

CONSERVATION OF TAJIK MARKHOR (*Capra falconeri heptneri*) AND URIAL (*Ovis vignei*) IN TAJIKISTAN AND ADJACENT AFGHANISTAN

STEFAN MICHEL

77 Lenin Street, Khorog, 736000 GBAO, Tajikistan.

(st-michel@gmx.de)

ABSTRACT

In 2008 the team of the project “Community based conservation and management of mountain ungulates in Tajikistan” started work on assessment of population status and support of conservation activities for Tajik markhor (*Capra falconeri heptneri*) and urial (*Ovis vignei*) in southern Tajikistan. The distribution range of markhor is limited to an area of less than 1,500 km² in the districts Darvaz and Shuroabad along the Afghan border. The major part of the population exists in two private conservancies (each > 100) and in the strict state nature reserve Dashtijum. Outside these areas, markhor are almost extinct due to intensive poaching. Adjacent to the conservancy in Darvaz, markhor inhabits the Afghan banks of Pyanj River in small numbers but is affected by poaching. Effective protection of markhor in Tajikistan is provided by private conservancies. Although the Bukhara urial *O. v. bochariensis* in Soviet times was sufficiently numerous to be used for commercial hunting, nowadays only isolated groups of few dozens are scattered over the mountains of south-western Tajikistan (Surkhhuh, Aktau, Karatau, Hazratishoh). Their habitats are intensively used for livestock grazing and poaching is prevalent. So far neither protected areas nor private conservancies provide for the conservation and without urgent measures local or complete extinction is likely. In the Wakhan in Tajikistan (southern Pamirs) the urial is almost extinct. In 2008 we found only a single male, habituated to livestock, and local hunters reported the lack of observations since 2005. In the Wakhan in Afghanistan (northern Hindukush) our assessments in 2008 and 2009 showed that a population (>100) survives there. The urial population in the Wakhan seems to be linked to northern Pakistan. With support of a donor funded project in Tajikistan first community based and private initiatives are evolving for protection and management of urial, markhor and other species. Driven by growing awareness and hopes for income from wildlife management these initiatives for becoming sustainable will likely rely on benefits from the use of high value trophy animals. The population numbers of markhor would allow restricted trophy hunting for financing of protection efforts and local communities’ development needs. Tajikistan so far is not a member of CITES which, together with barriers at the national legislation and lack of appropriate benefit sharing, prevents legal sustainable use of the species. Thus there is little incentive for their conservation.

Key words: population status, distribution, threats, protection.

RESUMEN

Conservación del markhor Capra falconeri y el urial Ovis vignei en Tayikistán y zonas colindantes de Afganistán

En el año 2008, el equipo del Proyecto “Conservación y manejo de los ungulados de montaña en Tajikistan” empezó a trabajar en la evaluación del estado de la población y las actividades de conservación del markhor de Bukharan *C. f. heptneri* y del urial *Ovis vignei* en el sur de Tayikistán. El área de distribución del markhor está limitada a menos de 1.500 km² en los distritos de Darvaz y Shuroabad en la frontera afgana. La mayor parte de la población existe en dos reservas privadas (sendas >100) y en la Reserva Natural estatal de Dashtijum. El markhor está prácticamente extinguido fuera de estas áreas debido a la caza furtiva. Colindante con la reserva de Darvaz, se encuentran unos pocos ejemplares de markhor en las orillas afganas del Río Pyanj pero aquí también es víctima de la caza furtiva. En Tayikistán, son las reservas privadas que proporcionan una protección eficaz del markhor. El nivel de sus poblaciones permitiría la caza deportiva limitada con el fin de financiar el trabajo de conservación y las necesidades de desarrollo de las comunidades locales. Durante la época soviética, el urial *O. v. bochariensis* era tan numeroso que se utilizaba para caza comercial pero actualmente sólo existen unos pocos grupos aislados, compuestos de unas docenas de ejemplares y diseminados por las montañas del sudoeste de Tayikistán (Surkhkuh, Aktau, Karatau, Hazratishoh). Sus hábitats se utilizan intensivamente para el pastoreo de ganado y prevalece la caza furtiva. Hasta ahora, ni las áreas protegidas ni las reservas privadas tienen prevista la conservación de al menos una población local y si no se adoptan medidas urgentes, es probable que la especie se extinga localmente o totalmente. En el corredor de Wakhan en Tayikistán (en el sur de los Pamirs), el urial prácticamente se ha extinguido. En el año 2008, sólo se avistó a un macho, acostumbrado al ganado, y según los cazadores locales, no se han observado ejemplares desde el año 2005. En el Wakhan de Afganistán (el Hindukush norte), los estudios realizados en los años 2008 y 2009 encontraron una población superviviente viable (>100); allí la población local, salvo pocas excepciones, no practica la caza furtiva. Aparentemente la población de urial en el Wakhal está relacionada con el norte de Pakistán, por lo que podría pertenecer a la especie arkhar *O. v. vignei*. En Tayikistán, ya se están desarrollando las primeras iniciativas privadas y comunitarias para la protección del urial, markhor y otras especies, con el apoyo de un proyecto financiado por donantes. La mayor concienciación y las expectativas de ingresos por la gestión de la vida silvestre van a ser factores que impulsen estas iniciativas orientadas a la sostenibilidad y que probablemente tengan que depender de los beneficios derivados de la utilización de animales con alto valor como trofeos de caza. Las barreras legales y la falta de una distribución apropiada de beneficios van a suponer un reto para estas iniciativas. Tayikistán todavía no pertenece a CITES. Este hecho, añadido a las barreras que supone la legislación nacional, impide un uso sostenible legal de la especie; por lo tanto, no hay mucho incentivo para su conservación.

Palabras claves: estatus de población, markhor, urial, distribución, Afganistán, Tayikistán, protección.

INTRODUCTION

The Tajik markhor (*Capra falconeri heptneri*) and the urial (*Ovis vignei*) are among the rarest ungulate species in Central Asia and were accordingly included in the Red Book of the Tajik SSR (Abdusalyamov 1988). In the IUCN Red List, markhor (Valdez 2008a) and urial (Valdez 2008b) have the status of “Endangered” and “Vulnerable” respectively. Markhor is included in CITES Appendix I whereas urial in general is included in Appendix II, but Ladakh urial (*Ovis vignei vignei*) is listed in Appendix I. Thus both species enjoy a high level of formal protection. However, according to numerous oral reports, the conservation situation in Tajikistan is considered critical. Since Tsalkin (1951) and Sapozhnikov (1976), who provided a detailed report on distribution, population status, and biology of urial in Tajikistan little new research has been conducted. Fedosenko (2002) in his monograph on urial in Tajikistan mainly referred to older sources. With the exception of Abdusalyamov (1988) virtually no recent literature or research reports have been produced on markhor since the work of Heptner *et al.* (1961). Although information from local scientists has been contradictory, most fear that extinction of markhor in Tajikistan could be imminent. Illegal trophy hunts of both species conducted by foreigners have been reported (Traffic International, 2009; personal communication with diverse anonymous sources). The status of both species requires urgent measures for protection (Shackleton 1997).

With this as background, the Tajik non-governmental organization (NGO) “Nature Protection Team” in April 2008 started a project entitled “Community based conservation and management of mountain ungulates in Tajikistan” aimed at involving local people in protection and use of the species for stimulating conservation efforts.

STUDY AREAS AND METHODS

We started work on assessment of population status and support of conservation activities for Tajik markhor *C. f. heptneri* and urial *Ovis vignei* in southern Tajikistan and adjacent areas of Afghanistan in May 2008. We selected the survey areas based on preliminary information obtained from scientists,

hunters, collaborators of state agencies in charge of nature protection and forestry. Surveys were conducted during different seasons, preferably spring and autumn:

- May 2008: Southern edge of Darvaz Range
- June/July 2008: Mountain ranges Surkhkuh, Aktau (west of Vaksh River), Pyanj Karatau, Hazratishoh;
- July 2008: Wakhan corridor (Tajikistan);
- November 2008 and April/May 2009: Wakhan corridor (Afghanistan);
- November/December 2008, March/April and June/July 2009: Southern edges of Darvaz Range, Hazratishoh Range;
- Additionally occasional observations, made in the frame of brief visits or transit, were considered.

The territories were passed by walking, in exceptional cases on horseback or by car (e.g., Afghan Wakhan). Teams recorded each point at which they searched for animals using a GPS. The teams used spotting scopes as well as binoculars for scanning the slopes for animals. Use of spotting scopes allowed detection and age-sex classification of animals at distances not exceeding 3 km, depending on light conditions, habitat and behaviour. Teams estimated the distance of the animals from the point at which they were first detected using range-finder; distances > about 1,500 m were roughly estimated without the rangefinder. For each animal group, the direction from the observation point was determined by using a compass. Teams also recorded the total number, and sex and ages of all individuals within each group. All observation points were entered in to a GIS, the total area searched for animals was drawn and estimated. The scale and detail of available maps did not allow us to correct for areas hidden from us by topographic obstructions using a view shed analysis; thus the size of search areas might have been slightly overestimated. Based on the direction and distance from the observation points the approximate locations of the observed groups were digitized on the map. We considered whether observations were duplicates of animal groups previously recorded, on the basis of location, group size and

composition and recognizable animals. Survey teams also recorded horns, skulls, and relevant oral information. Information on poaching was asked from local people in the frame of community workshops and individual talks.

RESULTS

Distribution area of Tajik markhor

Tajikistan: Based on our survey, Abdusalyamov (1988) and unpublished information from local scientists (e.g. A.Saidov, presentation in October 2009) the distribution range of markhor is limited to an area of less than 1,500 km² in the districts Darvaz (Gorno-Badakhshan Autonomous Region, GBAO) and Shuroabad (Khatlon Region) along the Afghan border. Geographically the distribution range of Heptner's markhor in Tajikistan includes the southern edge of the Darvaz Range, the mid part and the southern edge of the Hazratishoh Range and the mountains Kuhi pasi Parvor. The area belongs to two private conservancies, two forestry enterprises and the strict protected area (zapovednik) "Dashtijum".

The current distribution area in Afghanistan is not known (A. Simms, Wildlife Conservation Society, personal communication April 2009), but anecdotal information from local people on both sides of the border confirmed that, as of 2008, markhor still inhabited the Darvaz district of Badakhshan province at the left bank of Pyanj River in the region of Qala-e Kuf village (opposite conservancy "M-Sayed"). Collaborators of the conservancy even observed one male markhor crossing the river, thus providing evidence about the transboundary characteristic of the population.

Population status of markhor

The observations by project collaborators (Table 1) provide an index of minimum numbers of markhor in certain areas. Because surveys were made from deliberately chosen points these data do not allow an estimate of total population numbers.

TABLE 1
Survey results on markhor.

Location	Time	Survey area size	Survey effort	No. of markhor observed
Conservancy "M-Sayed" (Darvaz Range)	May 2008	1,200 ha	Three days	39
	November 2008	695 ha	Six days	55
	March 2009	Not determined	Four days	83
	July 2009	Not determined	Three days	41
Conservancy "Markhur" (southern Hazratishoh Range)	April 2009	< 1500 ha	Two days	115
	July 2009	Not determined	Two days	35
Darvaz Range south of "M-Sayed"	December 2008	2,475 ha	Four days	4
Hazratishoh Range west of village the Khirmanjo	July 2009	Not determined	One day	23

These numbers showed the high variation of counts in relation to search effort as well as in relation to the size of surveyed area. The highest and most consistently reported numbers of markhor were observed in the private conservancies. Observations of larger groups outside these conservancies were exceptions.

Managers of the private conservancies and local people, without conducting methodically elaborated monitoring, believed the following population numbers in areas managed by them:

- Conservancy M-Sayed in Darvaz Range, 3,740 ha (Conservancy manager D. Mulloyorov, personal communication July 2009) 200 markhor, among them 40 trophy size males, trend: increasing.
- Conservancy Markhur southern Hazratishoh Range, 2,000 ha + adjacent areas (Conservancy manager and former director of State Strict Reserve

- Dashtijum I. Ikromov, personal communication April 2009) 150 markhor, 15 trophy size males, trend: increasing; Mr. Ikromov believed that in 2003 this area only had 23 animals;
- State Strict Reserve Dashtijum 19,700 ha (I. Ikromov, personal communication July 2009) >100 markhor, trend: declining, Mr. Ikromov believed that few years ago still 300 – 400 lived in this area;
 - Southern Hazratishoh (local hunters personal communication July 2009) < 150 markhor 2009, declining; the local hunters stated in a workshop that until 1990 “thousands” of markhor lived in the area.

Distribution areas and population status of Bukhara urial in SW-Tajikistan

During our field work we observed Bukhara urials or got information about their actual presence in the Surkhkuh Range, in the Babatag and Aktau Ranges west of Kofarnihon River, in the Pyanj Karatau Range and in the Hazratishoh Range. In all mentioned mountain ranges the area where we actually observed urials or got reports about their presence made up only a small proportion of the entire suitable habitat. For much larger areas local people reported their extirpation over the last twenty years.

In the Surkhkuh Range during June 2008 despite intensive search we did not see any urials alive. The survey team found one pair of horns, and received reports from several local people that urials were present in remoter areas. In June 2008 in the Aktau Mountains we observed 11 urials at 4,000 ha survey area. The highest numbers of urials our team observed in the Pyanj Karatau Range during June 2008 – 48 specimens at 11,300 ha survey area. In the southern part of the Hazratishoh Range in July 2008 we observed 12 urials at 1,100 ha survey area and in December 2008 at same site 16 animals at 3,772 ha survey area. In the mid part of Hazratishoh Range a local hunter in July 2009 reported that he observed three Bukhara urial, but obviously there is now neither a permanent population left over nor significant migration takes place any longer.

***Distribution areas and population status of urial in the Wakhan
(E-Tajikistan, NE-Afghanistan)***

In July 2008, our teams spent 20 observation days surveying an area of 25,000 ha in those areas of the Tajikistan part of the Wakhan where urials were most recently recorded (2002/2003). Our teams documented no urials. In October 2008 the project team observed one male habituated to livestock. This animal was repeatedly reported until October 2009 (A. Gaude, personal communication and photograph) and has been protected by the local community where it is known to be alive as of since summer 2005. All over the Tajikistan part of Wakhan local hunters in 2008 and 2009 reported the lack of observations since 2005. Horns found at holy sites are decades old.

In the Afghanistan part of the Wakhan our team observed urials at various sites between Ptur, close to Sulton Ishkashim in the West, and Baroghil Pass in the East. Trustworthy reports by Afghan and Pakistani hunters interviewed by our team in Sarhad-e Baroghil about urial observations in upper Yarkhun Valley, just beyond the Hindukush Range, suggest a continuous distribution range of urial from the Wakhan via Baroghil Pass into Northern Pakistan (NWFP).

Our survey team in Afghanistan Wakhan in November 2008 saw 26 urials at 18,300 ha within four days. During April/May 2009 we observed 78 urials at 21,200 ha within ten days. In July 2009 additional 8 urials were observed in Afghanistan from the Tajik side of the border. The team got numerous reports about observations; and skulls, horns and hides were presented to the team (most recent kills November 2008 and March 2009).

The population structure of urial in the Afghan Wakhan in spring-summer 2009 showed a high percentage of males (36%, among them adults of 4 and more years age 24%) and in April/May yearlings (i.e. animals born in spring 2008) per female ratio of 0.97, indicating high reproductive success and high survival rate of lambs. The size of the herds varied between one and 16 (\bar{x} = 6.33).

DISCUSSION

Threats to markhor

The assessment of the importance of different threatening factors by various stakeholders naturally varies depending on their respective interests. Interviewed government officials tended to neglect the significance of poaching. Our observations and reports by local people all over the markhor distribution range show that without doubt poaching together with its indirect impacts as disturbance, increasing fleeing distances and resulting reduction of effective habitat size, are by far the most important factors threatening the survival of the markhor population. The most important types of poachers seem to be local inhabitants, state border guards, the latter usually relying on local hunting guides, and Afghans, illegally crossing the border. In June 2009, Tajik border guards together with rangers of the conservancy “Markhor” and Dashtijum Strict reserve found a camp of Afghan poachers with more than 100 markhor skins and about 40 urial skins. In fact neither the protected areas administration nor the state forest enterprises are able to combat poaching effectively, regardless of whether poachers are well known locals, border troops or government officials nor if they are heavily armed Afghan intruders.

Poaching causes the fragmentation of the population and distribution areas into small islands where the remaining subpopulations are prone to extirpation. The currently ongoing construction of the road Dushanbe-Khorog passing some key habitat has little impact on the markhor. Due to the high respect the manager of the private conservancy enjoys, no cases of poaching by construction workers were reported. The construction work itself was largely ignored by the animals which could be seen few dozen meters above working heavy machinery. After finalization of the road there will be a risk of traffic accidents as in some places markhor cross the road for approaching the Pyanj River for drinking, and poachers may get easier access to the key habitats.

Threats to urial

In SW-Tajikistan poaching for meat by local people and locally by Afghans is acutely threatening the survival of the species. During Soviet times according to

local hunters hundreds of Bukhara urials were killed for commercial meat supply. This fact still nowadays influences on the perception of the urial as free meat by many locals and, in contrast to the always highly valued markhor, the status of the urial in local awareness is much lower. Urial habitat is in many areas intensively used for grazing by livestock and cutting of shrubs for fuel wood, in some areas habitats are converted to agricultural fields. Thus habitat degradation further weakens the already fragmented population which is at most sites at critical low numbers, making extirpation likely. The construction of a road crossing urial migration routes at Hazratishoh range during the 1980s may have contributed to habitat fragmentation but is unlikely still as much a limiting factor as perceived by many local hunters. Due to the lack of any effectively working protected areas or private/community conservancies containing urial, there are no areas without pressure from poachers and/or livestock competition.

In the Afghan Wakhan, local people with few exceptions seem to abstain from poaching urial and ibex. The few local hunters who, despite the official hunting ban, are still active claim to hunt sustainably, i.e. stated quite clear ideas about urial and ibex numbers in the areas where they hunt and about the respective possible take off. High livestock numbers in the Afghan Wakhan and heavily grazed pasture vegetation make forage competition with livestock likely, but little is known regarding how significant this is. Conditions of urials observed and high ratio of yearlings per female suggest that urial under current circumstances is not too much affected by forage competition.

Management implications

The total population of markhor in Tajikistan likely consists of at least 350 – 500 animals. The populations in two private conservancies are self-sustaining and would allow sustainable trophy hunting. In the other parts of the distribution range, conservation measures are urgently needed. For urial, currently no statement about population numbers is possible. Clearly, there has taken place a sharp decline in population numbers over the last few decades and a fragmentation into smallest subpopulations. Thus urial in Tajikistan is on the brink of extirpation. An urial population (>100) survives in Afghan Wakhan, but

in the Wakhan of Tajikistan, the population is probably not self-sustaining. The better conditions of the Afghan urial population and the interest of local people as well as state authorities at the Tajik side provide a potential for re-introduction there, using animals from the Afghan part of Wakhan. This might be as well justified by the need for a reserve population. The connection of the distribution area to Northern Pakistan makes it possible that the urials of Wakhan belong to the Ladakh urial *Ovis vignei vignei* (Michel 2009).

Thus far, large donor-funded conservation projects have not demonstrated tangible benefits to urial and markhor populations. Only the activities for community involvement in conservation implemented by (Wildlife Conservation Society WCS) in the Afghan Wakhan corridor have considerably increased the awareness of the local Wakhi population about conservation needs and legal requirements and thus contributed to the reduction of hunting. Protected areas and the listing in the Red Book are not effective actions as long as restrictions cannot be enforced. Under this situation, the best chance for survival and rehabilitation of markhor and urial populations in Tajikistan is involving private conservancies, community initiatives and local hunters into the protection of these species, with the prospect of future participation in their sustainable use. The two private conservancies, despite still lacking opportunities for legal trophy hunts on markhor, have shown success and confirm the need for assigning clear rights and responsibilities to wildlife resources. Awareness about conservation requirements and hopes for income from wildlife management are growing among local informal hunters. The sustainability of any commitment will rely on benefits from sustainable use of high value trophy animals. So far however, legal barriers and lack of appropriate benefit sharing act as impediments to conservation and sustainable use.

Thus the most urgently needed measure is to secure the assignment of long-term user rights to local community based institutions formed by people interested in protection and sustainable use of these species. For an initial period, these groups will need outside support to invest in equipment, and some compensation of their efforts. However, because a subsidized system cannot be sustainable and cannot provide direct incentives for protection and proper

management, opportunities are needed for legal hunting tourism and import of trophies by clients as soon as possible. For markhor, Tajikistan must become a member of CITES, and a special decision is required by CITES and importing countries that would allow the import of a limited number of markhor trophies from well-managed conservancies within Tajikistan. Transparent quota setting and allocation as well as adequate benefit sharing must be established, considering the needs of conservancy managers and of local community development. Transboundary cooperation with partners in Afghanistan and improvement of border security in critical areas are further urgent conservation needs.

ACKNOWLEDGEMENTS

The project is financially supported by the Zoological Society for the Conservation of Species and Populations (Zoologische Gesellschaft für Arten- und Populationsschutz, ZGAP, Germany), the Centre for International Migration and Development (CIM, Germany), and by the Regional Programme “Sustainable Use of Natural Resources in Central Asia” of the German Technical Cooperation (Gesellschaft für Technische Zusammenarbeit, GTZ, Germany). The project cooperates closely with the Institute for Zoology and Parasitology and the Pamir Biological Institute (Director Ogonazar Aknazarov) of the Academy of Sciences of the Republic of Tajikistan (Director Abdusattor Saidov), as well as with the state agencies in charge of nature protection.

I thank all who participated in the presented work: Munavvar Alidodov (Khorog, Pamir Biological Institute), Zayniddin Amirov (Institute for Zoology and Parasitology), Vladimir Shakula (Kazakhstan), Ahmet Umetbekov (Kyrgyzstan) and Dilshoda Yakubova (Dushanbe). Tobias Kraudzun, Free University Berlin provided GIS support.

Without the engagement of the local initiatives who try to preserve markhor and urial this work would not have been possible and the future of both species would be even more uncertain: Iskandar Ikromov and the team of “Markhur”, Davlatkhon Mulloyorov and the team of “M-Sayed”, Haji Ismoil Fayzov and the group “Muhofiz”, WCS-team and community rangers in the Afghan Wakhan, especially Said Akhmadshah from Dogor Gunt, Boymamad valadi Chorshanbe from Wazid, Pir Shah Lyangar from Kozideh and Pir Ismoil Shoh from Qala-i Panja.

REFERENCES

- Abdusalyamov I. (ed.) 1988. *Krasnaya Kniga Tajikskoy SSR*. (Red Data Book of the Tajik SSR). Dushanbe.
- Fedosenko A.K. 2002. *Urial. Sostoyanie populyatsiy, ekologiya, povedeniye i khozyaystvennoe ispolzovanie*. (Urial. Population status, ecology, behaviour and economic use) Moscow, 154 pp.

- Heptner V.G., Nasimovic A.A. & Bannikov A.G. 1961. *Mlekopitayushchie Sovetskogo Soyuzu. Tom 1. parnokopytnye i neparnokoptnye.* (Mammals of the Soviet Union. Vol. 1 Even-toed ungulates and odd-toed ungulates) Nauka, Moscow. 776 pp.
- Michel S. 2009. *Distribution areas, population status and prospects for conservation management of urial sheep Ovis vignei in the Wakhan valley of Afghanistan. Working report of the project "Community based conservation and management of mountain ungulates in Tajikistan"*. Nature Protection Team, Dushanbe. 32 pp.
- Sapozhnikov G.N. 1976. *Dikie barany Tajikistana.* (The wild sheep of Tajikistan). Donish, Dushanbe. 200 pp.
- Shackleton D.M. (ed.) 1997. *Wild Sheep and Goats and their Relatives. Status Survey and Conservation Action Plan for Caprinae.* IUCN, Gland, Switzerland and Cambridge, UK. 390 + vii S.
- Traffic International 2009. Seizures and prosecutions. Europe. Russia. *TRAFFIC Bulletin*, 22 (2): 73.
- Tsalkin V.I. 1951. *Gornye barany Evropy i Azii.* (Wild sheep of Europe and Asia) 343 p.
- Valdez R. 2008a. *Capra falconeri.* In: IUCN 2009, IUCN Red List of Threatened Species. Version 2009.2. www.iucnredlist.org.
- Valdez R. 2008b. *Ovis orientalis.* In: IUCN 2009, IUCN Red List of Threatened Species. Version 2009.2. www.iucnredlist.org.

