram (Green 1986, Nowak 1999, Aryal 2005). By the late 1990s, China's export of musk was between 500-1,000 kg per year (1,800 kg is the equivalent of 150,000 musk deer) (CITES 2000, Yang et al. 2003). Although many perfumes today are made with synthetic musk, natural musk retains its high value because of its rarity.

### **3.3. *Argali (Ovis ammon)***

Data on Afghan Argali show historical and projected declines of >30% over 10 years or 3 generations. Hunting levels, for harvest and recreation, remain high, threatening populations of the Wakhan. The Committee suggests a protected status until Argali populations may be adequately managed by communities in the Wakhan.

**3.3.1. Afghanistan Distribution:** A visit of Little Pamirs in June 2015 by NEPA HQ, a number of Arghalis were observed in Wakhjir Valley (Malikyar and Asad Khaikhwa 2015). Historically, Argali are distributed throughout much of the Afghan Pamirs of the Wakhan Corridor between the Panj (Amu Darya) and Wakhan Rivers (Malikyar 2015). Currently, Argali occupy the western and eastern sections of the Big Pamir and much of the Little Pamir and Wakhjir Valley (Harris and Winnie 2007, Schaller and Kang 2008, IUCN 2008). The Afghan Wild Species Committee should consider treating Argali in Afghanistan as two separate populations: the Big Pamir population and the Little Pamir/Wakhjir Valley population. Although there may be migrants between these populations there is support from recent survey work to separate them on this geographical basis (Winnie pers comm.). Separating these populations will allow the Committee to make management recommendations that cannot be done otherwise.

**3.3.2. Afghanistan population estimate:** During the preparation of management plan of Wakhan National Park and Tigarmansu wildlife reserves in Big and little Pamir, footprints in the grazing terrains in Waghjir and Tigarmansu proves the historical counts surveyed in 1970s by Petocz and the projection of population of argali in

the Afghan Pamir to be around 1,260 individuals based on counts over smaller areas (NEPA 2015). The major declining factor is the installed fence by Tajikistan in Little Pamir in the border between the two countries. Deterioration of range conditions and hunting by illegal hunters and border authorities (Malikyar 2015). Some areas in the Wakhan still contain healthy populations of Argali. Based on surveys in 2004, Schaller (2004) estimated about 1,000 Argali left in the Afghan Pamir.

**3.3.3. Threats:** The biggest threats to Argali are livestock competition, illegal hunting, habitat degradation and fragmentation. Livestock competition and degradation of important habitat is problematic across the species range. Scientists and locals note that Argali are affected by the proximity of herders and will shift their range to move away from domestic livestock. In June 2015, it was observed that domestic livestock heavily utilize pastures that are important feeding grounds for Argali, and can cause vertical as well as horizontal displacement. In their winter 2007 survey of the Big Pamir, Winnie and Harris (2007) found no Argali and no recent signs of Argali in drainages containing domestic livestock. Both Schaller (2004) and Winnie and Harris (2007) noted the poor conditions of rangeland in the Big Pamir due mostly to overgrazing by domestic livestock. In fact, Petocz et al. (1978) also noted the poor quality of the Big Pamir rangelands meaning this area has been suffering from overgrazing for at least 30 years. Argali are often displaced to areas with inadequate rangeland conditions making it more difficult for them to obtain enough food and nutrients. The other major threat to Argali is uncontrolled hunting and poaching. Argali are highly prized by foreign hunters as trophy animals and are also used for food by local inhabitants. Poorly managed hunting programs and poaching have led to declines in the past and are continuing to cause population reductions today (Schaller and Kang 2008). However, certain countries have demonstrated that successful trophy programs can increase the incentive for conservation. In Tajikistan, 13 hunting concessions share about 60 permits (Ostrowski pers comm.) which sell for about 22,000 USD (Schaller and Kang 2008). Yet, the hunters from Tajikistan enter Afghanistan in Pamir area for illegal hunting (Malikyar 2015). Kyrgyz communities in Little Pamir do not disclose the existence of illegal hunters from Tajikistan because the meager incomes they receive will be reduced. The value of these permits provides a strong incentive for conservation, and Tajik populations in the Pamir include some of the healthiest populations across Argali range. Argali also have cultural importance to local people. Maroney (2005) found that local pastoralists in Mongolia were aware of threats to the Argali and concerned for their conservation. Ultimately, Argali can provide an important food source for locals living in remote conditions. Given their importance at local and international levels, hunting concessions may be used as an important conservation tool for Argali populations in the Afghan Pamir.

### **3.4. *Urial (Ovis orientalis)***

Anecdotal evidence suggests that the urial in Afghanistan would qualify for EN A2cde + A3cde. Personal interviews with local residents in Hazarajat reveal that most people believe the urial has declined significantly within the last 30 years; however, a data deficient listing is recommended for two reasons. First, the data to confirm this listing simply do not exist. Second, experts are uncertain which subspecies of urial occur in Afghanistan. The Ladakh and Punjab urial qualify for an endangered listing but the Afghan urial may be only vulnerable. Without a better understanding of the subspecies distribution in Afghanistan, the Committee chose to list the Afghan urial as data deficient.

**3.4.1. Afghanistan Distribution:** Urial are distributed within the Hindu Kush and mountains of central and southwestern Afghanistan from the Zebak mountains in the north to the Siyah Koh range in the southwest (Shank et al. 1977, Habibi 2003, IUCN 2008). Individuals are known to migrate from Ajar Valley Reserve to areas near Band-i-Amir in Bamyan Province (Shank et al. 1977) and from the headwaters of the Helmand River to winter ranges in Uruzgan Province (Habibi 2003). Petocz (1973 in IUCN 2008) noted urial from the Safed Koh range in Herat and Badghis Provinces, the Kohe Safi region of Kapisa Province, and towards the Lataband Pass near Kabul. Habibi (2003) also notes urial from the mountains bordering Chitral in Badakhshan, but their distribution within this region remains unclear. In 2008, urial were seen in areas between Ajar Valley and Band-i-Amir (Shank pers com).

**3.4.2. Afghanistan population trends:** Urial in Afghanistan are declining at an unknown rate, and expects declines to continue into the future due to hunting, livestock disturbance, and human disturbance. Interviews with local people indicate that populations have declined precipitously since the Revolution in 1979.

**3.4.3. Threats:** Threats facing urial in Afghanistan are human disturbance, livestock competition, habitat fragmentation and loss of habitat, hunting, and migratory interruptions (Shank pers comm.). Competition with livestock, deterioration of rangelands, and hunting are especially problematic given urial habitat preference for open landscapes and their inability to retreat to more remote mountain areas. Urial often occur in terrain that overlaps with areas heavily utilized by humans use for settlements and livestock grazing (CITES 2000). Recently, areas known to be suitable urial habitat have seen a rapid increase in human population suggesting an increased level of livestock competition for limited resources (CITES 2000). In Afghanistan in particular, migratory abilities may be hampered because of human incursion into traditional migratory pathways. The extent of the incursion and its impact on urial is unknown at this time. Urial are also valued as trophy species and are hunted for recreation and subsistence (Shank pers comm., CITES 2000, Johnson pers comm.). They are used as meat, trophies, furs and their body parts are used in traditional medicines (CITES 2000). Illegal hunting both in Afghanistan

and in surrounding regions have decimated urial populations in the past, and are likely to continue into the future (Mallon 1983, CITES 2000, Awan et al. 2006).

### **3.5. Snow leopard (*Uncia uncia*)**

There are probably less than 100 snow leopards in Afghanistan and declines of at least 20% over two generations (as in the rest of the region). If there was a better sense of the decline in Afghanistan, the species may be considered for a Critically Endangered Listing. However, there is currently not enough information to warrant a listing above Endangered.

**3.5.1. Afghanistan Distribution:** The recent satellite and camera trap studies in Wakhan corridor indicate healthy habitat and species in its distribution ranges (NEPA 2015). The valleys which provide potential habitat in Afghanistan estimates 117,653 km<sup>2</sup> only 50,000 km<sup>2</sup> of which is thought to be occupied by snow leopard. Most valleys in Big Pamir in the Wakhan Corridor has signs of snow leopard including Nakchrishitk, Ali Su, Aba Khan, Shikargah, Wuzed, Kund-a-Thur, Asan Katich Left, Asan Katich Right, Kusk Valley, and Kali Uoos Valley. Snow leopards have also been sighted from the Big Pamir, Wakhan corridor and Small Pamir (Qule Chaqmaktin, Tegar Qarom, Berget valleys), and from Zebak in the southern parts of Badakhshan.

**3.5.2. Local Sites/first radio-telemetry study of snow leopards in Afghanistan**  
The first snow leopard *Panthera uncia* telemetry study ever conducted in Afghanistan and the only major research effort of its kind carried out in the country. Between May and September 2012 it captured and fixed GPS telemetry collars on two male and one female snow leopard in the Hindu Kush mountain range of Wakhan District, Badakhshan Province in Afghanistan. The specific aims of this study was to determine ranging patterns and habitat preferences of the species, and better understanding the prevalence of and reasons for livestock predation. A proliferation of modern weaponry combined with the disruption of traditional management of natural resources in a society war-torn for the last 30 years have imperiled wildlife in Afghanistan. The population size of snow leopards in Afghanistan is not known, but figures range between 50 and 200 animals. However, this is based entirely on an estimate of appropriate habitat and the likely density of snow leopards, not actual data. Since 2006 the National Environmental Protection Agency (NEPA), MAIL and Wildlife Conservation Society (WCS) has been developing community capacity to manage conservation in Wakhan and Bamyan province of Afghansitan. This initiative includes the creation of a governance structure representing the local communities, and training and equipping 65 community rangers who patrol, carry out wildlife surveys, enforce no-hunting regulations and educate their community about wildlife conservation. To

further the conservation measures being developed in Wakhan investigation of the ecology of snow leopards using GPS telemetry. Habib (2008) reports villager sightings from Kret, Kugzet, Sargez, Qila-e-Wust, Shelk, Kipkut, Wuzed and Pakuy in the Wakhan. Recently, one snow leopard was shot and killed by villagers in Qila-e-Wust.

**3.5.3. Afghanistan population estimate:** Occupied habitat in Afghanistan is estimated to be about 50,000 km<sup>2</sup>. McCarthy and Chapron (2003) assumed a constant density of 0.0033 snow leopards per square kilometer, which is an average between productive and non-productive habitats and an acceptable assumption if no other information is available. If both estimates were correct then the population of snow leopard in Afghanistan would be around 150 individuals. McCarthy and Chapron (2003) provide a range of 100-200 individuals. However, Habib (2006) estimated a density of only 1-2 snow leopards per 100 km<sup>2</sup> in the Big Pamir. This density estimate yielded approximately 6-13 cats in the proposed National Park in the Big Pamir and would provide an overall estimate of only 50-100 snow leopards in Afghanistan. Given that Habib (2006, 2008) is the most recent authority on snow leopard in Afghanistan, this estimate may better reflect the current status of this species.

**3.5.4. Afghanistan population trends:** Trends for the snow leopard in Afghanistan are unknown but it is not likely to be less than a 20% decline over 2 generations.

**3.5.5. Threats:** The largest threats to the survival of the snow leopard in Afghanistan and within the region are human disturbance (including hunting), declines in prey species, and livestock conflict. Despite efforts of building local livestock safe stable for domestic livestock in the villages down the distribution ranges, the corps of two individual snow leopard seized in 2012 and 2017 proves that the vengeance still continue (NEPA/Malikyar 2017). Snow leopards are hunted for a number of reasons. First, their pelts and body parts are sold for significant sums of money in domestic and international markets. In the 1970s, Rodenburg (1977) estimated that 50-80 skins were produced and sold in Afghan markets per year and recent excursions into the fur markets of Kabul indicate that snow leopard is still widely available. Whole snow leopard pelts may sell for as much as 1,000 USD in tourist markets and coats may sell for between 500-1,000 USD (Johnson pers comm.). Hussain (2003) found that snow leopard was heavily poached in Pakistan for body parts and pelts. In his surveys, villagers indicated that snow leopards were trapped with leg snares and either killed using clubs or by starvation since shooting the animal would make the pelts less valuable (Hussain 2003). Snow leopard poaching, despite its illegality in many countries, is often done with the consent of the entire community because of its value in international markets (Hussain 2003). Products sell for significant sums in a number of international markets despite the

fact that it is a CITES Appendix I species and may not be internationally traded for commercial purposes.

Snow leopards are also hunted in retaliation for livestock depredation (Hussain 2003, Habib 2006). Bagchi and Mishra (2006) reported annual losses of 128 USD per family in the Indian region of Spiti (State of Himachal Pradesh) due to livestock predation by snow leopard and wolves. These losses fuel negative attitudes towards large predators, especially the snow leopard, which is considered to be a primary predator of domestic livestock. However, depredation has been shown to vary by region. Bagchi and Mishra (2006) found that domestic livestock made up 40-58% of snow leopard diet in India whereas Habib (2008) reported a 0.65% total stock mortality within one year in the Wakhan due to snow leopard predation. For comparison, 8.85% of total stock mortality in the Wakhan during the same year was due to extreme weather (Habib 2008). Furthermore, Habib (2008) reported that only 10.7% of snow leopard diet (percent occurrence) was domestic livestock whereas 89.3% of its diet consisted of wild species. These differences may be a result of numerous factors, but more research is required to understand livestock depredation and the extent to which it affects communities.