



**CONVENTION ON
MIGRATORY
SPECIES**

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Agenda Item 27.1

**PROPOSAL FOR THE INCLUSION OF
THE URIAL (*Ovis vignei*)
IN APPENDIX II OF THE CONVENTION**

Summary:

The Governments of the Republic of Tajikistan, the Islamic Republic of Iran and the Republic of Uzbekistan have submitted the attached proposal for the inclusion of the Urial (*Ovis vignei*) in Appendix II of CMS.

A. PROPOSAL

The species urial *Ovis vignei* Blyth, 1841 with all subspecies and the entire population, except hybrid populations, is proposed to be included in Appendix II of the Convention.

B. PROPONENT

Islamic Republic of Iran;

Republic of Tajikistan;

Republic of Uzbekistan

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class: Mammalia

1.2 Order: Cetartiodactyla

1.3 Family: Bovidae

1.4 Genus, species or subspecies, including author and year

Ovis vignei Blyth, 1841

1.5 Scientific synonyms

Ovis orientalis ssp. *arabica*, *arkal*, *blanfordi*, *bochariensis*, *cycloceros*,
punjabensis, *vignei*

Ovis aries ssp. *arkal*, *cycloceros*, *vignei*

1.6 Common name(s), in all applicable languages used by the Convention

English	–	Urial
French	–	Urial
Spanish	–	Urial

Remark on taxonomy:

In the past urial was listed as *Ovis vignei* in CITES Appendix I (ssp. *vignei*) and in Appendix II (all other subspecies of *O.vignei*). CITES and CMS apply Wilson and Reeder (2005) as standard taxonomic reference and accordingly CITES in 2017 changed the name of urial in the Appendices. Wilson and Reeder (2005) included the urial sheep in *Ovis aries* (the name of the domestic sheep). This is in contradiction to the recognized rules of zoological nomenclature this reference (ICZN 2003; Gentry et al., 2004). Furthermore, *Ovis vignei* is not an ancestor of domestic sheep *Ovis aries* (Hiendleder et al., 1998; Rezaei et al. 2010).

The 1997 IUCN Caprinae action plan and the previous IUCN Red List assessment (Valdez 2008) list one species, *Ovis orientalis*, for all mouflon and urial. The delegates of the Workshop on Caprinae taxonomy (IUCN/SSC Caprinae Specialist Group 2000) disagreed with that taxonomy, partly because of differences in the number of chromosomes: mouflons have 54, urials have 58 and concluded that mouflons and urials are different species. Molecular studies show that that the individuals identified as mouflon and urial form two strongly supported monophyletic groups. Urial and mouflon *Ovis gmelini* form natural and stable hybrid populations in parts of Iran. Individuals sampled from hybrids' populations appear either in the clade of urial or in that of mouflon, independently of their geographic origin and of their morphology. Considering these two taxa as distinct species *Ovis gmelini* and *Ovis vignei* would be more coherent with the morphological and genetic differences between them, their past evolutionary divergence, and the occurrence of a restricted hybrid zone (Rezaei et al. 2010). The ongoing reassessment under The IUCN Red List follows this approach, which is also applied here.

The red sheep (listed as *Ovis o. orientalis* on page 13 of the IUCN Caprinae Action Plan) is considered a hybrid form found in Iran, the result of interbreeding of different mouflon and urial subspecies. As the name *Ovis orientalis* has first been used to designate the red sheep, which is a hybrid, this name may be nomen nudum. Following on chronology the next valid name for the Asiatic mouflons might be *gmelini* Blyth, 1841; and for the urials it is *vignei* Blyth, 1841. The International Council for Game and Wildlife Conservation (CIC) uses *Ovis vignei* for the urial (Damm and Franco, 2014).

For these reasons this proposal applies the name *Ovis vignei* for urial. This species name allows for a clear identification of the taxon proposed for inclusion in Appendix II of the CMS. The identified stable, naturally occurring hybrid populations of *Ovis vignei* and *O. gmelini* are not part of this proposal.

Urial is divided into several subspecies:

<i>Ovis vignei arkal</i>	-	Transcaspian urial
<i>Ovis vignei blanfordi</i>	-	Blanford's urial
<i>Ovis vignei boharensis</i>	-	Bukhara urial
<i>Ovis vignei cycloceros</i>	-	Afghan urial
<i>Ovis vignei punjabensis</i>	-	Punjab urial
<i>Ovis vignei vignei</i>	-	Ladakh urial

The taxonomic status of several subspecies, their geographic distribution and the belonging of distinct populations to these are debated (IUCN SSC/Caprinae Specialist Group 2000). Units for assessment and conservation managements are therefore often defined pragmatically either by Range States or the geographic range where the respective populations or subpopulations occur.

2. Overview

The urial is a wild sheep distributed across Iran, southern Central Asia, and the western part of South Asia. It occurs in undulating and mountainous landscapes from below sea level in the Trans-Caspian lowlands up to above 4000 m a.s.l. in the Pamirs, Karakoram, Hindukush and Himalayas. They inhabit treeless deserts, steppes, shrublands and open woodlands. Urials are known to be highly mobile across their home ranges and move seasonally or irregularly tens of kilometres. Many urial ranges are located at national borders and thus many populations are transboundary. In many parts of the range urial populations are declining, became fragmented and are prone to local extinction. Threats include poaching, competition with livestock, degradation and conversion of habitat, and human-wildlife conflict (crop raiding). The urial has not yet been assessed in The IUCN Red List. In previous assessments it has been lumped with mouflon *Ovis gmelini*, with which it locally forms natural hybrid populations. The currently ongoing reassessment as separate species is expected to retain the status Vulnerable under criterion A2cde because of continuing decline of population size. For the maintenance of the viability of urial populations connectivity and dispersal migration are essential. Seasonal and irregular migrations, often across national borders, are important for urial for access to suitable habitats. Listing in Appendix 2 of the Convention will allow for the inclusion of the species in the Central Asian Mammals Initiative, in which all Range States take part, and will facilitate the development of bi- and multilateral cooperation for transboundary conservation of the species across its range.

3. Migrations

3.1 Kinds of movement, distance, the cyclical and predicable nature of the migration

So far urial migrations have not been systematically studied. Urial are known to migrate over distances of several ten to more than hundred kilometres. Such migrations can be seasonal or irregularly, related to availability of forage, water or critical habitat features. Such migrations are so far poorly studied, but are known from different parts of the range area and reported particularly by

rural people and traditional hunters. For instance, in Tajikistan urial reportedly migrated in north south directions in mountain ranges, like the Panj Karatau and the Hazratishoh (Michel, 2010). In Afghanistan seasonal migrations in the Wakhan, along the northern slopes of the Hindukush, have been reported by local people (Moheb et al. 2012). In the Hazarajat of Afghanistan there are two major migrations – one into the lambing areas in late May and one into the rutting area in mid-November. The fact that urials perform migratory movements exposes them to human threats and increases the risk of their extinction (Shank 2009). The urial in the Ustyurt inhabit the cliffs (*chink*) with few water sources and limited forage. They graze on the plateau and migrate between different sections of the chink, sometimes crossing plain areas of several ten kilometers (pers. comm. staff of protected areas in Mangystau, Kazakhstan, 2016). Raghavan et al. (2003) found urials seasonally in winter migrating beyond valleys to relatively snow free areas that had more 'exposed' vegetation.

Urials have been observed at distances of more than hundred kilometers from core range areas, e.g. in the Eastern Pamirs of Tajikistan. This may concern males, which in search of mates during the rut season migrate over long distances, but also entire herds have been observed. (Qadamshoev, pers. comm. 2008, Atabaev, pers. comm. 2018) Such dispersal migrations may facilitate the recolonization of range areas, where the species went extinct, genetic exchange and possibly under climate change conditions even the colonization of new range areas. Different climate change scenarios predict increasing aridity, which may render portions of the current habitat uninhabitable.

From Uzbekistan migration from the Kugitang Range into Kashkadarya region and Turkmenistan (Kholikov and Mamarazhabov, 2016) as well as Kazakhstan and Turkmenistan in the Ustyurt (Marmazinskaya, pers. comm. 2019, Pestov, pers. comm. 2019) have been documented. In the Babatag between Tajikistan and Uzbekistan regular cross-border migration is highly likely. In the Wakhan of Afghanistan local people reported about urials moving across the border with Pakistan at Baroghil pass (Michel et al., 2009). Also in other parts of the range, urial populations occur in border areas and are regularly moving across national borders, e.g. in the Kopetdagh (Iran/Turkmenistan), Karakoram/Hindukush/Himalayas (Afghanistan, India, Pakistan).

3.2 Proportion of the population migrating, and why that is a significant proportion

Reliable estimates about the proportion of the population migrating are not available. Generally, from different parts of the species' range migrations are reported mainly by local rural residents and traditional hunters, indicating that a major part of the population is migrating or has been in the past (e.g. Michel, 2010; Moheb et al. 2012). Populations inhabiting border regions with suitable habitat at both sides of the borders and neither artificial nor natural barriers hindering migration are regularly crossing these borders. The transboundary populations are significant for the species as they make up a high proportion of all urial populations and a high proportion of the total number of urials outside of Iran belongs to these populations.

The natural hybrid populations occur in Iran only and none of these populations is migrating across national borders.

4. Biological data (other than migration)

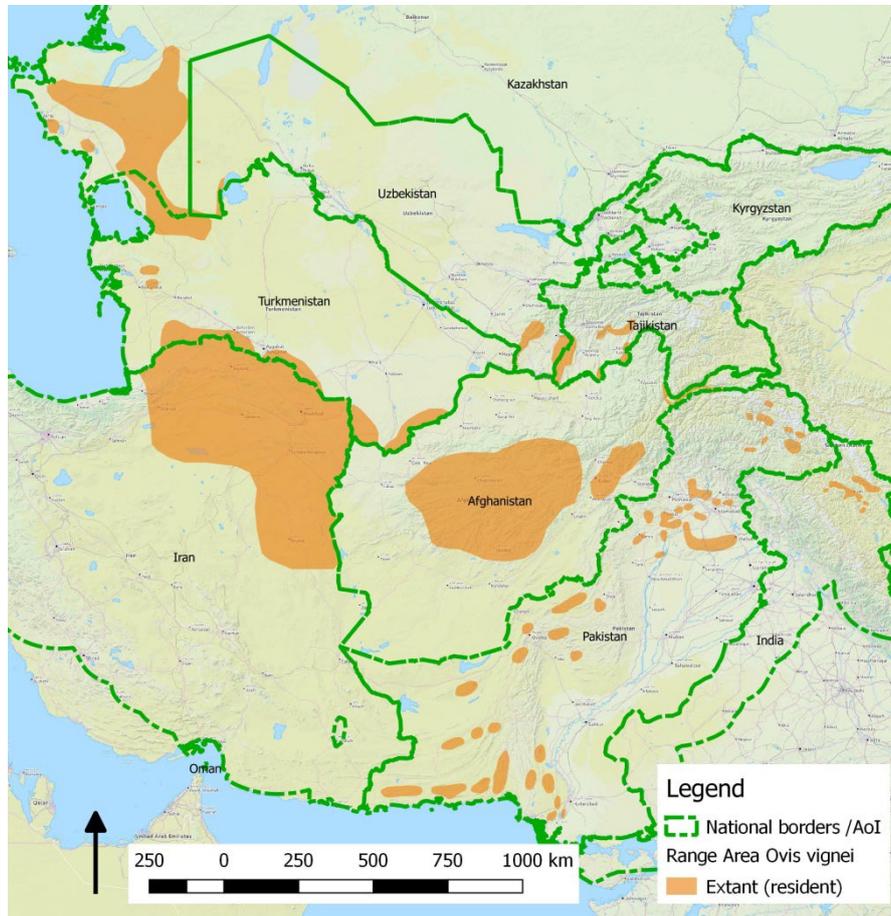
4.1 Distribution (current and historical)

The range areas shown in the map based on the special data from The IUCN Red List are of highly varying accuracy. Most range areas indicated as "extant" are very generalized and the actually occupied areas are much smaller. This concerns in particular the large blocks in the Ustyurt between Aral Sea and Caspian Sea, in northern Iran and Afghanistan. The areas indicated as "possibly extant" consist in a large extent of unsuitable areas and there only some small patches of actual urial range areas can be expected.

The Extent of Occurrence stretches from the east of the Elburz Mountain Range in Iran, the western coast of the Caspian Sea in Kazakhstan and Turkmenistan in the east through the mountains and hills of Iran, Afghanistan and Central Asia to the Ladakh in the western Himalayas of India. Within this area urials are found in patches of suitable habitat, where not exterminated. Thus the overall range of the species is very fragmented and most populations are isolated.

In Afghanistan urial is found in the north, in the Wakhan and adjacent areas. This population is linked to urials in Northern Pakistan. Further, urials occur in the mountains of central and eastern Afghanistan, including the Band-e Amir National Park. Occurrence of urial east of Kabul in Khak-e Jabbar has been confirmed in 2015 by the capture of two urials by local people (Khaurin, GEF Small Grants Program, pers. comm. 2017). Urials in eastern Afghanistan have range areas, which despite fragmentation are likely transboundary with Pakistan.

In India urial are restricted to the Ladakh (Jammu and Kashmir), where it is distributed discontinuously in a narrow band along the valley-bottom, to the foothill boundary of the Indus and Shyok-Nubra rivers, and some of their major tributaries. (Valdez, 2008) The Indian populations of urial at least in the past have been connected with populations in Pakistan.



Range area, based on The IUCN Red List

In Iran urial is widely distributed in the north east of the country, stretching into central and eastern provinces. Urial occur in a number of protected areas, e.g. Golestan, Gorkhod, Serany and Tandoreh Protected Areas. (Valdez, 2008) The occurrence of natural hybrid populations makes the exact delimitation of the range area difficult. Along the borders with Turkmenistan and very likely Afghanistan the urial ranges are transboundary.

In Kazakhstan urial inhabit cliffs of the Ustyurt in Mangystau Region. The permanently inhabited areas are patchy, but movements across plain areas between the cliffs and occurrence of small urial groups in areas of only seasonal suitability indicate connectivity. From some cliffs and hills urial has disappeared during the last decades because of poaching. The population is transboundary with Turkmenistan and Uzbekistan.

In Pakistan urial has a patchy distribution through the southern and central provinces, e.g. Baluchistan, Sindh, Punjab, to the north in Gilgit-Baltistan and Khyber-Pakhtunkhwa. Valdez (2008) mentions that the range area in northern Pakistan represents rather the past than the current distribution. Urial in the upper Yarkhun valley in northern Pakistan have transboundary connectivity with urials in the Wakhan of Afghanistan (Michel, 2010).

In Tajikistan urial still occurs in several mountain ranges of the southwest, in particular in the Aktau and Babatag near the border with Uzbekistan, in the Panj Karatau, Surkhkuh, Baljuvan and in the south of Hazratishoh Range. In several of these areas the urial disappeared from large formerly inhabited sections. In Wakhan of Tajikistan and the Pamirs urial disappeared in the early 2000s and are since only irregularly reported by local people, dispersing from Afghanistan, but so far not establishing a permanent population.

In Turkmenistan urial are found in the Ustyurt region at the border with Kazakhstan and Uzbekistan, in the Kopet Dag Mountain Range at the border with Iran, in the Badghyz region at the border with Afghanistan and Iran and in the Koytendag (in Uzbek Kugitang) Mountain Range at the border with Uzbekistan. Thus all populations in Turkmenistan at least potentially periodically cross national borders.

In Uzbekistan urial has been distributed in Surkhandarya region from the Kugitang Ridge to the east to the mountains of the right bank of the Amudarya and the lower Pyanj, to the north to the Zarafshan River. Currently the range area consists of two sections Kugitang and Baysuntau Ranges (transboundary with Turkmenistan) and Babatag Range (transboundary with Tajikistan). (The Red Data Book of Uzbek SSR, 1983; The Red Data Book of the Republic of Uzbekistan, 2009) More recently the species has been confirmed in the border areas with Kazakhstan and Turkmenistan in the Ustyurt (Marmazinskaya et al., 2016).

4.2 Population (estimates and trends)

The reassessment for The IUCN Red List is challenged by insufficient coverage and quality of available data from most parts of the range. Most population data are educated guesses or refer to small areas only. Increases in reported numbers may sometimes rather reflect increase in search intensity than an actual increase in population size. Data availability for distinct time periods is not sufficient to provide a reliable indication of size and trends of global population size. Valdez (2008) reported declines from various range areas, but did not provide a global population estimate.

In Afghanistan urial has been rediscovered in some areas of Badakhshan, Bamiyan and even east of Kabul during the last decades. The population in the Wakhan seems to be stable and Moheb et al. (2012) recorded 400 urial there. But apparently the species has disappeared from many other areas due to poaching and habitat degradation. So, the overall population size is likely small and declining.

In Ladakh in India at the end of the 1990s urial population seems to have shown a marginal increase to about 1000-1500 individuals in its range in Ladakh. Raghavan and Bhatnagar (2003) estimated the urial population in Ladakh in 2002 to number around 690 (540-840) individuals. During a study in 2002-2003 in total 834 individuals were recorded (not including off-trail sightings). As urial habitat overlaps with the areas of land-use for livestock grazing, crop cultivation and infrastructure development Raghavan et al. concluded that "it is unlikely that urial population in Ladakh is increasing. In fact, it seems more probable that they are actually facing, if not already on, a decline." (Raghavan et al., 2003) A recent survey by Department of Wildlife Protection, Jammu & Kashmir and Nature Conservation Foundation Karnataka (2018) estimated 753 urial within 625 km² of surveyed area in Upper Shyam and Kargil landscapes. Density estimates from about 70 km² area in the Fotu La region of Kargil landscape had been nearly four times higher in 2003 (Raghavan et al., 2003), indicating that urial population may have suffered drastic shrinkage in the areas bordering Kargil and Leh Districts. The Kargil and Upper Shyam landscapes seem to be supporting the last refuges of relatively large populations of Ladakh urial in Ladakh currently. In rest of Leh and Kargil districts, urial was found to be scattered in small populations. (Department of Wildlife Protection, Jammu & Kashmir and Nature Conservation Foundation Karnataka, 2018)

From Iran population estimates for urial, mouflon and hybrids are available from protected areas, but not all figures can be attributed with certainty to one of the species or to hybrid populations. The total of figures from a survey by Department of Environment in 2016 for the provinces with likely *Ovis vignei* only occurring was approx. 18,000 (Ostrowski, pers. comm. 2019). In the recent years, the only scientific population assessment of urial has been conducted in Golestan National Park using line transects, which resulted in an estimation of 4275 individuals (95% CI 2117-8632) showing around 66% decline in the population compared to 1970s and a comparable or even more severe decline in the population of urials in a similar time window is anticipated for other protected areas. (Ghoddousi et al., 2019)

For Kazakhstan Valdez (2008) reported substantial declines since the 1960s. Ismailov (pers. comm., 2019) indicated declines by more than 70% in Kazakhstan during the last 20 years with a guessed total number of less than 900 individuals. According to the Red Book of Kazakhstan (Bekenov and Kasabekov, 2010) the urial population had been dropped to 700-1,000 in 2007 compared to 5,500-5,600 in 1991 and 7,000-10,000 in the 1960s.

For Pakistan data are available only for limited areas. Recovery of the urial population to >3,000 animals has been reported from the Torghar Mountains, thanks to community-based hunting management (Tareen, presentation at CIC/FAO workshop 2009). Siraj-ud-din et al. (2016) anticipated that the remaining population of urial in Gilgit-Baltistan is not more than ca. 350-450 individuals and may continue to decline despite the existence of community-based wildlife management areas. Figures provided by Valdez (2008) concern specific sites only and/or are decades old and likely outdated. The limited available information suggests that few of Pakistan's urial populations are stable or increasing, but in large areas urial numbers continue to decline and the species may have disappeared from large parts of its former range.

In Tajikistan the fragmented range area and locally very low numbers make the presentation of an overall population size difficult. During surveys in spring 2014 in the known areas with urial presence in Tajikistan, in total only 171 urials were observed (Michel, 2014). As border areas with Uzbekistan and some other areas had not been fully covered by the survey, the total population size might be in the range of less than 500 animals.

In Turkmenistan urial numbers have substantially declined during the last decades. Rustamov (presentation at CAMI Mid-term Workshop 2018) estimated the numbers based on field observations 2014-2017 with 2,080 animals (250 in the Ustyurt, 20 in the Balkan Mountains, 1060 in the Kopet Dagh, 500 in Badkhyz and 250 in Koytendag Mountains). These figures show a substantial decline compared to figures from previous decades in the Kopetdagh alone of more than 4,000 animals in the late 1990s and between 10,000 and 12,000 urial in the late 1980s and early 1990s and more than 800 in the Ustyurt of Turkmenistan during this period (Valdez, 2008).

In the past in Uzbekistan, urial was numerous in some places, but has declined during the last decades. According to The Red Data Book of the Republic of Uzbekistan (2009) the Kugitang population (Surkhan Nature Reserve) was about 70 individuals, while in Baysuntau and Hissar ranges, it was about 200 individuals; the Babatag population was about 40. Since then numbers seemingly declined. A survey in 2016 in the Kugitang Mountain Range (the Surkhan Nature Reserve) yielded records of 56 individuals. Outside the protected areas, there are 40-50 individuals in Baysuntau in the Hamkon Massif and 15-20 individuals in the southern part of the Kelif-Sherabad Ridge, which is not permanently inhabited (Kholikov and Mamarazhabov, 2016). In 2015, 5 individuals were observed in the vicinity of the village of Sangardak (Hissar Range) (Normatov, 2016). In Babatag tracks of 6-10 individuals were recorded in 2003 and in winter 2008, three urials escaping from a snowstorm into a cowshed were killed by local residents. In 2007, 5 urials were recorded on the Jetymkalyas ridge (Kelif-Sherabad ridge). (Normatov, 2016). The current population in Uzbekistan might be in the range of less than 200 urials, likely seasonally varying due to migrations. No increase in observed numbers is observed and locally low numbers make the species highly susceptible to local extinction.

4.3 Habitat (short description and trends)

Urials inhabit moderately to very arid habitats at an altitude range from below the sea level in the Trans-Caspian lowlands to above 4,000 m a.s.l. in the Pamirs, Hindukush and Himalayas. They prefer hills, undulating terrain and gentle slopes, but also use cliffs. Urial occur in grasslands and open woodlands, e.g. of almond, pistachio and juniper, as well as cold deserts with scarce vegetation dominated by subshrubs. Urial may also forage at crop fields. They use cavities in slopes or cliffs for shelter or rest under shrubs.

Across the range of urial their habitat is intensively used by humans particularly for livestock grazing, as rain-fed and irrigated crop lands and expanding urial areas, which cause degradation and transformation of the habitat. Woodlands are affected by deforestation caused by cutting of trees and shrubs combined with intensive grazing preventing rejuvenation. In parts of the range urial habitat is transformed by extractive industries (e.g. oil and gas industry in the Trans-Caspian lowlands) construction of dams and infrastructure development. These factors cause a decline in

available suitable habitat. Climate change with the climate becoming more arid may further contribute to habitat loss.

4.4 Biological characteristics

Urial are gregarious with group sizes reaching more than hundred individuals, where local population sizes is sufficiently large. Herds are smaller and often sexually segregated during spring and summer. They are sexually dimorphic, non-territorial and promiscuous. The reproductive cycle begins with the rut in late November. Females give birth to one or two lambs in April-June. Rut and lambing periods vary between different parts of the range. Main predators are large felid and canid carnivores and occasionally golden eagle. Females typically give first birth after two years, males are sexually mature at three years, but are fully mature with eight years. Maximum lifespan is 11 years. (Baskin and Danell, 2003)

4.5 Role of the taxon in its ecosystem

As a large herbivore, urial is a keystone species in its ecosystems. It influences vegetation through grazing and seed dispersal. Urial is an important prey species for several carnivore species, including snow leopard *Panthera uncia* (CMS Appendix I) and leopard *Panthera pardus* (CMS Appendix II). The listing of urial in Appendix II of the Convention, its inclusion in CAMI and resulting conservation improvement will thus benefit these two species directly, which are both Vulnerable and listed in CMS Appendices and covered by CAMI.

5. Conservation status and threats

5.1 IUCN Red List Assessment (if available)

The most recent assessment of their conservation status in The IUCN Red List treated urial and mouflon as one single species *Ovis orientalis*. This species is listed as Vulnerable under criterion A2cde because it is believed to be declining by at least 30% over three generations (set at 24 years) due to hunting, hybridization and habitat deterioration.

History of Red List categories:

- 2008 – Vulnerable (as *O. orientalis*, Valdez 2008)
- 1996 – Vulnerable (as *O. orientalis*, Baillie and Groombridge 1996)
- 1996 – Vulnerable (as *O. orientalis*)

The current draft reassessment suggests listing *Ovis vignei* separated from mouflon *Ovis gmelini* as Vulnerable under criterion A2bcde because it is believed to be declining by at least 30% over three generations (set at 24 years) due to poaching and habitat deterioration. (Michel, IUCN SSC Caprinae SG Red List Authority, pers. comm. 2019)

5.2 Equivalent information relevant to conservation status assessment

Available information suggests that urial populations are fragmented and many populations are small and/or declining. Overall declines of the number and range areas are reported from all range states (see section 4.2 of this proposal). For instance, in Turkmenistan rapid declines happened during the last years, with Rustamov (pers. comm. 2018) reporting an overall decline from 6,100 to less than 3,000 and local declines by up to 90%. Ismailov (pers. comm., 2019) indicated declines by more than 70% in Kazakhstan during the last 20 years. Stable and increasing populations exist possibly in few areas, like in the Wakhan of Afghanistan, some protected areas in Iran, in India and in areas with community-based hunting programs in parts of Pakistan.

Due to the lack of comparable national and global population estimates it is not possible to present overall rates of decline since the last assessment under The IUCN Red List. However, information on local trends, continuing persistence of threats and increasing land-use pressure on urial habitat justify the assumption of a continuing decline by at least 30% over three generations, qualifying for the category Vulnerable under criterion A2bcde.

5.3 Threats to the population (factors, intensity)

The main reasons of decline are:

- Poaching is the main threat across the range of the species. In addition to the mortality it causes it makes the urial more wary of human presence and as urial habitat typically is used for various land uses large tracks of suitable habitat become unavailable for the species. Poachers are both local residents and outsiders. Well-equipped poachers from outside reportedly affect the urial populations of the cliffs in the Ustyurt of Kazakhstan (pers. comm. Ismailov, 2019). Cases of trans-boundary poaching between Afghanistan and Uzbekistan have been reported by Michel (2010).
- Capture of lambs as pets and for sale (e.g. documented by Shakula and Amirov 2009 (pers. comm.) in SW Tajikistan is contributes to reduced recruitment in already small populations. In Uzbekistan's Babatag range local residents annually catch 8-10 lambs for keeping in the house and for sale (Normatov, 2016)). Also in Afghanistan capture of lambs takes place, e.g. leading to the discovery of the population near Khak-e Jabbar (Khaurin, GEF Small Grants Program, pers. comm. 2017).
- Competition with domestic livestock and habitat degradation certainly limit urial population sizes. Urials occur in stable numbers in intensively grazed areas in Afghanistan's Wakhan (Michel et al., 2009, Michel 2010 and Moheb et al., 2012). Also in the intensively grazed Panj Karatau in Tajikistan livestock seems a secondary threat compared to poaching (Michel 2010). In the Ladakh of India competition with livestock for scarce forage in the high altitude deserts is the main threat for urial (Raghavan et al. 2003).
- Domestic dogs might be a threat where urials inhabit areas with human and in particular herders presence.
- Transformation of habitat by deforestation, changing of land use, crop cultivation, extractive industries, urban and infrastructure development threatens urial populations through habitat loss, increasing poaching pressure and barriers to migration. In the mid- and long-term climate change will affect habitat quality and availability mainly by increasing aridity reducing available forage and water sources and increasing competition with livestock and agriculture.

Namgail et al. (2010) found that competition with bharal *Pseudois nayaur* during winter limits urial range areas and thus population size.

Where not poached, urial populations can quickly recover, can coexist with human activities like livestock grazing and even cause damage to agriculture. The latter may trigger conflict and persecution.

Hybridization might become a threat to the genetic integrity of wild populations where mouflon and urial are bred together in hunting enclosures.

5.4 Threats connected especially with migrations

Large parts of the range and population size of the species are transboundary or have been historically but are no longer due to barriers to migration and/or local extinction. For some populations national borders may coincide with natural barriers, like in the case of the lower Panj River between Afghanistan and Tajikistan or the highest sections of the Hindukush Range between Afghanistan and Pakistan. The continuous and impenetrable fencing along the disputed Line of Control between India and Pakistan is a significant barrier to the movement of the Ladakh urial. Populations of Turkmenistan are potentially transboundary with Afghanistan, Iran, Kazakhstan and Uzbekistan, but movements are hindered by border fences (high chain link with cover of barbed wire). Reportedly (Pestov, pers. comm. 2019) the barbed wire fences of medium height at the Kazakhstan side of the Kazakhstan-Turkmenistan borders are at least occasionally crossed by urials, but it is unclear if they crawl through the fence or jump it. The probably largest remaining populations of Bukhara urial in the southwest of Tajikistan and south of Uzbekistan is likely transboundary in the Babatag Mountains. The population of Ladakh urial in the Wakhan of Afghanistan stretches over one mountain pass into northern Pakistan and seems to be the source population of urial groups occasionally observed in the Pamirs of Tajikistan.

Thus transboundary populations and movements are of high significance for the conservation of certain populations and subspecies. Barriers to migration include border fences, but also development of extractive industries, linear infrastructure and urban areas. Furthermore, poaching

and related disturbance hamper migration. These barriers prevent access to critical habitat, reducing the fitness and survival rates in the respective populations. They affect recolonization and genetic exchange and in regions with scattered small areas of suitable habitat overall habitat availability is thus reduced.

5.5 National and international utilization

Across its range the urial has traditionally been hunted. With increasing number of hunters, access to modern firearms and loss of traditional customary rules this hunting has become unsustainable in most cases and is now illegal in all range states. Only in few cases, e.g. in the Wakhan of Afghanistan, it seems that such traditional rules prevented overhunting and contributed to the preservation of populations (Michel, 2010).

Strictly regulated sport hunting is possible in Iran, Pakistan and Tajikistan under special permits, issued on the basis of quotas established by the respective national or subnational government. Sport hunting takes place in game management areas managed by private entities or local communities. Where appropriate local community involvement and benefit sharing mechanisms are in place, these sport hunting schemes create incentives for the conservation of urial and its habitat. The negative impact of hunting through the loss of a few old male urials is greatly overtaken by the positive impact of hunting through conservation of entire populations in suitable habitats. For instance, in the Torghar Mountains of Baluchistan numbers of urial have increased by more than 100% within ten years (Tareen, presentation at CIC/FAO workshop 2009). Nevertheless, illegal trophy hunts or hunts outside of assigned game management areas with sufficiently large populations can contribute to reduced fitness of small scattered populations and without providing conservation incentives to local people may trigger intensified poaching.

6. Protection status and species management

6.1 National protection status

The urial is protected under national law in all Range States. Iran, Pakistan and Tajikistan allow strictly regulated sport hunting based on government determined quotas. In the past also Kazakhstan and Uzbekistan have issued sport hunting permits.

In most Range States law enforcement is challenged by social, economic and other problems and poaching thus remains the main threat for the species.

Regulation of livestock grazing and of other human activities causing habitat degradation and transformation is often insufficient, in particular outside of protected areas. However, in most protected areas livestock grazing is not fully banned and where it is, such bans are often difficult to enforce.

6.2 International protection status

Ovis vignei is included in the CITES Appendix I as *Ovis aries vignei*, and in Appendix II as "(Except the subspecies included in Appendix I, the subspecies *O. a. isphahanica*, *O. a. laristanica*, *O. a. musimon* and *O. a. orientalis* which are not included in the Appendices, and the domesticated form *Ovis aries aries*, which is not subject to the provisions of the Convention)". All Range States except Turkmenistan are parties to CITES.

6.3 Management measures

The most important and effective management measures are the establishment of game management or hunting areas for the sustainable use of the species. These are run by state, private or community-based entities. Such areas exist in Iran, Pakistan and Tajikistan. With a focus on trophy hunting, quotas are typically set conservative (e.g. 1-2% of the population of the area or less) to make a sufficient number of old males available for hunters. This encourages the prevention of poaching and the limitation of land uses, which have negative impact on urial habitat. The currently best documented example is the conservancy in the Torghar Mountains of Pakistan (Frisina and Tareen, 2009).

Protected areas of different status exist in all Range States and are managed for the conservation of the species in various ways.

Captive breeding takes place in several Range States (e.g. Tajikistan, Uzbekistan) and in international zoos and breeding centres. The Bukhara urial is bred in captivity in Uzbekistan's Ecocenter "Dzheyran" (26 individuals according to 2013 data) (Zaslavskaya et al., 2013). The captive breeding operations may potentially contribute to the conservation of the wild populations. However, they bear certain risks, including inbreeding caused by small founder populations, cross-breeding of urial from genetically distinct populations or with mouflon (incl. European mouflon, descending from feral sheep), disease issues and distraction of efforts from the conservation of the wild population.

6.4 Habitat conservation

Urial habitat is covered by several protected areas in all Range States. However, many protected areas face challenges in regulating livestock grazing or enforcing grazing bans. Therefore habitat degradation in some extent also affects protected areas.

6.5 Population monitoring

Population monitoring programs are in most cases limited to certain protected areas and game management or hunting areas. Monitoring methods applied include direct counts, distance sampling and double observer methods for population estimates, the documentation of sex and age structure of recorded groups and the tracking of hunting results. The coordination of monitoring and the compilation of survey results take place in the government agencies in charge of nature conservation and wildlife management. So far there is rarely regular systematic monitoring, applying consistent and well-documented methods together with data been made publicly available. Many monitoring efforts are part of specific programs and projects or are implemented by the respective protected areas or game management areas independently. In Iran ungulate surveys in protected areas are coordinated by the Department of Environment.

7. Effects of the proposed amendment

7.1 Anticipated benefits of the amendment

The listing of urial *Ovis vignei* in Appendix II of the CMS will allow for its inclusion in CAMI and the related Program of Work. It will by this enhance national and subnational conservation efforts for the species and complement these by multilateral and bilateral activities. The species is threatened despite national protection laws being in place. Many anthropogenic factors that have led to an unfavourable conservation status act locally, but are similar across the range of the species and have cumulative impact. They can therefore better be addressed in the frame of cooperation across the range states by exchanging experience and coordinating conservation efforts. The existing listing in Appendices I and II under CITES is suitable, but may deserve amendment for including all urial in one appendix and providing more clarity with regard to taxonomy and related enforcement issues. Listing of urial in Appendix II of CMS will particularly facilitate conservation action for the mitigation of barriers to migration, including the modification of border fences, and the conservation of transboundary populations of the species and their habitats.

7.2 Potential risks of the amendment

There are no risks anticipated from including *Ovis vignei* in Appendix II of the Convention.

7.3 Intention of the proponent concerning development of an Agreement or Concerted Action

It has been proposed to include *Ovis vignei* in the Central Asian Mammals Initiative (CAMI) established under UNEP/CMS/Resolution 11.24, which has been adopted by the Conference of the Parties at its 11th Meeting (Quito, 4-9 November 2014).

Additionally, bilateral agreements will be considered for specific transboundary populations where deemed necessary.

8. Range States:

Islamic Republic of Afghanistan;

Islamic Republic of Iran;
Republic India;
Republic of Kazakhstan;
Oman (introduced?);
Islamic Republic of Pakistan;
Republic of Tajikistan;
Turkmenistan;
Republic of Uzbekistan.

9. Consultations

This proposal was developed under consultation with Stefan Michel, IUCN SSC Caprinae Specialist Group Red List Authority and CAMI Species Focal Point for argali *Ovis ammon*. The views of stakeholders of CAMI, in particular country representatives of the Range States and of experts working within the range areas of urial, were taken into consideration.

The inclusion of the species in Appendix II of CMS and in CAMI had been discussed since the development of the initiative. Most recently during the CAMI Mid-term Review Workshop in 2018 “the representative from Uzbekistan stated the need to list the urial under CMS. The required information for the Bukhara urial was already available and he encouraged the neighbouring countries and experts to work together on the proposal to list the species. The CMS taxonomic reference for mammals (Wilson and Reeder 2005) lists the Urial as several subspecies of *Ovis aries* (*O.a. arkal*, *O.a. cycloceros*), which could possibly lead to confusion with domestic sheep (*Ovis aries aries*). However, the taxonomic reference of CMS should not be an obstacle to listing the species, if the populations proposed for were clearly defined in the proposal.” (Meeting report of the CAMI Mid-term Review Workshop 2018).

This proposal has been shared as draft with CMS Focal Points of Range States, country representatives for CAMI and experts from these countries.

10. Additional remarks

During the preparation of this proposal the joint listing of urial and mouflon has been considered. However, because of the biological differences between both species, the availability of information and for the purpose of providing a clear definition for the future inclusion of urial in CAMI this proposal concerns *Ovis vignei* only. The range of *Ovis vignei* (except for Oman) is entirely within the area covered by CAMI.

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