

**TROPHY HUNTING
OF CITES-LISTED
SPECIES IN
CENTRAL ASIA**

BY

DAVID MALLON

A TRAFFIC REPORT



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Trophy Hunting of CITES-listed species in Central Asia

EU-CITES Capacity building project No. S-415

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About the EU-CITES Capacity-building project

The project *Strengthening CITES implementation capacity of developing countries to ensure sustainable wildlife management and non-detrimental trade* was approved for funding by the European Union (EU) in 2009.

A major challenge for many countries is the difficulty in meeting the requirements for trade in CITES-listed species, ranging from legal sourcing and sustainability requirements, to the effective control of legal trade and deterrence of illegal trade. Mechanisms exist in CITES and in both exporting and importing countries that promote and facilitate compliance – although Parties are often hampered by a lack of capacity or a lack of current biological or trade information with respect to certain species. This can result in levels of trade which are unsustainable, which in turn can impact on economic growth and local livelihoods, and reduce options and incentives for conserving and managing wild resources effectively.

The overall aim of the EU's support is to strengthen capacities to implement the Convention and satisfy the CITES-related requirements of trading partners (such as the EU), to prevent overexploitation and to ensure legal international trade in wild fauna and flora does not exceed sustainable levels.

This publication is one of the reports and tools developed under this project, which provide information and guidance to Parties in a particular area of concern, based on needs identified by developing countries.

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Front cover photographs: Background photo: the Ukok Plateau natural park, Altai Republic; Other photos, from top to bottom: Argali *Ovis ammon*; Saiga Antelope *Saiga tatarica*; and Brown Bear *Ursos arctos*

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David Mallon

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EXECUTIVE SUMMARY

The report is part of a project aiming to strengthen capacities to implement CITES, especially in Central Asia and to satisfy the CITES-related requirements of trading partners, to prevent overexploitation and to ensure legal international trade in wild fauna and flora does not exceed sustainable levels. The objective is to enhance the policies and regulations concerning trophy hunting in selected range States of the Argali *Ovis ammon*: Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan and Uzbekistan and to provide a framework for the establishment of sustainable hunting programmes that support conservation. This report is focused on the relevance of trophy hunting for conservation and associated local livelihoods.

Sustainable use of biological diversity is an integral part of the Convention on Biodiversity (1992) and is seen as a valuable tool in conserving biological diversity. The *Addis Ababa Principles and Guidelines* (AAPG) set out the basis for sustainable use of natural resources. The *IUCN SSC¹ Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives*, and the *European Charter on Hunting and Biodiversity* provide further guidance on the sustainability of trophy hunting, including on highly threatened species. The International Council for Game and Wildlife Conservation (CIC) together with the Food and Agriculture Organization of the United Nations (FAO) has also developed *Best Practice Guidelines* for trophy hunting.

All five project countries are Parties to CITES, except Tajikistan, which has begun the accession process. Argali are the focus of the trophy hunting in the region and they represent the most expensive trophy in the five project countries. Other CITES-listed hunting species are Brown Bear *Ursus arctos*, Wolf *Canis lupus*, Musk Deer *Moschus moschiferus*, Eurasian Lynx *Lynx lynx* (all mainly in Russia) and Houbara Bustard *Chlamydotis undulata*. Markhor *Capra falconeri* and Urial *Ovis orientalis* have also been hunted at times but are not the object of regular trophy hunting programmes at present. Other widely hunted species are not listed in the CITES Appendices.

A recent analysis by TRAFFIC of the CITES trade database showed that 10 245 hunting trophy items from species listed in the CITES Appendices were exported from the project countries between 2000 and 2010. Almost all trophy items consisted of Argali, Brown Bear and Wolf. Most were exported from Russia (9473 trophies), with smaller numbers from Tajikistan (705), Kyrgyzstan (668), and Kazakhstan (126), and 13 from Uzbekistan.

In the region, wildlife is generally the property of the State, which awards rights to use it to individuals or other entities. National legislation covering hunting and wildlife protection may refer to sustainable use but this is undefined. The legal rights of local communities are also not generally specified. FAO and CIC produced a review of national legislation that set out in detail the basic principles of sustainable wildlife management laws (2008). One of the main findings was that legislative frameworks in the region frequently consisted of different legal instruments that were not always harmonized and sometimes overlapped. In some cases, there was also a lack of institutional clarity, with overlapping jurisdictions among different agencies.

Poaching for meat and trophies or commercial products is a significant factor across the whole region, negatively affecting all the main hunting species, as well as protected species. Wild populations have been reduced, sometimes drastically so. Poaching of Argali and other mountain ungulates may be carried out by military or border personnel and is not restricted to areas outside formal nature reserves: indeed, law enforcement and protected area staff are sometimes complicit in illegal hunting, driven in part by the very low salaries. There are numerous recent examples of poaching and illegal trade in trophies of CITES-listed species. The actual level of illegal off-take is

¹ International Union for the Conservation of Nature Species Survival Commission (IUCN SSC)

unknown. Known cases may represent a very small fraction of the real total. The wildlife conservation sector is under-resourced across the region with a lack of funding, trained personnel, transport and other equipment severely limiting the effectiveness of anti-poaching efforts.

Memoranda of Understanding under the Convention on Migratory Species (CMS MoUs) and their associated action plans for Saiga *Saiga tatarica* and Bukhara Deer *Cervus elaphus bactrianus* have proven to be effective instruments in facilitating species recovery. A CMS Single Species Action Plan for Argali is in preparation (Roettger & Singh, in prep) and will provide a framework for conservation.

Trophy hunting in the region is predominantly organized on a commercial basis. Community-based hunting initiatives in the region are in their infancy and face some legal and institutional obstacles. There are however promising developments: for example, five community-based NGOs in Tajikistan are managing wildlife in legally assigned areas and three of them have hosted hunting clients (on non-CITES species). Well-developed community-based trophy hunting programmes operate in Pakistan, targeted at Markhor *Capra falconeri* which is listed in CITES Appendix I, and in Namibia, which is widely seen as a leader in such programmes, and while the specific conditions and socio-political background of both differ in several ways from those in the region, they nonetheless provide instructive guidance on the principles of successful community conservancy organization.

There is an extensive literature on trophy hunting, its potential to contribute to conservation of biodiversity and local livelihoods, and the potential negative effects of selective harvesting on species. The consensus view seems to be that selective harvest of trophy-age males does not impact negatively in the short term, if only a low proportion of the available trophy-age individuals are harvested, but uncontrolled harvest can lead to a decline in horn size and thus trophy quality, as well as have negative demographic effects. Trophy hunting programmes raise substantial revenues in some African countries, and in the best cases significant sums are received at community or conservancy level. However, this is not universally the case and inequitable benefit sharing remains a major challenge to be overcome. Good governance is an essential requirement when developing hunting and other forms of community based management initiative.

A possible decline in size of Argali trophies in Kyrgyzstan has been reported and determining whether this is actually the case, and the causes, is a priority. Standardized monitoring, involvement of independent experts, transparency in quota setting and allocation of licences are all seen as prerequisites of well-managed and sustainable hunting operations. Allocation of long-term leases for concessions is needed to motivate managers to invest in anti-poaching and other conservation measures and remove the temptation for short-term profit that threatens the sustainability of the resource.

Developing all forms of Community-based Natural Resource Management (CBNRM) – trophy hunting and tourism – is also recommended. As the concept is still new to many parts of the region, and the legal-political background is not always sympathetic, building on examples of existing community conservancies (in Tajikistan) or where there is an administrative basis for local management of resources (Kyrgyzstan), is likely to be effective. Ensuring that communities and conservancies are legally empowered to manage and utilise wildlife and to receive revenues for such use is a basic requirement.

Recommendations on good practice are set out in several publications and salient points relevant to the region are highlighted.

INTRODUCTION

Aims

The present document has been compiled as part of a project, which aims to strengthen capacities to implement the Convention on International Trade in Wild Fauna and Flora (CITES) especially in Central Asia and to prevent overexploitation and to ensure legal international trade in wild fauna and flora does not exceed sustainable levels. The objective is to enhance the understanding of the national, regional and international policies and regulations concerning trophy hunting among relevant stakeholders in selected range States of the Argali *Ovis ammon*: Kazakhstan, Kyrgyzstan, the Russian Federation (hereafter Russia), Tajikistan and Uzbekistan (hereafter “project countries/region”) and to provide a guiding framework for the establishment of sustainable hunting programmes that support conservation. This report is focused on the relevance of trophy hunting for conservation and associated local livelihoods. TRAFFIC conducted a wider review of the trophy hunting market across Eurasia soon after the turn of the millennium (Hofer *et al.*, 2002).

Argali are the largest of the wild sheep and possess huge horns making them the focus of the trophy hunting in the region and the most expensive trophy in the five project countries. It is currently hunted in Kyrgyzstan and Tajikistan and was formerly hunted in Kazakhstan and Uzbekistan but no longer, at least on a regular basis.

The report reviews the background to trophy hunting in the region – trophy hunting principles, CITES listed species involved, national legislation pertaining to wildlife conservation and hunting, summary of trophy items traded 2000-2010, existing community-based initiatives, wildlife management, and best practice from around the world. These topics are then discussed further and followed by recommendations.

The **Appendix** provides an overview of CITES and other international agreements as well as a list of the CITES-listed species hunted in the project countries.

Methodology

This report was compiled from a wide range of published literature, reports, and resources on the internet dealing with trophy hunting in the region, including the IUCN Red List of Threatened Species. Several national and international experts were also consulted by email or in person (Bishkek, November 2012 and Astana June 2013).

A recent analysis of data from the CITES trade database provided a valuable summary of exports of trophy specimens from the region for the period 2000–2010 (Vaisman *et al.*, in prep.). In this analysis, hunting trophies include mammal, reptile and bird trade records reported with the following CITES terms: bodies, skulls, skins or trophies (jointly referred to as ‘trophy items’). Other items, such as claws, teeth or tails, may also be trophies; however, it was assumed to be unlikely that a hunter would take only these items without the ‘primary’ trophy (such as the body or skin). Restricting the analysis to the primary trophy items aims to avoid an exaggerated estimate of the actual trophy trade and is consistent with past studies on trophy hunting (Knapp, 2007). In addition, only shipments with the Purpose Code ‘Hunting’ (H) or ‘Personal’ (P) were selected. An exception was made for the term ‘Trophies’, for which shipments reported with the purpose ‘Commercial Trade’ (T) were also included. Only shipments reported without units (i.e. reported as number of trophy items) were considered in the analysis. Only three records were excluded out of the total of 1797 hunting trophies as these were reported in kilograms rather than as items. The figures were extracted from the CITES Trade Database and are mainly based on exporters’ reports. These include: (i) trophies reported as direct exports from the target countries; and (ii) trophies for which a target country was reported as the country of origin (country of origin taken to be the country of export).

The latter were included to ensure that exports of Argali trophies from Kyrgyzstan and Tajikistan were accounted for (the majority of these trophy items were exported via Russia).

CITES trade data (data provided by CITES Parties in their annual reports) were used to analyse reported international trade involving Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan as either the country of origin, export or import. Data were extracted for the period 2000 to 2010, inclusive (as 2010 was the most recent year for which comprehensive data were available at the time of writing) and for all CITES species in Appendices I, II and III. The data were downloaded from the CITES Trade Database in January 2013. Comparative tabulations, which compare the imports and exports reported by individual CITES Parties, were used.

Although the trade records should be reported identically by the importer and exporter, in practice these often differ due to differences in reporting between the importing and exporting country. Where (re-)exports are referred to, this includes both direct exports from a country and re-exports. In some cases total reported exports significantly exceed total reported imports. This can be caused by the fact that usually reporting is based on the export permits issued rather than the export permits actually used.

Both importing and exporting Parties reported data were considered in the data analysis. However, as trade was, in the majority of cases, only reported by exporting countries, it should be assumed that quantities being referred to are those reported by exporters, unless specifically stated otherwise. However, importing country reports were used where exporting country data were absent. The following considerations had to be taken into account when interpreting the trade data:

- Tajikistan is not a Party to CITES and therefore does not submit its trade data to the CITES Trade Database in the form of annual reports. The analysis of trade involving Tajikistan is therefore based on the reported exports/imports of its trading partners.
- Russia did not submit an annual report for 2006. Therefore trade involving Russia for this year is based on the reported exports/imports of its trading partners.
- Kyrgyzstan did not become a Party to CITES until 02.09.2007 and submitted its first annual report for trade that took place in 2009. Trade involving Kyrgyzstan for the years 2000 to 2008 is therefore based on the reported exports/imports of its trading partners.

Trophy hunting

A wide spectrum of hunting takes place within the region for trophies, meat, furs and sport. Hunting trophies are defined by CITES as '*bodies, skins, skulls and trophies*' and may consist of horns, antlers, tusks, skins, heads, or full mounts. Trophy hunting frequently involves the largest individuals available and in many cases is selective for the oldest males. There is also a fundamental difference in motivation between trophy hunting operations that are essentially commercial enterprises and those that have biodiversity conservation as a primary aim. Though in practice there is frequently some overlap between the two, or a continuum between the two and most operations are located somewhere along it. This report is focused on CITES-listed species and the relevance of trophy hunting for conservation and local livelihoods.

Trophy hunting is also a contentious activity. It may be opposed by some on principle, for detrimental effects on the target species or other aspects of biodiversity or for a failure to bring benefits to conservation or local communities. These issues are explored further in the **Discussion** section below.

Whatever the starting point, it is axiomatic that a sustainable harvest level is essential to ensure the long-term viability of the activity and the resource concerned. Sustainable use of biological diversity is one of the three objectives of the Convention on Biodiversity (CBD). Sustainable use is a valuable tool to promote conservation of biological diversity, since in many instances it provides incentives

for conservation and restoration because of the social, cultural and economic benefits that people derive from that use and is also an effective tool for achieving the Millennium Development Goals (www.un.org/millenniumgoals).

The *Addis Ababa Principles and Guidelines* (AAPG) were developed under CBD and set out the basis for sustainable use of natural resources (CBD Secretariat, 2003). The AAPG consist of fourteen interdependent principles and operational guidelines to govern the use of biodiversity and to ensure the sustainability of such uses. They include a commitment by all Parties to identify, and remove or mitigate perverse incentives that inhibit sustainable use.

IUCN's recognition that sustainable use of wildlife can form an integral and legitimate component of conservation programmes dates back to the World Conservation Strategy in 1980, and was affirmed in Recommendation 18.24 at the 1990 IUCN General Assembly in Perth. IUCN's *Policy Statement on Sustainable Use of Wild Living Resources*, adopted as Resolution 2.29 at the IUCN World Conservation Congress in Amman in October 2000, states that sustainable use of wildlife can contribute to biodiversity conservation and recognizes that where an economic value can be attached to a wild living resource, perverse incentives are removed, and costs and benefits internalized, favourable conditions can be created for investment in conservation and sustainable use, thus reducing the risk of resource degradation, depletion, and habitat conversion.

IUCN Resolution 3.074 "Implementing the Addis Ababa Principles and Guidelines for Sustainable Use of Biodiversity" was adopted by the 3rd IUCN World Conservation Congress (Bangkok, 2004), which urged IUCN members who are Parties to CBD to honour the commitments they made through the Addis Ababa Principles and Guidelines, which are fully congruent with Resolution 2.29 IUCN Policy Statement on Sustainable Use of Wild Living Resources adopted by the 2nd IUCN World Conservation Congress (Amman, 2000).

Several sets of guidelines and codes of conduct have been produced to guide the sustainability of trophy hunting, to maximise its contribution to biodiversity conservation and to ensure the engagement of local communities. These include the *IUCN SSC Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives* (IUCN, 2012). These guidelines include the possibility of trophy hunting of highly threatened species if the operation can be shown to have a net positive conservation impact.

The *European Charter on Hunting and Biodiversity* (ECHB) (Brainerd, 2007) was adopted under the Bern Convention and provides guidance on hunting and conservation. Although the ECHB is aimed primarily at sustainable hunting in Europe, its framework can be applied to a wider geographic context. The International Council for Game and Wildlife Conservation (CIC) together with the Food and Agriculture Organization of the United Nations (FAO) has also developed *Best Practice Guidelines* for trophy hunting (Baldus *et al.* 2008).

SUMMARY OF TRADE IN CITES-LISTED SPECIES FROM THE PROJECT COUNTRIES, 2000-2010

Vaisman *et al.*, in prep. analysed and summarized trade in trophy items exported from the region during 2000-2010. In total, 9 078 hunting trophy items were exported from the project countries during this period. These were based on exporters' reports, and importers reports for Russia (2006), Kyrgyzstan (2000-2008) and Tajikistan (all years). Note that these figures refer only to species listed on the CITES Appendices and do not include trophies from non-CITES listed hunting species such as Siberian Ibex *Capra sibirica*, Red Deer *Cervus elaphus* and Siberian Roe Deer *Capreolus pygargus*.

The majority of these (7057 items; 77.7%) consisted of Argali, Brown Bear and Wolf. Most were exported from Russia (7783 trophies), with smaller numbers exported from Tajikistan (655 trophies), Kyrgyzstan (501 trophies), and Kazakhstan (126 trophies), while 13 trophy items were exported from Uzbekistan (**Table 1**).

Table 1.
Reported annual exports by the project countries of hunting trophies of CITES-listed species, exporters' reports (2000-2010)*

	Year											Total
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
KZ	33	19	2	5	-	4	9	3	16	18	17	126
KG	65	15	81	55	26	33	24	31	23	60	88	501
RU	1050	1023	860	1060	638	763	423	663	500	419	384	7783
TJ	82	11	56	41	33	66	77	63	104	99	23	655
UZ	8	-	1	2	-	2	-	-	-	-	-	13
Ann. total	1238	1068	1000	1163	697	868	533	760	643	596	512	

*Includes both: (i) trophies reported as direct exports from the target countries; and (ii) trophies for which a target country was reported as the country of origin. Figures in italics indicate figures based on importers' reports (no Annual Reports submitted by these project countries for those years).

Source: Vaisman *et al.*, in prep.

Abbreviations: KG – Kyrgyzstan, KZ – Kazakhstan, RU – Russia, TJ – Tajikistan, UZ – Uzbekistan

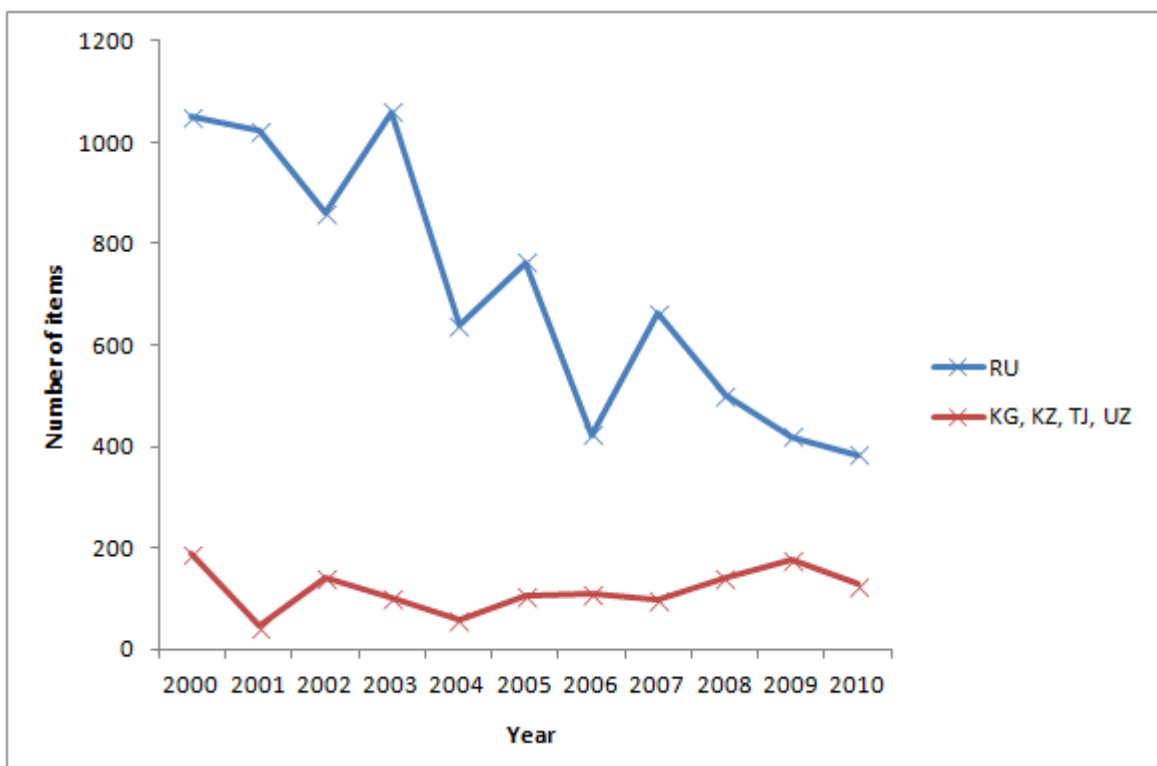
Exports of hunting trophies from Russia, and across the region, showed a general decline over the period 2000-2010 (**Figure 1**). The precise reasons for this decline are unknown but are most likely related to market fluctuations. The smaller number of exports from Russia in 2006 is probably due to the fact that for 2006 importers' reports were used as Russia did not submit an annual report for that year and importers' reports tend to indicate smaller trade, especially when the exporter's reports are based on the number of permits issued rather than on actual trade. Exports of hunting trophies from the other target countries since 2000 fluctuated between c.50 and 190 trophy items per year, with a small peak in 2009. Exports from the target countries (excluding Russia) appeared slightly higher after 2007, primarily due to increased exports from Kyrgyzstan and Tajikistan. Trophy exports from Tajikistan fell in 2010 to only 23, coinciding with a moratorium on trophy hunting of Argali. The main taxonomic groups represented were:

Ursidae: 5391 trophies, mainly Brown Bear (5369; over 99%) exported from Russia. Annual exports from Russia fluctuated between c.350 and 600 during 2000-2010, declining after 2007. Fourteen Brown Bear trophies were exported from Kazakhstan during the same period.

Canidae: 520 trophies, all Wolf, were exported from Russia, Kazakhstan and Kyrgyzstan. Exports from Russia showed a declining trend during 2000-2010, while those from Kazakhstan increased slightly after 2007 with between 11 and 15 trophy items exported per year in 2008, 2009 and 2010.

Bovidae: 1313 trophies, mainly Argali (1168 trophies; 89.0%) from Tajikistan and Kyrgyzstan. Exports of Argali trophies from Tajikistan fluctuated quite widely, with peaks in 2008 and 2009 and lows in 2001 and 2010 (Figure 2). These again reflect variations in demand and other factors such as the moratorium on Argali hunting imposed in Tajikistan in 2009-2010. The 2010 figures are assumed to refer to specimens exported at some time after they were obtained (due to delays with taxidermy, preparation, or administration, in Dushanbe or in Moscow). Argali exports from Tajikistan totalled 687 items for 2000-2010 according to exporters' reports, 635 items according to importers' reports. Exports of Argali trophies from Kyrgyzstan totalled 614 items for the period 2000-2010 according to exporters' reports, 417 according to importers' reports. Trends in Argali trophy exports from Tajikistan and Kyrgyzstan are shown in Figure 2.

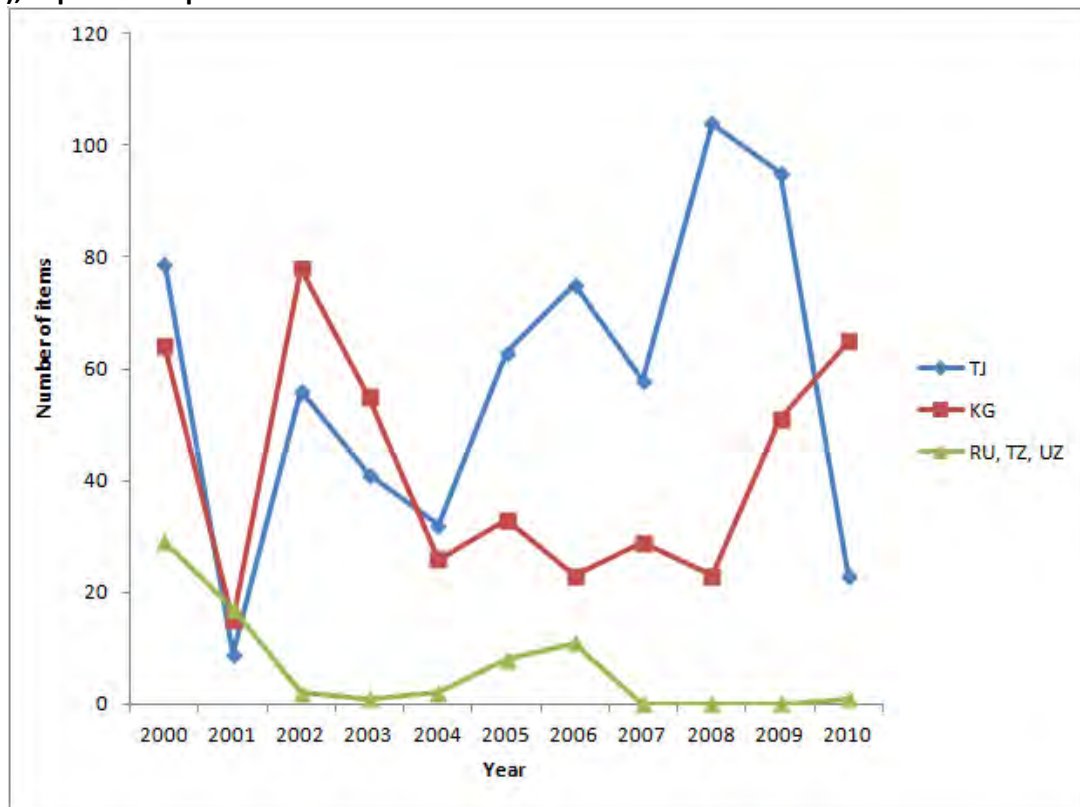
Figure 1.
Reported exports* of hunting trophies of CITES-listed species from the target countries (2000-2010), exporters' reports**



*Includes both: (i) trophies reported as direct exports from the target countries; and (ii) trophies for which a target country was reported as the country of origin.

**Importers' reports are used for RU (for 2006 only), for KG (2000-2008) and for TJ (all years) (no Annual Reports submitted by these target countries for those years).

Figure 2.
Reported exports* of Argali *Ovis ammon* hunting trophy items from the target countries (2000-2010), exporters' reports**



*Includes both: (i) trophies reported as direct exports from the target countries; and (ii) trophies for which a target country was reported as the country of origin.

**Importers' reports are used for RU (for 2006 only), for KG (2000-2008) and for TJ (all years).

LEGISLATION AND INSTITUTIONS

In all five countries, wildlife is the property of the State, which awards rights to use it to individuals or other entities. Sustainable use may be specified in legislation but is not defined. The legal rights of local communities are also not generally specified, except rights for subsistence hunting by some indigenous communities in Russia that are specified in the Hunting Laws. Wildlife and habitat management in the region has a strong focus on strictly protected areas (IUCN category I) from which people are excluded and economic use is prohibited.

A thorough review of national wildlife and hunting legislation in Western and Central Asia, including the five project countries, was produced jointly by FAO and CIC (Morgera *et al.*, 2008). This review made recommendations for individual countries and set out in detail the basic principles for sustainable wildlife management laws. One of the main findings of this review was that legislative frameworks in the region frequently consisted of different legal instruments (laws, decrees, amendments, regulations, etc.) that were not always harmonized or coordinated, and sometimes overlapped. In some cases, there was also a lack of clarity at the institutional level, with overlapping jurisdictions and mandates among different ministries and agencies.

Kazakhstan

Two laws cover hunting and a new law is in preparation (V. Gromov, Institute of Zoology, pers. comm. to D. Mallon, 2013). The Committee on Hunting and Forestry, its oblast and regional departments, bear overall responsibility for wildlife matters and delegate to the agency Okhotzooptom some functions for managing hunting resources. Until 2013, organizations bid for the right to set quotas. Quotas for the 2014 season onward will be set by the Institute of Zoology of the Academy of Sciences (V. Gromov, Institute of Zoology, pers. comm.). Most legal trophy hunting concerns non-CITES listed species.

Kazakhstan holds most of the global Saiga population. The government has made significant investments in Saiga conservation since 2002-2003, strengthening protection on the ground and investing in new protected areas. The Saiga population has begun to recover and numbers in the largest sub-population in Betpak-Dala have been increasing annually. The Ural Saiga population has shown a slower upward trend and was affected by a disease outbreak in 2011 that killed c.12 000 animals, while the Ustyurt population is still declining. Saiga is listed as a hunting species but a hunting moratorium is in place until 2020.

As a species listed in the Red Book, Argali are considered a protected species and can be hunted only with a permit issued by the government. Limited trophy hunting used to be permitted, but there have been no legal hunts since 2003. Bukhara Deer are well protected in the Karatchingil State Hunting Reserve in the mid-Ili Valley.

The government has implemented a State programme on restoration of rare and endangered ungulate species in addition to Saiga. Some activities focus on improving population survey methods and monitoring techniques; joint monitoring activities on Argali with Kyrgyzstan; Argali restoration in the Ulytau mountains; anti-poaching activities along the Kyrgyz border (Rosen, 2012).

Kyrgyzstan

In addition to a law on wildlife, there is also a set of 'Regulations on conducting hunting tours for foreigners on wild animals in the Kyrgyz Republic' (2003 and revised in 2004). These regulations list permitted and protected species, detail closed seasons, quotas, and procedures, and provide examples of official forms: application form to conduct a hunt by foreigners; report form for each hunter, species trophy form recording the length of horns and circumference at base; export forms for CITES-listed and non-CITES listed trophies. A new hunting law is under discussion; this contains a provision to assign hunting leases for 15 years instead of the current three-four years. The Department of Hunting in the State Agency for Environmental Protection is responsible for the administration of hunting including trophy hunting. The Department of Protected Areas is also a part of the same agency N. Turdumatova, pers. comm. 2013).

Three named subspecies of Argali occur in Kyrgyzstan, in the Tien Shan, Alai, and Turkestan Ranges. Argali occur in six nature reserves: Besh-Aral, Karatal-Japyryk, Kulun-Ata, Naryn, Sarychat-Ertyash, and Sary-Chelek. Quotas are fixed each year based on the most recent census, which allows the quota to be adjusted as appropriate. Argali quotas in 2010 and 2011 were 70 per year, 10 allocated for scientific purposes and 60 for hunting, at a cost of KGS250 000 each (USD 5110). In 2010, 53 out of 70 trophies allowed were taken and in 2011 69 out of 70. These trophies earned a total of KGS13 250 000 and KGS17 250 000 respectively in fees (USD 270 830 and 352 590). Revenues are distributed as follows: Local government (sub-district, the lowest administrative level) 20%, hunting concession 35%, Department of Hunting of the State Agency 30%, Republic Fund for Nature Conservation and Forest Development 15%.

There are six hunting zones in the country totalling 144 000 km² containing 74 hunting concessions. Some of these lie adjacent to Protected Areas, e.g. seven border on Sarychat-Ertash Nature Reserve

which contains good populations of Argali and their presence so close to the reserve is considered a potential threat (A.P. Vereshagin, Deputy Director, pers. comm., to D. Mallon, 2012).

In Kyrgyzstan a methodology for monitoring Argali (and ibex) using standardized field forms has been developed with the help of IUCN Caprinae Specialist Group and the German Society for International Cooperation (Gesellschaft für Internationale Zusammenarbeit, GIZ). A Russian-language monitoring handbook and manual on use of GPS have been developed as part of the same project. The same technique and field forms are also now used to count and monitor mountain ungulates in Tajikistan.

A large-scale survey of key Argali habitats was conducted in December 2010 and May 2011. This survey counted 15 311 *O. a. karelini* and *O. a. polii* in Issykkul, Naryn and Talas regions and 37 *O. a. severtzovi*² in Batken (Davletbakov and Musaeov, 2012).

However, a decline in trophy quality and number of trophy-sized rams is reported (Rosen, 2012). So far no systematic analysis has been done to assess the significance of this decline and whether the number of old rams has declined and/or if old rams are reaching a smaller horn size than in the past. In the first case over-harvesting of mature males might have caused lower representation of the older age classes in the population while in the latter case both, genetic consequences of selective hunting as well as changed habitat conditions may have played a role (Rosen, 2012) as suggested by Coltman *et al.*, 2003) when offtake is not sufficiently controlled.

There are a number of legal and regulatory barriers to a more effective management of hunting species. Currently, concession holders earn income from their hunting operation and may receive an additional subsidy for their management activities from the fee they pay for the hunting permits. Thus the effective permit price is actually about one third of the price in Tajikistan. Funding for protected areas from the State budget is relatively low and the share of the revenues from hunting permits does not contribute significantly to protected areas funding, with the result that park rangers are underpaid and are reported to take bribes from trophy hunting concessionaires (smaller ones especially) to allow foreign hunters to hunt in protected areas (Rosen, 2012). Community-based trophy hunting organization models are possible in theory, but lack specific provisions in the current legal framework and have not been politically promoted so far. Finally, hunting areas are also used by livestock and there is no mechanism for excluding grazing in critical argali habitats, unless the concession holder buys the lease from the herder associations (Rosen, 2012).

A new law “On hunting and wildlife management” is under preparation (A. Davletbakov, pers. comm., 2012). The new law will require Argali hunting areas to be at least 70 000 ha, which would reduce the number of hunting areas in Argali range to about 30. The proceeds from the sale of all permits would be allocated thus: 50% to the Hunting Department; 30% to support local communities’ budget in the places where the hunts take place; and 20% to support protected areas. The new law will also mean that hunting permits are only issued where the hunting concession is assigned to a legal entity, which will effectively promote the allocation of hunting management areas to local hunters and communities and it will be possible to define grazing exclusion areas within hunting concessions, (Rosen, 2012). Allocation of concessions on a 15-year lease rather than 3-4 as at present is under consideration (A. Davletbakov, pers. comm. 2012) representing a further significant benefit. Implementing the new law will not be straightforward as it will involve reducing the number of existing concession holders.

Kyrgyzstan has taken several steps to devolve authority to regional and local levels since 2002 and has set up over 450 *ayil okmotu* or local councils that could form the administrative and legal basis

² *O. a. severtzovi* is listed as *O. vignei* in CITES App. II. See Discussion and Appendix.

for community land management including trophy hunting. However, since most of the best Argali habitat is already assigned to trophy hunting concessions, it will be hard to set up community-based trophy hunting concessions that contain enough Argali to qualify for a quota (Rosen, 2012).

In some of the large Argali hunting concessions, anti-poaching and monitoring activities as well as predator control are carried out. It is possible that some of these activities have contributed to stabilizing and increasing Argali populations in some concessions, while in other concessions no effective conservation management takes place (Davletbakov and Musaev, 2012).

Russia

In accordance with Federal Law of 29.12.2006 No. 258, implementation of federal State hunting control and supervision were delegated to regional and similar administrative units of Russia, and they now exercise responsibility in this field. Article 24 of The Federal Law on Hunting and Hunting Resources (2009) set out further details of species that can be hunted and regional quotas.

The Ministry of Natural Resources has overall responsibility for development and promotion of State policy in the field of hunting and conservation of hunting resources, including regulations and subordinate acts. The Ministry has a Hunting Department to implement these responsibilities. Organization and monitoring of hunting species is the responsibility of the Federal State Enterprise Centre for Control and Analysis of Information on Hunting Animals and their Habitats, usually known as "Tsentrokhotkontrol".

Quotas are allocated by region, generally as a percentage of the population based on regional census figures. The main CITES-listed hunting species is Brown Bear. Argali is a protected species and hunting quotas are not issued. Details of the estimated numbers by region, quota levels, and numbers harvested are published periodically by Tsentrokhotkontrol. Quotas are also issued for Musk Deer and Eurasian Lynx as well as small game animals. In total, 38 236 Brown Bears were harvested 2000-2010 (**Table 5**).

Tajikistan

A set of laws and decrees covers wildlife and protected areas, but there is no separate instrument on trophy hunting. A draft law on Hunting and the Hunting Industry that attempts to rationalize the current laws and regulations including provisions for trophy hunting has been under discussion for three years and is currently being scrutinised by Parliament (A. Saidov, Director, Institute of Zoology and Parasitology, Academy of Sciences, *in litt.* to D. Mallon, 2013).

The Committee on Environmental Protection (CEP) bears primary responsibility for hunting, wildlife and protected areas. The CEP establishes a Commission to determine annual quotas for animal species and medicinal plants, such as *Ferula*. This Commission is composed of the Chairman of the CEP, Head of the Department of Protection of Flora and Fauna, Director of the Agency for Forestry and Hunting, Director of Specially Protected Areas, Director of the Institute of Zoology and Parasitology and the Director of the Institute of Botany (A. Saidov, *in litt.* to D. Mallon, 2013). Quotas for species included in the Red Data Book of Tajikistan, e.g. Marco Polo Sheep, have to be ratified by the Government of Tajikistan. For other species, quotas recommended by the Commission are ratified by the CEP. Following confirmation, the Association of Hunters of Tajikistan apportions the quotas for individual species among the registered trophy hunting concessions. The principal trophy species is Marco Polo Sheep CITES permits for Tajikistan's Argali trophies are processed by the Russian Management Authority. No hunting quotas are issued for Markhor at present, or for Urial. However, the CEP proposed a quota of six Markhor (the Academy of Sciences has supported three) and six Urial in 2013 (Michel, *in litt.* to TRAFFIC, Aug 2013).

A moratorium on hunting Marco Polo Sheep was in effect from autumn 2008 to September 2010. The following quotas for 2010/2011 were: Marco Polo Sheep – 80; Siberian Ibex - 60; Brown Bear - 10. The Brown Bear quota is set for specified regions where bears have attacked livestock or threaten the life of the local population. Bears in Tajikistan are listed on CITES App. I so obtaining an export/import permit may be problematic. The same quotas were set for 2011/2012 and 2012/2013 (A. Saidov, *in litt.* to D. Mallon, 2013).

Currently there are six trophy hunting concessions (mainly focusing on Argali). Total revenue from the sale of hunting permits earned by the government during the 2010/2011 hunting season (51 Argali legally harvested) totalled more than TJS 3.6 million (approximately USD 770 000) (Rosen, 2012). These concessions are all privately owned and are in essence commercial operations, but some, such as Murgab and Vakhan, which adjoin Zorkul State Nature Reserve to the north and north-west are well managed, employ their own rangers, patrol regularly, and carry out regular monitoring. The Murgab hunting concession was a model for other concessions because of its conservation activities (Schaller 2005) and Schaller & Kang (2008) reported that the highest density of Marco Polo Sheep on their surveys occurred in the Murgab concession. Harvest quotas for trophy age males in Murgab and other parts of the eastern Pamir are regarded as lower than the population could sustain (A. Bekmurodov, manager Murgab hunting company, pers. comm., M. Eckert, SCI, *in litt.* to D. Mallon, 2013), but are certainly exceeded by the illegal harvest. Local herding communities may receive some benefits or employment opportunities from trophy hunting but are not involved in management. One concession operates within Tajik National Park – an apparent contradiction that it is hoped the newly designated World Heritage Site status will resolve (Rosen, 2012).

A census in 2009 recorded 23 711 Argali and 2476 Siberian Ibex in the eastern Pamir (Michel & Muratov, 2010). This survey did not cover Zorkul State Nature Reserve (SNR) (870 km²) which was inaccessible due to snow, so Argali may not have been present there at that time. A field survey in summer 2011 recorded c.1500 Marco Polo Sheep in this reserve (FFI 2013). During visits to Zorkul SNR in 2008 and 2011, reserve staff and hunting concession staff said that Argali made large scale unpredictable movements in winter in response to the extent and depth of snow cover, south-east into the Wakhan region of Afghanistan or north across the South Alichur Range. These movements are irregular and difficult to predict both in the distances moved and the number of animals involved in any individual year. The 2009 census was the last wide-scale population count in of Argali in the eastern Pamir. Annual counts are made in some, but not all, hunting concessions.

A survey in February-April 2012 estimated the Markhor population in Tajikistan at 1018 animals (Michel *et al.*, *in press*). Many of these occur in Dashtidzum Reserve, Dashtidzum Sanctuary and two privately managed reserves ‘Sayod’ in the south-east Darvoz Range and ‘Markhor’ in the south-west Hazratisho Range, respectively.

In Tajikistan, management of trophy hunting on Argali was transferred in the early 1990s to private concessions. Currently six concessions are involved in trophy hunting of Argali and at least two of them play an important role in the conservation of Argali through monitoring and anti-poaching activities. Revenues from the sale of hunting permits earned by the government during the 2010/2011 hunting season (with 51 Argali legally harvested) totalled more than TJS 3.6 million (equivalent to approx. USD 770 000). Sixty per cent of this amount is supposed to be spent on nature protection and local development in the district where the hunts took place (Rosen, 2012).

Uzbekistan

Hunting is governed by the ‘Regulations on Hunting and Fishing on the territory of the Republic of Uzbekistan 2010’. Some updates to these regulations have been proposed but not yet published. The regulations are comprehensive and set out lists of ‘hunting’ species, ‘protected’ species, and closed seasons (Ministry of Justice, 2010).

Gosbiokontrol (State Bio-Control), a part of the State Committee on Nature Protection, has primary responsibility for setting quotas and for enforcement. The Institute of Gene Pool and Plant and Animal Life (Formerly the Institutes of Zoology and Botany) of the Academy of Sciences also contribute to census and monitoring.

Wolf is listed as a hunting species. Protected species, including those included in the Red Data Book of Uzbekistan, may be hunted with special dispensation from the Council of Ministers. Severtzov's Argali *O. a. severtzovi* number is around 2500 (Azimov, 2009). A small number (4-7) of trophy licences were issued in 2003–2005 at a cost of USD 10 000 to 20 000 each (Czudek, 2006). One trophy hunting website still advertises this species at a cost of USD 19 900 (compared to USD 5400 for an ibex). There is no designated hunting area for Argali. Markhor have been reduced to about 400 individuals in the Kugitang range in the south-east of the country (Azimov, 2009). Markhor hunts have taken place in the past (Michel, *in litt.* to TRAFFIC, Aug 2013), but few details are available. A more recent application for two Markhor licences was refused by CITES as a non-detriment finding could not be made. Trophy hunting is more weakly developed here than elsewhere in this region (A. Grigoryants, State Bio-Control, pers. comm., 2013), and only 18 trophies of CITES-listed species were exported in 2000-2013 (Vaisman *et al.*, in prep).

POACHING AND ILLEGAL TRADE

When the former USSR broke up in 1991, the abrupt political changes and switch from a command to a market economy led to withdrawal of subsidies and an economic crisis, forcing people to depend heavily on natural resources for food, fuel and income. Protection systems collapsed, poaching for meat and trophies surged, harvests were unregulated and the opening of international borders facilitated illegal trade. Most large mammal species underwent sharp population declines (e.g. Shackleton, 1997; Mallon & Kingswood, 2001; McCarthy & Chapron, 2003; Czudek, 2006; Michel, 2008). The most visible victim of the new circumstances was the Saiga, whose numbers fell by over 85% in a few years, due to commercial poaching for its horns, but all ungulates were affected. The situation has since stabilised to some extent, but poaching continues to be a negative factor, even inside some protected areas and still severely affects Tigers, Musk Deer and other species. Poaching may take place for meat (for personal use or for sale), for trophies or as a source of income. Illegal trophy hunting is likely to be mainly internal as the size and weight of trophy heads makes them difficult to transport or to export and import without the appropriate documentation and CITES permits.

Throughout the region, protected areas and inspection regimes are under-resourced, with low or very low staff salaries, a shortage of trained personnel, lack of vehicles and other equipment and negligible operating budgets, all of which severely restrict their effectiveness and motivation. Most Argali habitat is remote and difficult to access, further complicating an effective patrol regime. Border zones in most countries are closed areas so patrolling by wildlife inspectors and monitoring are not permitted. Even where offenders are caught, they may escape punishment due to a lack of rigour in prosecuting cases of poaching.

Uncontrolled killing by those with firearms appears to be common; local militia and Customs officials killed dozens of Argali (Harris and Reading, 2008), and Berber (2007) reported that during the last 10 years the level of poaching of Argali did not change significantly in Kazakhstan.

In Kazakhstan, there is information about illegal trophy hunts for Argali with permits for hunting for scientific purposes or under the cover of the permits. The main customers of these 'black outfitters'

are wealthy hunters from Russia. Trophies are exported in the framework of the United Customs Space with no registration (Vaisman *et al.*, in prep.). The real extent of illegal hunting is very difficult to assess, but known cases in Kazakhstan may amount to only 1% of the actual number (M. Levitin, *in litt.* to D. Mallon, 2013).

During Soviet times, border areas were well-protected and access was restricted and no livestock grazing was allowed. These factors contributed to a high density of Argali in these border areas. In Kyrgyzstan and Tajikistan, significant numbers of Argali were found in these border zones. Following independence from the Soviet Union and economic hardships, border guards provided with poor rations have sharply reduced the Argali populations in some of these areas (Rosen, 2012).

In Tajikistan poaching of Argali occurs outside protected areas as well as in the Tajik National Park and in Zorkul State Nature Reserve, in particular where the control by the hunting concessions is weak. A border guard in Zorkul admitted to the author in 2008 that the guards “occasionally” shot Argali to supplement their rations, while several reserve staff, local people and drivers claimed that Argali meat was readily available in restaurants along the road to Murgab. The staff of the reserve and adjacent hunting concession asserted that in winter poachers crossed from the Afghan side of the border to hunt Argali.

Some experts and hunting concessions estimate that annual off-take by poachers is around 1000 Argali (Rosen, 2012). Tajik sources claim that foreign hunters enter Tajikistan from Kyrgyzstan for illegal hunts, and Kyrgyz sources claim that it is the opposite (Saidov, N., Saidov, A. and Davletbakov, pers. comm., in Rosen, 2012).

The high income from trophy-hunting of mountain ungulates, lack of effective control and a significant corruption component contribute to the illegal activity. There are several official hunters and their associations in Tajikistan who organize trophy hunting. Each of them blames their competitors for the organization of “black” hunts, exceeding quotas and the illegal export of trophies. There can be little doubt that illegal trophy hunting is practiced, and that the illegal export of trophies through the audited channels occurs as well. A former TRAFFIC staff member witnessed the confiscation of a set of trophies on a Dushanbe-Moscow flight at Moscow’s Domodedovo international airport in 2009. The case involved five trophies of Marco Polo Sheep, two Markhor and one Siberian Ibex. The shipment was accompanied by false Russian Management Authority CITES permits. The quality of the falsified permits was so good that at first they did not arouse suspicion and only comparison of the permit details with the data stored on permits in the Russian Management Authority revealed the fraud (Vaisman *et al.*, in prep.).

According to interviews with people involved in trophy hunting, the shooting of two animals per permit is quite common. This usually happens when having shot one animal the hunter encounters another one with better trophy properties. So the organizers of the hunt often permit the shooting of another animal as well. Illegally obtained trophies, according to respondents, are mostly transported across the border to Kyrgyzstan, from where they are exported (Vaisman *et al.*, in prep.).

The main items in illegal wildlife trade are those that possess a high cash value such as Saiga horns, musk, Snow Leopard skins and live falcons. Saiga horns are traded in large volumes because of their high value in Traditional Asian Medicine and this trade was instrumental in the severe population decline that occurred in 1991–2003. Musk Deer musk is also a valuable item and the trade has been reviewed in two TRAFFIC reports (Homes 1998; 2004). Snares to catch this species are set at a high density along mountain ridges in the Altai region of Russia and these also pose a risk to many other species, including ungulates and carnivores. The total volume of illegal export of falcons from Russia was estimated in 2008 to be between 1000 to 1500 specimens a year mainly destined for the Middle

East, where wild-caught falcons are highly prized by falconers (Vaisman *et al.* in prep.). Central Asian countries now keep full records of any detected cases of illegal trade in falcons.

Snow Leopards are killed and traded for their fur and body parts, including teeth, claws and bones. A report by TRAFFIC reviewed the snow leopard trade in detail (Theile, 2003) and the Environmental Investigation Agency summarized the results of its recent research into the illegal wildlife trade in Snow Leopards since 2005 (EIA, 2012). This review estimated that on the basis of Customs seizures and confiscations, as many as 1000 Snow Leopards may have been illegally traded in 2000-2011. Many of these animals are likely to have originated from within the project region. Illegal trade in Brown Bear parts was referred to in the species account.

WILDLIFE MANAGEMENT AND PLANNING

All project countries have formulated a National Biodiversity Strategy and Action Plan (NBSAP) as part of their commitments under the CBD. These plans typically describe the biogeographical background, list key ecosystems, habitats and species and set out national priorities, but do not usually contain detailed prescriptions.

A CMS MoU on conservation and restoration of Bukhara Deer was signed in 2002. There is also a CMS MoU for Saiga, that incorporates a Medium-Term International Work Programme – in effect an action plan - that is reviewed and updated every four years. This programme provides a coordinating mechanism for action by all range States. CMS has also initiated the development of a Single-Species Action Plan for Argali, the principal trophy hunting species in most of the region, by holding a planning workshop in Kyrgyzstan in November 2012. The action plan is currently under development and will set out priorities for action at a range-wide scale and provide the basis for implementation at national level. A Central Eurasian Aridland Concerted Action and associated cooperative action was adopted at the Ninth CoP in 2008 (**Recommendation 9.1**) and includes Saiga.

National Action Plans for the Snow Leopard have been formulated by Uzbekistan (2004), Russia (2011), and Kazakhstan (2012), while action plans in Tajikistan and Kyrgyzstan have been completed and are awaiting government endorsement. To supplement these plans, each country has developed a National Snow Leopard Ecosystem Priorities document (NSLEP) as part of preparations for a Global Snow Leopard Forum initiated by the World Bank and scheduled for October 2013.

All Protected Areas (PA) have their own management plan, at least in theory, which identifies habitat and species priorities. Even where they exist, they may have been developed at different times and to different levels of detail so their relevance will vary from site to site. PAs rarely receive resources adequate to implement them effectively. Holistic plans for sustainable management of hunting resources are also lacking in the region.

Transboundary Initiatives

Political borders rarely coincide with natural habitats or ecosystems, particularly in mountain regions where national boundaries commonly follow ridgelines. Mountain ungulates and their predators, such as the Snow Leopard and Wolf, utilize both sides of mountain ranges and thus range on both sides of the borders. A particular case in point is the transboundary population of Marco Polo Sheep (Argali) in the Pamir which occurs across five countries.

Transboundary cooperation leads to more cooperative management, enables conservation at larger spatial scales and facilitates better control of poaching and illegal international trade. Landscape-

scale planning also safeguards dispersal corridors between core populations, maintains genetic variation and incorporates resilience to climate change. Larger populations are inherently more likely to persist, retain greater genetic variation, and are less vulnerable to stochastic factors. Several ecosystem-level projects have been initiated within the region, mainly focused on PAs or species management, rather than on trophy hunting.

The Pamir International Conservation Area has been proposed in the eastern Pamir where the borders of Afghanistan, Pakistan, Tajikistan and China meet, largely as a measure to protect Marco Polo Sheep (Schaller, 2006; WCS, 2007). This proposal would encompass eight PAs in Tajikistan, Afghanistan, China and Pakistan, covering 35 870 km² in total. The Global Environment Facility's (GEF) West Tien Shan project aimed to improve and increase cooperation between five protected areas, all of which hold Siberian Ibex, Argali and Snow Leopards in Uzbekistan, Kyrgyzstan and Kazakhstan. The Tien Shan Ecosystem Development Project, also funded by GEF, began in 2009 to support management of PAs and sustainable development in Kazakhstan and Kyrgyzstan. The Pamir-Alai Transboundary Conservation Area project (PATCA), funded by the EU, focused on creating a transboundary PA across the border between Kyrgyzstan and Tajikistan. The "Mountains of Northern Tien Shan" project 2013–2016 has been developed with support from the government of the Federal Republic of Germany and the German Society for Nature Conservation (NABU).

The UNDP-GEF Project "Biodiversity Conservation in Altai-Sayan Ecoregion" was initiated in 2007 with support from WWF, to enhance cooperation on biodiversity conservation between Russia and north-west Mongolia (WWF, 2012). The project will include development of a corridor connecting protected areas in Kazakhstan and China.

The Wildlife Initiative for Central Asia and the Caucasus (WICAC) was established in 2006 by FAO and CIC in cooperation with the Ministry of Agriculture of the Czech Republic and the Czech Forestry and Game Management Research Institute. The purpose of the initiative is to assist countries of the Caucasus and Central Asia to strengthen their wildlife sectors and to promote responsible, sustainable hunting that contributes to the improvement of rural livelihoods. To date, four workshops (2006, 2008, 2009, 2010) have been held to provide a forum for representatives from governments, private sector, science as well as national conservation NGOs in the range countries to share experiences, review current and emerging issues in wildlife policy and identify strategic actions needed for sustainable use and conservation of wildlife resources. A key finding of the first workshop in 2006 was that there was a general "weakness of wildlife management policy and legislation" in the region. Subsequent workshops reviewed wildlife laws and legislative frameworks and addressed ownership of wildlife and user rights, benefit sharing and ways to involve rural communities and other stakeholders. The main aim of the most recent workshop in September 2010 was to increase the capacity of countries to ensure community participation in sustainable wildlife management.

In some cases, NGOs support government anti-poaching efforts, for example "Gruppa Bars" in Kyrgyzstan. WWF also supports anti-poaching teams protecting Karatau Argali in Kazakhstan and Bukhara Deer inspectors in the Amu Daria basin, Uzbekistan (O. Pereladova, *in litt.* to D., Mallon, 2013).

Fauna and Flora International (FFI) is working with Zorkul State Nature Reserve in Tajikistan and Sarychat Ertash and Naryn Reserves in Kyrgyzstan on management plan development, training, capacity building and surveys. A number of other project activities were listed in the country sections, above.

Community-based Natural Resource Management (CBNRM)

CBNRM is poorly developed in the region when considered as a whole. This is in part a legacy of the former socio-political framework until 1991 where the State held a monopoly of power and all authority was centralized. Top-down governance continues in some countries of the region, which hinders establishment of community initiatives. Elsewhere there is no legal basis to empower community conservancies or support them in managing land and natural resources. It is possible that some people are deterred from the concept of community initiatives through mistaken association with the unpopular former system of collective farms. Some governments and decision makers remain unwilling to devolve user rights and responsibilities to grass-roots level.

There are however some exceptions. The Federal Russian hunting law allows communities or minorities to set their own quotas for subsistence hunting, but this applies only to a limited geographical area. Kyrgyzstan has established and empowered *ayil okmotu* (local councils), as noted above, and the revised hunting law currently under discussion will further facilitate community-based hunting initiatives.

In Tajikistan a local NGO “Nature Protection Team” initiated a project in April 2008 on community based management of mountain ungulates, supported by GIZ, the Centre for International Migration and Development (CIM) and the Zoological Society for the Conservation of Species and Populations (ZGAP). The first community conservancy was formed in March 2009 by a local NGO “Parcham” in the Bartang valley with an area of 47 000 ha assigned for five years and focused on protection and sustainable use of Ibex. A second community group “Yokuti Darshay” in Ishkashim district of the Wakhan plans to protect Ibex and reintroduce the locally extinct Urial. Both of these NGOs have published leaflets in English advertising ecotourism and wildlife conservation. A third NGO “Muhofiz” has applied for territory on the Hazratishoh Range to be assigned for the management of Bukhara Urial and Tajik Markhor (Michel, 2010b). There are now five conservancies, three of which have hosted trophy hunting of non-CITES listed species (S. Michel, *in litt.* to TRAFFIC, Aug 2013).

Also in Tajikistan, the USA-based NGO Panthera (www.panthera.org) is supporting development of the “Irbis” conservancy in the Madiyan/Pshart valleys of the Eastern Pamir, to promote sustainable hunting of Marco Polo Sheep and Ibex and tourism and cultural experience. Legal assignment of the hunting grounds is being negotiated. It is planned that basic tourist infrastructure could be developed in about 12 months. The conservancy hopes to host the first hunters in 2014. Limited hunts will be offered for the first two years to allow villagers to gain experience in hospitality and guiding (McCarthy, 2013).

These conservancies are at an early stage but they have the potential to develop trophy hunting and tourism programmes or to partner with established hunting concessions to develop their capacity. However, they face several challenges. The legal framework is weak and the government is not so far committed to the assignment of hunting areas to community based organizations for the long term. Exemptions on land tax are also needed because taxing them as pastures imposes high costs for areas primarily managed for conservation purposes and encourages domestic livestock grazing which causes forage competition (Michel, 2010b).

BEST PRACTICE IN COMMUNITY-BASED TROPHY HUNTING PROGRAMMES

The best examples of community-based trophy hunting are found in Pakistan (where the mountain environment and hunting species are similar to those in Central Asia) and Africa (where the species and background situation are very different). Examples from Pakistan and southern Africa are summarised below.

Pakistan - Torghar

The trophy hunting programme in the Torghar Hills of Balochistan Province, Pakistan is one of the longest-established of its kind and has received a lot of publicity and attention (Woodford *et al.*, 2004; Rosser *et al.*, 2005). The Torghar Conservation Project (TCP) was established in 1986 to protect the dwindling populations of Suleiman Markhor *Capra falconeri* and Afghan Urial *Ovis orientalis cycloceros*, which were close to extinction in the region because of uncontrolled poaching and competition for grazing with livestock. The project was initiated by tribal leaders supported by Sardar Naseer Tareen, of the IUCN Sustainable Use Specialist Group-Central Asia and with technical input from the United States Fish and Wildlife Service (USFWS). In 1994, the Society for Torghar Environmental Protection (STEP) was established.

This community-based conservation programme uses limited trophy hunting to fund the employment of local people as game guards and to provide community benefits. The intention was to demonstrate that conservation could be economically viable, develop, local livelihoods change the attitude of local people toward wildlife, and provide incentives for enforcement. The trophy hunting harvest has been conservative, with 1-2 Markhor and 1-4 Urial taken per year.

Trophy hunting revenues are split 80:20 between STEP and the provincial government. Since 1986, these have generated a total of USD 2 712 800 for the community and USD 486 400 for the provincial government. The revenues received by STEP pay the salaries of over 80 game guards, and have funded construction of water tanks, dams and irrigation channels, supply of young fruit trees, a medical camp and emergency drought relief, veterinary training, and so on.

Surveys carried out by independent professional wildlife biologists have demonstrated that Markhor numbers increased steadily from a low base of <100 in 1985 to over 3500 in 2012 (Johnson, 1994; Frisina *et al.*, 1998; Frisina, 2000; Frisina and Tareen, 2012). Urial numbers in Torghar have also increased significantly during the same period.

Trophy hunting is not the goal of STEP, but a means of funding a conservation programme. As the programme has grown, it has attracted funding from international donors. Markhor is a highly sought-after trophy, accessible only here and a few other sites in Pakistan so the area is ideally suited to low volume-high value hunting. In addition, Torghar's location in the Tribal Areas represents a unique socio-political environment with relatively few government agencies involved. In a review of trophy hunting programmes in Pakistan, Shackleton (2001) concluded that the programme's success and minimal government involvement were unlikely to be a coincidence.

Nevertheless, STEP faces a lack of regulatory support, government reluctance to recognize local involvement in conservation and a temporary ban on hunting imposed by the National Conservation Council. It continues to face several challenges and requires ongoing effort to develop further. The Torghar programme demonstrates that CBNRM trophy hunting can benefit wildlife and bring benefits to communities. The reasons for its success includes the presence of Markhor, a highly sought after trophy that is hardly available elsewhere; a tribal structure free from many government constraints, and where decisions taken can be implemented with confidence across the area, and the determination and ability of one of the founders, Sardar Naseer Tareen.

The STEP programme reviewed the alternative of ecotourism but concluded that it would be less viable as the area is remote and rugged and has poor infrastructure, so it is unlikely to attract many tourists. It would therefore be difficult to replace the income gained from trophy hunting by revenues from ecotourism, in part because the numbers required are much higher, given the very high value of a Markhor trophy.

Pakistan - North-West Frontier Province (NWFP) and Northern Areas

Several trophy hunting conservancies have been established in North-West Frontier Province (now Khyber-Pakhtunkhwa) and the Northern Areas in a series of initiatives led by WWF and IUCN-Pakistan, with support from the Aga Khan Support Programme, provincial Forest and Wildlife departments and University of Montana, among others. These conservancies involve hunting Markhor and / or Ibex and aim to provide economic incentives for communities to conserve wildlife and habitats and contribute to local community development. The work of these conservancies was reviewed by Shackleton (2001) and Jackson (2004).

Revenues are shared 80:20 between the community and the government which increased Pakistan's country quota of Markhor to 12 in 2007. The current cost of an Ibex hunting permit is USD 4000 for one trophy. On top of this, the local community where the hunt is conducted is authorized to charge USD 4000-6000 per hunter to allow access to their hunting grounds. Markhor fees are much higher. In Khyber-Pakhtunkhwa, the provincial Wildlife Department auctions off the Markhor licenses each year, which maximises the price obtained. Since 1998, 3-4 permits per year have been allocated to foreign hunters in four conservancies: Chitral Gol, Tooshi-Shasha, Gehrait, and Kaigah.

Funds from trophy hunting are managed through a cooperative agreement between the provincial government and local villages through a village conservation committee that oversees allocation of the funds. Tooshi-Shasha Community Conserved Areas in Chitral includes 12 villages and covers 20 000 ha. Trophy hunting began in 1987 and since 1989 the Markhor population increased from 137 to 545. As well as improving Markhor and Ibex numbers and improving range quality, several conservancies report an increase in Snow Leopard populations. This positive result for biodiversity has been offset by complaints that Snow Leopards are killing the valuable Markhor, leading to proposals for licences to hunt Snow Leopards (Shackleton, 2001).

Shackleton (2001) reviewed the Pakistan trophy hunting programmes and concluded that it was possible to be "*cautiously optimistic about the impact of the community programmes on markhor and ibex conservation*" because (i) poaching has been reduced significantly in all Community-based Trophy Hunting Programmes, (ii) livestock numbers have declined, reducing pressure on high-elevation pastures, and (iii) community attitudes were becoming increasingly positive about biodiversity conservation. As with the Torghar Hills programme, these initiatives benefit from the rarity of Markhor and its desirability as a trophy, plus the willingness of foreign hunters to pay very high fees to shoot one. Ibex are much more numerous (and are not CITES-listed) so the higher number of licences issued compensates for the lower trophy fee.

However, all the trophy hunting programmes are vulnerable to changes of policy by the federal government. For example, hunting was banned for a time from 1991 and the Senate Standing Committee on Climate Change recently recommended banning licensed trophy hunting once again (The Express Tribune, November 30th, 2012; www.tribune.com.pk).

Community-based trophy hunting in Africa

Trophy hunting takes place in more than 20 countries in sub-Saharan Africa on an area of 1.4 million km², which is c.20% more than the total area covered by formal Protected Areas in the same countries. South Africa has the largest trophy hunting programme, worth USD 100 million per year. The economic and conservation significance of the trophy hunting industry in Africa was reviewed by Lindsey *et al.* (2006, 2007). The extent of community involvement and the benefits reaching them vary considerably. Under the CAMPFIRE (Communal Areas Management Programme For Indigenous Resources) programme in Zimbabwe, at least half of the trophy hunting revenue goes to the local communities and these revenues may amount to over 90% of total income to the districts and communities. In Zambia, international trophy hunting generates significant economic benefits for

residents of game management areas through a system that directs revenues to local wildlife management and community development projects (Lewis & Alpert 1997).

Namibia

The best example of community-based programmes is provided by Namibia, whose communal conservancy programme is widely viewed as a conservation and rural development success story (Naidoo *et al.*, 2011, Weaver *et al.*, 2011, NACSO, 2013). In March 2013 there were 79 communal conservancies in Namibia covering a total of 160 092 km². Of these, 48 conservancies (61%) engage in trophy hunting. Benefits from consumptive use of wildlife (cash, employment, and in-kind, largely meat) received by Conservancies from 1998-2009 amounted to NAD 76.5 million, equivalent to USD 10.17 million (NACSO Database; www.nacso.org). In 2011, the latest year for which figures are available, the total revenues (cash income and non-cash benefits) amounted to NAD 48 859 433 (about USD 4 957 600; NACSO, 2013).

Conservancies utilize wildlife in various ways, including trophy hunting, own-use hunting, game cropping, live sales, and tourism and they retain all the revenue gained. Development of an extensive CBNRM programme dates from the reforms to legislation in the mid-1990s that devolved rights to use and manage wildlife on communal lands to communities, provided they organized as a Conservancy. To form a Conservancy, the community must define its membership, borders, and management committee; draw up a Constitution; agree a method for equitable distribution of benefits; and develop a sustainable management and utilization plan.

The Namibian Association of Community Based Natural Resource Management Support Organisations (NACSO) comprises 14 NGOs and the University of Namibia and provides advice and services to rural communities who want to manage and utilize their natural resources in a sustainable manner. Many conservancies enter into joint ventures with tourism lodges and hunting operators.

In addition to cash income, hunting operations provide meat to community members (many of whom are very marginalized). Meat provided from trophy hunting and own-use harvesting was worth NAD 17 413 120 (USD 2 290 000) between 1998 and 2009 (NACSO, 2010). Game numbers in most Conservancies have recovered and poaching has become socially less acceptable. There are many examples of wildlife numbers recovering rapidly on conservancy land (NACSO, 2013).

The key elements in the success of this programme are the clear legislative basis for conservancy rights, as well as strong support from the Ministry of Environment and Tourism and from NACSO. Furthermore, Namibia – in common with many African countries – has a much wider range of wildlife species available, and generally occurring in higher numbers. These include Lion, Leopard, African Elephant, buffalo, hippo and White Rhino – all highly sought after by international trophy hunters. It is possible to collect several trophies on a single visit, instead of 1-2 in Central Asia. Some 21-day tours provide the opportunity to hunt 31 different species and Tanzania lists over 60 species of game animals (Booth, 2008).

DISCUSSION

Taxonomy, split listings and implications for CITES

A few taxonomic and nomenclatural issues in the region have potential implications for CITES. Bukhara Deer is listed in CITES Appendix II as *Cervus elaphus bactrianus* and on the CMS appendices as *C. e. yarkandensis*. As noted above, Bukhara Deer antlers are readily differentiated from those of

the other varieties occurring in the region (particularly the indigenous *C. e. songarica* and the introduced *C. e. maral*) though it is possible that Customs and other officials may need training in order to identify them.

Karatau Argali *Ovis ammon nigrimontana* in Kazakhstan are listed in CITES Appendix I. No hunting is permitted, but differentiating the illegal trophies of *nigrimontana* from those of similar subspecies (in particular *O. a. karelini*, with which it shares a hybrid zone) may again be problematic, underlining the need for thorough control of Argali trophies.

Severtzov's Argali (Sheep) *Ovis ammon severtzovi* is listed as Urial *O. vignei severtzovi* by CITES. One Urial population in South-West Pamir may in fact be attributable to *O. v. vignei* which, if confirmed, would place it in CITES Appendix I, whereas other Urials are in Appendix II. Separating these forms on the basis of trophy horns is likely to be difficult. However, this is unlikely to have practical implications at the present moment since very few Urial remain in the Wakhan area of Tajikistan.

An MoU between the CITES and CMS Secretariats includes an activity to harmonize taxonomy and nomenclature (UNEP/CMS Secretariat, 2011), a measure which should directly address most of the above issues.

The contribution of trophy hunting to livelihoods

The programmes in Pakistan and several African countries demonstrate clearly that trophy hunting can generate significant financial benefits and in some cases, for local communities. These benefits may come in the form of direct cash payments from trophy fees, employment (work as game guards, guides, cooks, camp assistants) services (e.g. rent of pack animals), or indirectly through communal benefits derived from village conservation funds or provision of game meat from trophy animals. The value of cash income to remote rural communities that may function partly as a barter economy should also not be underestimated, as it gives greater spending freedom.

A potential non-financial benefit of CBNRM is the sense of empowerment and raised self-esteem brought about when conservancy members become active participants in management and develop a greater sense of ownership of the resources in their area.

The crucial aspect is the equitable allocation of revenues gained. The 50/50 revenue split in CAMPFIRE projects in Zimbabwe, and even more the 80/20 split in community projects in Pakistan contrast starkly with the project region where significant income streams rarely reach local communities. This problem is not confined to Central Asia. Harris & Pletscher (2002) reported that an Argali trophy hunting programme at one site in Qinghai, China, could in principle provide considerable funding (c. USD 60 000 per year), but too little of the funds received were allocated for conservation at the local level, undermining the intended system of incentives. Little of the revenue from Argali hunting in Mongolia reached local communities (Amgalanbaatar *et al.*, 2002). Even in Africa, revenues may not reach rural communities around hunting concessions and "*inequitable distribution of hunting revenues represents the most serious threat to the long term sustainability of the industry*" (Lindsey, 2008).

A review of trophy hunting in sub-Saharan Africa by UICN/PACO (2009) concluded that the economic returns from trophy hunting were low and that land used for hunting generated much smaller returns than that used for agriculture or livestock. The study further reported that hunting contributions to GDP and national budgets were insignificant, especially considering the size of the areas covered, and that returns for local populations, even when managed by CBNRM projects, were insignificant.

The contribution of trophy hunting to species conservation and management

Any form of sustainable use can play a role in the conservation of species, if incentives are distributed fairly and persuade people to conserve the species rather than use it unsustainably. Well-run hunting concessions have an economic interest in maintaining the resource (i.e. conserving the species) so will also aim to manage the area to conserve high quality habitat that supports high numbers of the hunting species, and also to prevent unregulated use by others (poaching, overgrazing).

However, the degree to which trophy hunting contributes to conservation is subject to debate. The main arguments of those in support of a positive role for conservation are: (i) By adding an economic value it provides incentives for sustainable use, prioritizing management for the target species and reducing or removing harmful influences such as poaching and overgrazing; (ii) designated hunting areas (whether commercial concessions or community conservancies) provide 'umbrella' protection for habitats and other species, (iii) hunting zones supplement formal protected areas and/or create corridors between them, contributing to conservation at more extensive landscape scales and (iv) hunting can generate revenue from marginal areas that are not suitable for tourism.

Critics contend that selective trophy hunting may have negative effects on demography, reproductive fitness, group structure or genetics of the target population and may cause adverse impacts on non-target species, especially through control of predators.

There are several examples of increases in population size of trophy species in well-managed hunting concessions – Markhor and Urial in Pakistan – and many more species in southern Africa. Within the region, Marco Polo Sheep numbers remain high in the more effectively managed hunting concessions in Tajikistan (Schaller and Kang, 2008).

It seems reasonable to assume the protection afforded to trophy hunting concession areas in Central Asia extends some protection to non-target species but this has not been quantified in any peer-reviewed studies. There are however examples from Western Europe (albeit a very different biogeographic and socio-political environment) of benefits to a wider range of biodiversity from hunting management. In Spain, the abundance of small game species, such as Red-legged Partridge *Alectoris rufa* and Wild Rabbit *Oryctolagus cuniculus*, is higher on estates where some game management is applied (Delibes-Mateos *et al.*, 2008; Díaz-Fernández *et al.* 2013). Studies in the UK show that for Grey Partridge *Perdix perdix*, a formerly common but declining game bird, shooting acts as a management incentive that can reverse the downward trend in abundance (Aebischer & Ewald 2010, 2012, Draycott, 2012, Ewald *et al.* 2012), and also benefits other farmland bird species (Connor & Draycott 2010). A more general study in the UK found that farmers participating in field sports maintained more woodland and planted more trees and hedges than those that did not (Oldfield *et al.*, 2003).

Two hunting concessions that border the northern and north-western edge of Zorkul NR in Tajikistan are effectively patrolled and monitored, increasing the size of the area protected for Argali, Ibex and Snow Leopards to a large degree. The total area covered by trophy hunting concessions in 22 countries of sub-Saharan Africa exceeds that of the formal PA network, as reported above. Even the analysis by UICN/PACO (2009), which generally found little evidence to support trophy hunting, acknowledged that "*hunting areas still play an important role in conservation - maintaining and financing peripheral areas around conservation blocks*". However, the positive effects remain true only if the following conditions are met: (i) hunting areas are managed appropriately with fixed quotas and scientifically based harvest levels and do not become population 'sinks' for animals dispersing from, or migrating between, the adjoining PA; (ii) there is no hunting encroachment into the PA or driving of animals out of the PA into the hunting area; and (iii) there is no control of predators.

The detrimental effects of selective harvesting on populations, demography and genetics are subject to much debate, but are very relevant to most trophy hunting species in the region, since it is the horns or antlers of the oldest males that are targeted. These species (Argali, Red Deer) all have polygynous breeding systems, whereby one male mates with several females, so in theory, removing some males should not necessarily affect the reproductive capacity of the population, so long as sufficient mature males are left to achieve normal reproductive rates.

Uncontrolled harvest of males can quickly reduce breeding success; an extreme example—involving commercial poaching rather than trophy hunting – was provided by the Saiga where a rapid and severe reduction in the number of males due to hunting for their horns almost led to reproductive collapse (Milner-Gulland *et al.*, 2003).

However, trophy hunting does not target any male, but the largest males - those that are the most reproductively active. It is sometimes claimed that trophy animals are ‘over-mature’ males past their prime, but in fact there is no evidence for ‘reproductive tail-off’ and trophy animals are invariably in their prime breeding years (Shackleton, 2001, Harris 2008). Therefore the qualitative effects on the population of removing some of the most reproductively ‘fit’ individuals have to be taken into account.

Coltman *et al.* (2003) reported that a selective harvest has important implications if it targets heritable traits. They showed that body weight and horn size in a Bighorn Sheep *Ovis canadensis* population declined significantly over time in an evolutionary response to trophy hunting. However, the decline in mean breeding values for weight and horn size occurred in response to unrestricted trophy hunting, underlining the need for well-managed trophy hunting programmes to place restrictions on quotas - that is, a small proportion of the available trophy-age males.

Shackleton (2001) also concluded that the evidence indicated that there are few negative effects of trophy hunting in the short term, at least where the majority of mature males are not hunted – that is at conservative harvest levels. Milner *et al.* (2007) and Bischof (2009) reviewed the short and long-term effects of selective harvesting and suggested that several modelling approaches point to selective harvests at a low level as not being detrimental. The longer term genetic impact of selective harvesting is, however, impossible to assess, because long-term data are not available. Again, the impact will likely be minimized if only a fraction of the mature trophy males are taken each year. In summary, trophy hunting requires low off-take to maintain high trophy quality which is in the long term interests of the concession holders, at least if they hold leases over the long-term.

The situation with large carnivore species where males practice infanticide – for example Brown Bears in the region – is different. In these cases, the risk of selecting older males for hunting is that it may induce an increase in cub mortality through attracting younger males to take over territory and kill any cubs that they find there to promote their own chances of mating (Bischof, 2009, Harris *et al.*, 2013).

The ‘anthropogenic allee effect’ (AEE) is the name given to a situation whereby the rarity of a species or population increases its value, which in turn encourages greater exploitation, in a vicious circle that leads to eventual extinction and it has been suggested that trophy hunting is subject to this effect (Johnson, *et al.*, 2011; Palazy *et al.*, 2012). However, AAE only acts as a negative influence under conditions of uncontrolled exploitation (‘open-access resource’) whereas trophy hunting typically restricts harvest levels through quotas; therefore this factor is unlikely to be relevant in well-managed operations (Harris *et al.*, 2013).

Where ungulates are the target hunting species, predator control invariably follows. In the region, Wolves are killed at every opportunity and this may lead to secondary killing or 'by-catch' of other predators (such as Snow Leopards) through poisoning or trapping and avoiding such adverse impacts should be a high priority.

Ecotourism (Nature tourism)

Ecotourism is defined by the International Ecotourism Society (TIES; www.ecotourism.org) as "Responsible travel to natural areas that conserves the environment and improves the well-being of local people" but the term is frequently applied in a more general way (and seldom defined precisely) to cover 'nature', 'green,' 'low impact,' 'ecologically responsible,' and 'cultural,' tourism, among others. At its vaguest it may refer to tourism in rural areas that is neither culturally nor environmentally responsible. Even where a positive focus is intended, over-utilization of local resources may have a negative impact upon the local environment, which should be set against the economic benefits.

Ecotourism, as used here in a regional context to include wildlife viewing, photo-tourism and trekking, generates large revenues worldwide and is growing annually (Balmford *et al.*, 2009). Ecotourism is frequently promoted as a sustainable use of the natural environment that can benefit local communities, raise revenues for protected areas, and increase support for conservation (Kiss, 2004, Ballantyne *et al.*, 2009) and is also advanced as a non-extractive alternative to trophy hunting. Several ecotourism companies in Europe and North America offer tours to the region, including climbing and trekking in the Tien Shan mountains and wildlife tours based on bird watching, botany and butterflies. Snow Leopard viewing has recently developed as a small niche market in the Indian Himalaya.

Wildlife tourism is frequently focused on large charismatic species (such as Polar Bear, Tiger, and the 'big five' in Africa) or on the opportunity to view a wide range of species. Central Asia does not harbour the variety of wildlife found, nor the close views, as in e.g. eastern and southern Africa so the potential market can be assumed to be smaller. The mountain environment is also more challenging – with high elevation and rugged terrain – and tourist infrastructure is relatively underdeveloped. Trekking groups tend to seek classic routes, those with spectacular views or in the proximity of renowned high summits. Not all mountain areas possess these salient features and while some adventurous travellers will always be willing to explore new and under-visited areas, they often tend to operate towards the 'backpacker' end of the market, representing low volume-low value tourism that does not generate high revenues.

Many remote or marginal areas with low species diversity but including a desirable trophy species are likely to derive more value from hunting than from tourism. The high value of a single Markhor or Marco Polo Sheep trophy is difficult to replace through tourism – either by groups or individuals, such as wildlife photographers. Hunters may be more prepared to operate in areas that are remote, difficult to access, and/or with poor infrastructure than ecotourists. In fact, the STEP programme evaluated the option of ecotourism in Torghar and concluded that it was not feasible, due to the remoteness of the area and the lack of suitable infrastructure.

Comparative figures for revenues gained from trophy hunting and ecotourism in the region are not available, but by way of illustration, trophy hunting revenues per client in Zimbabwe and Tanzania were 30 and 14 times respectively than those generated per photographic client (Lindsey, 2008). However, tour groups are typically larger than hunting groups, so while the per capita revenue may be lower, the aggregate revenue earned may not always be so different, though the greater environmental impact of a larger group should also be considered.

Ensuring that revenues reach local people and communities may present as much a problem for wildlife tourism as it does for trophy hunting. A recent study of tourism in three Indian Tiger reserves found that few benefits reached local people (Karanth *et al.*, 2013). Business models, rather than CBNRM, are again the norm.

Tourism is certainly a suitable activity for development by community conservancies as an alternative or supplement to trophy hunting. An interesting initiative that could serve as a useful model for the region is the Himalayan Homestay programme operating successfully in Ladakh, north-west India (www.himalayan-homestays.com). Here, participating families are trained to provide traditional accommodation and food in their villages for tourists, linked to local culture, trekking and wildlife, with payments made directly to the villagers. A similar approach is being developed in conservancies in Tajikistan, as noted above.

Developing trophy hunting in the project region

Trophy hunting operations in the region are currently run principally as commercial operations, though this does not preclude some of them from contributing positively to biodiversity conservation, and indeed some existing concessions fulfil a positive conservation role; for example Schaller (2005) considered the Murgab concession in the Eastern Pamir of Tajikistan to be an excellent model.

The situation overall is less than ideal and areas where improvements are needed were admirably summarized by Rosen (2012): Hunting licences are not assigned to specific areas, concessions are assigned over the short-term, there is inadequate control by official agencies, corruption may affect the pricing of permits, sharing of revenues with local people/communities is inadequate, and local hunters have no rights to hunt. The allocation of hunting concessions for a 15-year period included in the proposed new hunting regulations in Kyrgyzstan will address that issue, if the new law is approved.

However hunting legislation rarely sets out specific obligations to conserve species or habitat, to control poaching or overgrazing within the concession, nor to report on these activities. The concession holders should be assigned long-term access and management rights to motivate them to manage the species in a sustainable manner and invest in anti-poaching and other conservation measures. They must also be provided with the authority to exclude illegal users.

Evaluating whether harvest quotas in the project region are set at an appropriate level is difficult without access to reliable census and monitoring data that show the sex/age composition of hunted populations, thus enabling an informed judgement of whether the offtake is 'low' in terms of the number of trophy animals available. Anecdotal data from many sources suggests that this is indeed the case in parts of the Tajik Pamir, but the decline in Argali trophy sizes reported in Kyrgyzstan (Rosen, 2012, referred to above) indicates the opposite may apply there. Determining whether this is the case is a priority, through analysis of the existing data and development of a scientifically based monitoring programme to collect the detailed data needed at national and local levels. Until this question is resolved, it would be prudent to set quotas in a precautionary manner

Generalising quotas across a whole country may produce results at too coarse a scale and it is important that the actual allocation of licences (i.e. the share of the quota) to individual concessions should take into account local availability of trophy animals. If individual concession areas were taken into account at this stage in the process, it would encourage managers to maintain as many trophy age animals as possible, and further reinforce the need for long-term allocation of hunting leases in order to motivate managers to plan and implement effective conservation measures.

Some benefits may accrue to local communities from existing programmes through payment for goods and services but few data are available to evaluate the benefits. This is another element lacking in most national legislation.

Avoidance of predator control is included in all good practice guidelines and is a fundamental aspect of wildlife management that aims to conserve entire, dynamic and fully-functioning ecosystems. This aim conflicts with the widespread persecution of Wolves within the region. This occurs inside and outside hunting concessions, and even in protected areas and is regularly justified as protecting wild ungulates. The hostile attitude to the Wolf is deep-seated and will take time and effort to overcome, but it is essential that a holistic attitude towards conservation and species management is taken.

Developing community-based programmes

Developing all forms of CBNRM – trophy hunting and tourism – is recommended for long-term sustainability but the concept is still new to many parts of the region, and the socio-political background is not always sympathetic. The conservancies that have been established in Tajikistan (McCarthy, 2013, Michel, 2010b, S. Michel, *in litt.* to TRAFFIC, Aug 2013) are at a relatively early stage but represent very promising developments in community-based hunting and tourism and they can serve as models for further developments in the country and the region. However, they still face several challenges: the legal framework is weak and the government is not so far committed to the assignment of hunting areas to community based organizations for the long term. Exemptions on land tax may be needed because taxing them as pastures imposes high costs for areas primarily managed for conservation purposes and encourages domestic livestock grazing which causes forage competition (Michel, 2010b). Devolution of administrative responsibilities to local level in Kyrgyzstan provides the potential basis for local management of resources there.

Conservancies have the option of hunting non-CITES species, such as game birds, Wild Boar *Sus scrofa* and Ibex *Capra sibirica*, which is often sought by foreign trophy hunters, is widespread in the region and is classified as Least Concern on the IUCN Red List (Reading & Shank, 2008) at a preliminary stage, or as a supplement to high-profile species, such as Argali. Alternative options include partnering with established hunting and tourism interests and international NGOs to gain experience and build capacity, and /or requiring commercial concessions to enter into partnerships with local communities.

Lack of political will, legal barriers and lack of organizational capacity of the communities hinder the development of community-based trophy hunting schemes in most countries (Rosen, 2012). A legal basis giving local users the right to manage and use natural resources, and clear legislation that enables community conservancy organisation are needed. New conservancies may require funding to start up, advertise and begin operations; training in monitoring, quota-setting, and working with international hunting and tourism companies. To be successful, conservancies will also have to be allocated land with adequate numbers of desirable trophy species, a requirement that may need careful negotiation between existing concessions, hunting associations and government agencies. Some opposition by established commercial interests who already hold concession rights to the most favourable areas might be expected.

Species Management

The range- or region-wide species strategies developed for Saiga and Bukhara Deer provide excellent frameworks for conservation action by all partners and stakeholders, and the CMS Argali Single

Species Action Plan (Roettger & Singh, in prep) promises to continue this, but implementation will largely take place at range state level because legislation, implementing agencies, budgets, and protected area networks function primarily at that level. Therefore national action plans are needed, linked to NBSAP priorities, as appropriate.

Poaching and Illegal Trade

Poaching remains a major threat and rigorous enforcement of existing laws is urgently needed. This in turn requires a major effort of political will on the part of national governments, to make wildlife protection a national priority, to ensure that VIPs and military personnel cannot flout regulations, and to greatly increase the resourcing of inspectors and protected area staff to allow them to carry out patrols effectively and regularly. Training in the wildlife laws and identification where needed for law enforcement and Customs officers should be provided where necessary.

Monitoring and Quota-setting

Reliable data on population size, trends and demographic structure are essential in determining sustainable harvests and quotas. Monitoring of numbers, the proportions of adult males and females and reproductive success (measured as the number of young per 100 adult females) are essential for all forms of conservation planning. An essential parameter where a selective trophy harvest is concerned is the number of males in different age classes, and above all the number of trophy-age animals in the population.

Obtaining these data demands a lot of effort because mountain ungulates are difficult to census accurately due to logistical constraints, the relatively limited visibility in rugged terrain and the frequently clumped distribution which together tend to result in extrapolations with wide confidence intervals. Several techniques available including block counts, total counts, point counts, minimum counts and distance sampling. The double observer method was described recently (Suryawanshi *et al.* 2012). Singh and Milner-Gulland (2011) reviewed monitoring methodologies for ungulates in Central Asia.

Accurate identification of the different age classes in the field is essential as well as agreement on what constitutes a trophy age male, based on horn length; e.g. the system described by Schaller (1977) for Argali and Ibex. Rangers and others who conduct the monitoring should be trained in the appropriate survey technique, completing recording forms and use of GPS and should be provided with adequate optical equipment (binoculars and telescopes). Liaison between national monitoring teams is needed where transboundary movements take place, for example in the Pamir Argali population.

All the research evidence (see section on **the contribution of trophy hunting to species conservation and management** above) indicates that quotas should be set in a conservative, precautionary manner as a small proportion of the number of trophy-age males available, to minimize any detrimental effects of their removal on the population (although this consideration may conflict with commercial objectives focused on maximizing revenue). Quotas should be reviewed annually and revised as appropriate based on results of monitoring, as part of an adaptive management framework. Without strict rules and a transparent process, the allocation of concession areas and licences and the setting of quotas are open to abuse, such as nepotism, cronyism and corruption, at several levels.

The integrity of quota systems should be assured through the issuing of self-locking tags and unique ID numbers for trophy specimens and the presence of hunting inspectors during hunts to monitor adherence to licence conditions. It is very important to ensure full compliance by all Parties with CITES reporting requirements for the species listed on the Appendices.

Governance

It is clear from the above that a number of conditions need to be met for effective management of the resource, ensuring the sustainability of trophy hunting and the equitable sharing of benefits all depend heavily on good governance. Indeed, Harris *et al.* (2013) assert that “*Local governance regimes are the primary determinant of whether a trophy hunting programme generates a net conservation benefit*”.

The situation in the region was summed up thus by Rosen (2012) “*A key problem is the underlying legal framework that lacks clear regulation and often provides contradictory legal and regulatory mechanisms for the allocation of hunting areas, setting and distribution of quotas and transparent allocation of proceeds from the sale of the hunting permits, opening the way to corruption and unsustainable use*”.

Failures or weaknesses of governance that adversely affected trophy hunting have been reported for Mongolia (Amgalanbaatar *et al.*, 2002; Zakharaneka, 2008), China (Harris & Pletscher 2004; Harris, 2008), Africa (Lindsey, 2008; Loveridge *et al.*, 2009) and more generally (Leader-Williams *et al.*, 2009; Harris *et al.*, 2013). Most hunting clients are concerned that their hunt is conducted in a ‘conservation-friendly’ manner and prefer to select hunting operators who are committed to best practice (Lindsey *et al.*, 2007). The principal areas of concern that apply both to the region and more widely are:

- Without strict rules and a transparent process, the allocation of concession areas and licences and the setting of quotas are open to abuse, such as nepotism, cronyism and corruption, at several levels. Commercial interests, notably a desire for short-term profit, may oppose conservative harvest levels and threaten the sustainability of the resource.
- Leases for hunting concessions may be short, thus reducing the willingness of operators to invest in anti-poaching or species management activities and encourage unsustainable harvests. In most countries, the required contributions of concession area leaseholders to anti-poaching and community development are vague and poorly enforced.
- Quotas and licenses may be exceeded unofficially, especially where regulation is hampered by remote and difficult terrain and under-resourcing of State inspection services. The same factor of under-resourcing and weak law enforcement provide inadequate controls on poaching, undermining the quota system and threatening the viability of the resource.
- There are no legal requirements to invest trophy hunting revenues into conservation or to share them with the local communities within hunting areas. From the point of view of CBNRM, most countries lack a legislative basis that explicitly devolves rights to natural resources to local level and some cases even enabling community conservancy organisation. Both these factors inhibit the development of conservancy-based hunting programmes.

CONCLUSIONS AND RECOMMENDATIONS

Trophy hunting in the region is somewhat patchy in both geographical and species coverage. Most of the existing operations are commercially based, especially in regard to Argali and relatively few benefits reach local communities. Community-based hunting initiatives are in their infancy. Those that have been established represent a promising start and provide a basis for future development, but nonetheless there remains a long way to go before community-based resource management comprises a significant component of trophy hunting in the region.

It has been shown, for example in Pakistan and some African countries, that trophy hunting can operate sustainably and deliver significant revenues as well as social and conservation benefits. These same examples also demonstrate that attaining these benefits is contingent on a clear legislative framework, following sound biological principles, and ensuring full local participation. Good governance is fundamental and significant shortcomings in this regard within the region were discussed above.

Several sets of recommended requirements have been produced for the management of trophy hunting operations in an effective and sustainable way (Secretariat of the Convention on Biological Diversity, 2003; Brainerd, 2007; Baldus, 2008; IUCN, 2012; Shackleton, 2002). It is strongly recommended that these principles are incorporated into programmes in the region, either during the process of improving existing programmes, or when initiating new programmes. Details on these guidelines can be sought from several sources, including the IUCN/SSC Caprinae Specialist Group, IUCN Sustainable Use and Livelihoods Specialist Group and CIC.

1. General principles

- a. Trophy hunting operations should be designed and implemented to deliver a net conservation benefit;
- b. Trophy hunting operations should ensure an equitable sharing of revenues between operators, government conservation agencies and local communities and revenues should flow directly to local communities;
- c. Trophy hunting operations should be managed within an adaptive management framework and adjusted on the basis of regular monitoring and feedback;
- d. Local communities should be granted access to the hunting resource (whether for meat or trophies) to incentivise them to refrain from poaching.

2. Legislation

- a. National laws on hunting and wildlife should be rationalized where necessary to ensure clarity and remove any overlap in jurisdiction between government agencies;
- b. The legal basis for community conservancies, and their rights to manage and utilise natural resources, including wildlife, should be established;
- c. The regulations on hunting of Red Data Book species should be reviewed to match local circumstances (e.g. where carrying capacity is exceeded at individual sites, or where a non-detriment finding can be clearly demonstrated);
- d. Implementation of the various CMS instruments largely take place at range State level therefore, national action plans should be developed for their implementation (preferably linked to NBSAP priorities) to ensure appropriate resources and an enabling legal environment.

3. Monitoring

- a. Those involved in monitoring (government agencies, protected area managers, hunting associations, scientific researchers, NGOs) should collectively agree on a standardized survey methodology appropriate to each species, firstly at national level, and preferably regionally, to ensure consistency. A good example is the

method and field forms used for mountain ungulates in Kyrgyzstan and Tajikistan developed under the GIZ project);

- b. As above, there should be agreement on national and region-wide criteria for determining trophy-size males, appropriate to each species, based on horn size and building on existing examples (e.g. Schaller 1997 for mountain ungulates);
- c. Range countries should develop national population monitoring strategies covering sites, duration and timing to ensure comparability from year-to-year and set up national databases to hold census and monitoring results and track population trends of key species;
- d. For all transboundary populations, joint surveys and monitoring should be conducted either through existing projects (e.g. Altai-Sayan) or multilateral initiatives (such as under the CMS Argali SSAP) or by developing new initiatives;
- e. It is recommended that professional wildlife biologists (independent from government agencies and hunting concessions) participate in surveys and monitoring and / or reviews of population data collected;
- f. It is also recommended that rangers and others who conduct the monitoring be trained in the appropriate survey technique, completing recording forms and use of GPS and be provided with adequate optical equipment (binoculars and telescopes); the accurate identification of the different age classes in the field is equally essential;
- g. In Kyrgyzstan, recent data on Argali should be analysed to evaluate reported declines in the number of trophy size animals and quotas adjusted as appropriate.

4. Quotas and licensing

- a. It is recommended that government procedures to set quotas and allocate licences are fully transparent;
- b. Quotas should be established at a conservative level, as a small proportion of the available trophy size males, taking into account site-level as well as national data, based on the best available scientific information;
- c. Quotas should be reviewed annually and revised as appropriate based on results of monitoring, as part of an adaptive management framework.

5. Concession management

- a. Governments should ensure that the process of allocating concessions is competitive and transparent;
- b. Concession leases should be allocated on a long term basis (e.g. 10 year minimum), linked to performance-based positive and negative indicators to incentivise managers to invest in anti-poaching and other conservation measures;
- c. Appropriate shares of the government licence fee should be allocated to local community development, wildlife agencies and monitoring compliance;
- d. There should be no negative effects on threatened predator species within and around concession areas;
- e. Minimum requirements for anti-poaching measures should be included in concession agreements and these should be enforced;

- f. The adoption of a standard procedure of issuing metal, self-locking tags is recommended in order to ensure compliance with licences and quotas;
- g. Government agencies should comply fully with reporting on CITES-listed trophy species;
- h. Developing common standards and practices within national hunting associations is recommended;
- i. Concession boundaries should be strictly adhered to, especially those bordering Protected Areas;
- j. There should be no encroachment into Protected Areas or driving of trophy animals out of them to be hunted;
- k. Existing laws should be rigorously enforced to combat poaching. Training in the wildlife laws and identification for law enforcement and Customs officers should be provided where necessary

6. CBNRM

- a. Governments should define a legal basis for the establishment and operation of community conservancies and their right to manage land and natural resources for hunting and/or tourism and to receive benefits from such use;
- b. Communities should be empowered to control poaching and exclude unauthorized users of the resource;
- c. Assistance and training should be provided to conservancies where needed, in population monitoring, organizing hunts, negotiating with hunting operators, etc. (as provided in Tajikistan by Nature Protection Team and Panthera);
- d. New conservancies should be allocated land with adequate numbers of desirable trophy species – a requirement that may need careful negotiation between existing concessions, hunting associations and government agencies;
- e. New conservancies may also require funding to start up, advertise and begin operations; training in monitoring, quota-setting, and working with international hunting and tourism companies.
- f. It is recommended that conservancies are exempted from land taxes because taxing them as pastures imposes high costs for areas primarily managed for conservation purposes and encourages domestic livestock grazing which causes forage competition;
- g. The development of all forms of CBNRM – trophy hunting and tourism – is recommended.

7. Taxonomy and nomenclature

- a. Rationalising taxonomy and nomenclature issues, in particular for Bukhara Deer, Argali and Urial between CITES and CMS would be required to clarify the listing of the (sub)species.

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APPENDIX

CITES AND OTHER INTERNATIONAL AGREEMENTS

CITES is an international agreement between governments that entered into force in 1975. The aim of CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. It accords varying degrees of protection to more than 30 000 species of animals and plants.

CITES works by subjecting international trade in specimens of selected species to certain controls. All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a licensing system. Each Party to the Convention must designate one or more Management Authorities in charge of administering that licensing system and one or more Scientific Authorities to advise them on the effects of trade on the status of the species. The species covered by CITES are listed in three Appendices, according to the level of protection they need. At the time of writing, there are 178 Parties to the Convention (CITES, 2013).

Appendix I includes species threatened with extinction and trade in specimens of these species is permitted only in exceptional circumstances. Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival. Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade. CITES provides for the authorization of trade of trophies in certain specimens of Appendix I-listed taxa for personal use (Res. Conf. 2.11 (rev. CoP 9)). CITES has adopted a series of Resolutions for certain Appendix I-listed species subject to trophy hunting, e.g.: Res. Conf. 10.15 (rev. CoP 14) on Markhor *Capra falconeri*.

CITES is an international agreement to which States adhere voluntarily. States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties. Although CITES is legally binding on the Parties – meaning they have to implement the Convention – it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level. A specimen of a CITES-listed species may be imported into or exported (or re-exported) from a State party to the Convention only if the appropriate document has been obtained and presented for clearance at the port of entry or exit. CITES contains special provisions for hunting trophies, based on the view that well-managed trophy hunting programmes can benefit biodiversity conservation. The trade in trophies is subject to less strict permit requirements than for other specimens listed in the same CITES Appendix.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS, or the Bonn Convention) is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme (UNEP). CMS aims to conserve terrestrial, aquatic and avian migratory species throughout their range. There were 119 Parties (range State members) on 1 April 2013.

Migratory species threatened with extinction are listed in Appendix I of CMS and migratory species that need or would significantly benefit from international co-operation are listed in Appendix II. The Convention encourages range States to conclude global or regional Agreements. In this respect, CMS acts as a framework Convention. Agreements may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding. The decision-making organ of the Convention is the Conference of the Parties (COP), which meets at three-yearly intervals. A Standing Committee provides policy and administrative guidance between the regular meetings of the COP. A Scientific Council consisting of experts appointed by individual member

States and by the COP provides advice on technical and scientific matters. The Scientific Council meets between COP sessions to offer scientific advice and identify research and conservation priorities. Within the region, CMS MoUs have been developed for Bukhara Deer *Cervus elaphus bactrianus*, and Saiga Antelope *Saiga tatarica*. Some raptors are included in the Birds of Prey of Africa and Eurasia MoU. A Central Eurasian Aridland Concerted Action and associated cooperative action was adopted at the Ninth CoP in Rome, 1-5 May 2008.

Argali was listed in CMS Appendix II at the 10th CMS Conference of the Parties (CoP10) as a result of a proposal submitted by Tajikistan and Kazakhstan that noted their Near Threatened status and the need for transboundary conservation. A workshop to develop a CMS Single Species Action Plan for Argali was held in Bishkek, Kyrgyzstan, in November 2012 and the draft is in preparation.

All five project countries have signed CBD. All countries are Parties to CITES, except Tajikistan (which has begun the accession process) and are signatories to CMS, except Kyrgyzstan, which is in the process of becoming a signatory and Russia, which has however signed one or more CMS MoUs (**Table 2**).

Table 2.**Project countries and international environmental conventions**

	KG	KZ	RU	TJ	UZ
CBD	√	√	√	√	√
CITES	√	√	√	*	√
CMS	*	√	**	√	√
*accession process started					
** not a signatory, but has signed MoUs					

Notes: KG – Kyrgyzstan, KZ – Kazakhstan, RU – Russia, TJ – Tajikistan, UZ – Uzbekistan

CBD - Convention on Biological Diversity, CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora, CMS – Convention on Migratory Species

HUNTING AND CITES-LISTED SPECIES IN THE REGION

The principal trophy hunting species are ungulates and Brown Bear *Ursus arctos*. Among the ungulates, Argali *Ovis ammon* fetches the highest trophy fee of any species in the project region. **Table 3** summarises the trophy hunting species and their status on the IUCN Red List and in the CITES and CMS Appendices. A brief description of current, recent and potential trophy species in the region follows.

Table 3.

The principal trophy hunting and potential trophy (sub-)species, their IUCN Red List status, CITES listing, CMS status, occurrence in the project countries and current availability for hunting (YES/NO)

(Sub-)Species		IUCN Red List	CITES App.	CMS App.	KZ	KG	RU	TJ	UZ
Argali	<i>Ovis ammon</i>	NT	II ¹	II	YES	YES	NO	YES	NO ²
	<i>O. a. nigrimontana</i>	-	I	-	NO				
Urrial	<i>Ovis orientalis</i>	VU	II ³	-				YES	NO
Markhor	<i>Capra falconeri</i>	EN	I	-				NO	NO ²
Saiga	<i>Saiga tatarica</i>	CR	II	II	NO		NO		NO
Bukhara Deer	<i>Cervus elaphus bactrianus</i>	LC (as <i>Cervus elaphus</i>)	II	I ⁴	YES			NO	NO
Musk Deer	<i>Moschus moschiferus</i>	VU	II	-	YES		YES		
Wolf	<i>Canis lupus</i>	LC	II	-	YES	YES	YES	YES	YES
Brown Bear	<i>Ursus arctos</i>	LC	II	-	YES ⁵		YES		
Tien Shan Brown Bear	<i>U. a. isabellinus</i>	-	I	-	NO	NO		YES	NO
Snow Leopard	<i>Panthera uncia</i>	EN	I	I	NO	NO	NO	NO	NO
Eurasian Lynx	<i>Lynx lynx</i>	LC	II	-	NO	NO	YES	NO	NO

(Sub-)Species		IUCN Red List	CITES App.	CMS App.	KZ	KG	RU	TJ	UZ
Houbara Bustard	<i>Chlamydotis undulata</i>	VU	I	II ⁴	YES		NO		YES
¹ Severtzov's Argali listed as <i>Ovis vignei severtzovi</i> ² except under special licence ³ Listed under <i>Ovis vignei</i> ; one regional population may be <i>O. v. vignei</i> (App. I) – see text ⁴ as <i>Cervus e. yarkandensis</i> ⁵ Except <i>Ursus a. isabellinus</i> ⁶ Asian populations (others are on App. I)									

Notes: grey cell indicates non-occurrence

Abbreviations: CITES – Convention on International Trade in Wild Fauna and Flora, CMS – Convention on Migratory Species, CR – Critically Endangered, EN – Endangered, KG – Kyrgyzstan, KZ – Kazakhstan, LC – Least Concern, RU – Russia, TJ – Tajikistan, UZ – Uzbekistan, VU – Vulnerable

Argali *Ovis ammon*

Argali are distributed across the mountains of Central Asia, the Qinghai-Tibet Plateau, Mongolia and northern China, and occur widely in all five project countries (Fedosenko & Blank 2005). Many subspecies have been named, based mainly on horn morphology and coat colour. Nine subspecies are usually recognized (Shackleton and Lovari, 1997, Harris and Reading, 2008) but there is no overall agreement on taxonomy or the number of valid subspecies. At least six of the nine subspecies occur in the region:

Altai Argali *O. a. ammon* occurs in the Altai Mountains of Kazakhstan and Russia - Chikhachev Range, Tsagan-Shibetu and Mongun-Tayga ranges in Tuva Republic and Saylyugem Range and Ukok Plateau in Altai Republic (Weinberg *et al.*, 1997, Paltsyn, 2001). Kazakhstan Argali *O. a. collium* occurs in north-eastern Kazakhstan in the Kazakhskiy Melkosopochniki, south to the mountains on the northern side of Lake Balkhash and east to the Tarbagatay range on the border with China (Weinberg *et al.* 1997). Tien Shan Argali *O. a. karelini* is quite widely distributed across the Tian Shan Mountains in Kazakhstan, Kyrgyzstan and China (Fedosenko and Blank 2005, Harris and Reading 2008). Kara Tau Argali *O. a. nigrimontana* is restricted to the Kara Tau Mountains of Kazakhstan. Its habitat has decreased with the expansion of agriculture, encroachment by livestock herders and permanent settlements, especially in the adjacent steppe and piedmont (Delorme 2002). The population in the south-east of the range reportedly consists of hybrids with *O. a. karelini* (www.ca.net). Marco Polo Sheep *O. a. polii* occurs in the eastern Pamirs; most of its range lies in Tajikistan, extending into south-eastern Kyrgyzstan, adjoining parts of north-eastern Afghanistan (Wakhan), China (Taxkorgan) and extreme northern Pakistan (Fedosenko and Blank, 2005, Harris and Reading, 2008, Schaller and Kang, 2008). The boundary between *polii* and *karelini* in Kyrgyzstan is unclear and a hybrid zone was noted by Subbotin *et al.* (2007). Severtzov's Sheep (argali) *Ovis a. severtzovi* formerly had a wide distribution in Uzbekistan from the north-eastern Pamiro-Alay mountains through to the low mountains of the Kyzylkum Desert. Today, most animals are restricted to the higher mountains of Nuratau, primarily within Nuratinski Strictly Protected Area, north of Samarkand (Harris and Reading, 2008, Aizin, 2009). In Kyrgyzstan it occurs in a small part of the Turkestan Range between the Sokh and Isfana rivers (Vorobeev and van der Ven, 2003) and near Batken close to the border with Tajikistan (Davletbakov, 2012). This form was formerly considered to be an Urial but is now agreed to be an Argali by most authors (Bunch *et al.*, 1998, Wilson and Reeder, 2005; Fedosenko and Blank, 2005, Harris and Reading, 2008).

Rare specimens of another subspecies, *O. a. hodgsoni*, have been reported among *O. a. polii* in the Eastern Pamirs (A. Bekmurodov, Murgab hunting company, pers. comm. to D. Mallon, 2009); and at least one was shot there and the mounted head is on display in the company office (pers. obs.). It is

unclear whether this was a very atypical form of *polii* or an animal dispersing from the Qinghai-Tibet Plateau.

Argali is classified as a species as Near Threatened on the IUCN Red List (Harris & Reading, 2008); no subspecies are now assessed separately. One regional form of argali *O. a. nigrimontana* is listed in CITES Appendix I, as is *O. a. hodgsoni*, and the others in Appendix II. Severtzov's Argali is listed as *O. vignei severtzovi* (in App. II). Argali is listed in Appendix II of CMS.

The different listings have some implications for CITES compliance, since regulation and enforcement depend on accurate identification of the horns of individual trophy specimens and it is not clear if horns can be unequivocally differentiated in all cases. A hybrid zone between *polii* and *karelini* was identified in Kyrgyzstan by Subbotin *et al.* (2007) and specimens of both types, as well as a third, unidentified form have been obtained in Sarychat-Ertash NR, Kyrgyzstan (A.P. Vereshagin, Deputy Director, pers. comm. to D. Mallon, 2012). Some forms are morphologically distinguishable but Harris and Reading (2008) suggest that genetic research may show that variation in Argali is clinal.

Argali are the most sought-after, and most expensive, trophy in the region; Marco Polo Sheep bears the longest horns.

Urial *Ovis orientalis O. vignei*

Urial are a more desert-adapted wild sheep and smaller than Argali. Urial are distributed from north-west India, through Pakistan, Afghanistan, Iran and Central Asia to Turkey and the southern Caucasus (Shackleton, 1997, Valdez, 2008a). The IUCN Red List refers to Urial as *O. orientalis* and classifies it as Vulnerable, based on a reduction in population size (Valdez, 2008a). Eight subspecies are listed: *O. o. arkal* is distributed in Kazakhstan and Uzbekistan and *O. o. bocharensis* in south-east Uzbekistan and southern Tajikistan. Both are included in Appendix II of CITES, as *O. vignei arkal* and *O. v. bocharensis*. Some Urial occurring in the south-west Pamirs of Tajikistan may in fact be *O. o. vignei* (Shackleton, 1997). If confirmed, that population would be listed in CITES Appendix I (as *O. v. vignei*). The taxonomy and distribution of Urials in Tajikistan was discussed in detail by Michel (2010). Some trophy hunting of Urial took place in Kazakhstan and Uzbekistan during the 1990s but not currently. In Tajikistan some Urial trophy hunting has taken place since the 1990s and is on-going (S. Michel, *in litt.* to TRAFFIC, Aug 2013).

Markhor *Capra falconeri*

Markhor currently occur in a few fragmented populations in Afghanistan, India, Pakistan, Tajikistan and Uzbekistan. Several subspecies have been named. Three subspecies are included in the IUCN Red List account but are not assessed separately; the species as a whole is classified as Endangered based on small population size and a continuing decline (Valdez 2008b). Markhor is listed in CITES App. I.

Within the project region, small populations of Markhor *C. f. heptneri* are found in southern Tajikistan and the Kugitang mountains of south-east Uzbekistan (Shackleton 1997, Azimov 2009). Hunting of this species is not permitted at present in Tajikistan or Uzbekistan. The distinctively shaped horns of male Markhor represent a desirable trophy and command a very high fee from international trophy hunters in Pakistan areas where limited hunting is permitted and up to 12 CITES permits are issued per year (Res. Conf. 10.15 (rev. CoP 14)).

Bukhara Deer *Cervus elaphus bactrianus*

Bukhara Deer is an endemic form of Red Deer inhabiting riverine woods and thickets in Kazakhstan, Tajikistan and Uzbekistan. It occurs in Tigrovaya Balka State Reserve in Tajikistan and sites in Kazakhstan, and Uzbekistan where it has been reintroduced as part of a project coordinated by the

WWF-Central Asia programme (UNEP/CMS, 2002). Bukhara Deer is listed in CITES Appendix II and in CMS Appendix I (as *C. e. yarkandensis*). A CMS MoU 'Concerning Conservation and Restoration of Bukhara Deer' came into effect in 2002 and was signed by Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan, the CMS Secretariat, WWF and CIC (UNEP/CMS, 2002).

There are currently only two sites in the region (both reintroduced populations) where trophy hunting on Bukhara Deer is theoretically possible: Karachingil State Hunting Reserve in Kazakhstan (belonging to the administration of the President and with a very strict regulation) and Badai-tugai in Uzbekistan (now home to more than 500 deer, the while carrying capacity of the site is 200-250) but overcoming legal regulations is very complicated (O. Pereladova, *in litt.* to D. Mallon, 2013). Bukhara Deer has rather light antlers usually with no crown and these can be easily distinguished from the antlers of other forms of Red Deer in the region (O. Pereladova, *in litt.* 2013).

Saiga *Saiga tatarica*

Saiga formerly occurred in very large numbers (> 1 000 000) across the steppes of Eurasia and they were subject to a legal harvest for their horns and meat. Uncontrolled hunting since 1991 caused a severe population crash and an estimated 85-90% reduction in numbers (Milner-Gulland *et al.*, 2003). As a consequence it was reassessed as Critically Endangered on the IUCN Red List (latest assessment in 2008). Saiga are listed in Appendix II of both CITES and CMS. A CMS MoU has been signed by all range States and conservation action is coordinated through an associated Medium-Tem International Work Programme (UNEP/CMS 2011). The goal of the MoU is to restore numbers to a level where sustainable use again becomes possible. While this will no doubt again focus on the harvest for meat and the horns of the males, some trophy hunting may also take place and the species remains on the list of hunting species in Kazakhstan. There are currently four Saiga populations within the region. Following imposition of concerted conservation measures, Saiga numbers have been increasing. Numbers in the largest population, Betpak-Dala have increased in the last few years, but the other populations have declined or remained stable. The total population in Kazakhstan according to aerial surveys in early 2013 is estimated at c.137 000 (Yu. Grachev, Institute of Zoology, pers. comm. to D. Mallon, 2013). The increase in number is driven by a growth in largest population in Betpak-Dala, but the populations in Ustyurt and in Russia are still declining.

Musk Deer *Moschus moschiferus*

Within the region, this species of Musk Deer occurs across Siberia and adjoining areas of Russia, their distribution extending into the Altai mountains of Kazakhstan. Several other species are distributed in China and the Himalayan region. All species are heavily poached and traded for the valuable musk. TRAFFIC has produced two detailed reviews of this trade (Homes 1999, 2004).

In Russia, Musk deer are classified as hunting species and are hunted under licence, but the regulations vary regionally between different administrative levels (*oblasts*, *krais* and republics). Some areas issue harvest quotas for musk deer and prohibit hunting of the species (Homes, 2004).

Due to the high level of international trade in musk deer parts and products, all musk deer *Moschus* spp. were included in the CITES Appendices in 1979. Populations in the project region are listed in Appendix II and the other populations in Appendix I (Homes, 2008). Furthermore, all musk deer species were included in the CITES Review of Significant Trade in 1991 and 1993 and again in 2000 and the 11th meeting of the Conference of the Parties to CITES (CoP11) in April 2000, adopted **Resolution Conf. 11.7 - Conservation of and Trade in Musk Deer**, which urges all CITES Parties to "take immediate action in order to reduce demonstrably the illegal trade in musk" (Homes, 2008). From 2000-2010, 20 663 Musk Deer were harvested legally in Russia, an average of 2066 per year (Table 4).

Table 4.**Musk Deer *Moschus moschiferus* harvest in Russia 2000-2010¹**

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Population Size	125 000	126 900	120 400	116 930	121 380	121 240	124 400	125 660	132 390	137 070
Reported Harvest	2237	2125	1748	1629	1327	1223	1539	1458	3142	4235

Source: Federal State Enterprise Centre for Control and Analysis of Information on Hunting Animals and their Habitats (Tsentrkhokontrol).

Brown Bear *Ursus arctos*

Brown Bears have a widespread distribution across Eurasia and North America and they are found in all five project countries. Listed as Least Concern on the IUCN Red List (McLellan *et al.*, 2008). Most bears in Central Asia are *U. a. isabellinus* which is included in Appendix I of CITES, with the other populations occurring in Russia and the Altai mountains of Kazakhstan in Appendix II. In Russia, 38 236 Brown Bears were harvested 2000-2010 (3823 per year on average) (Table 5) and 14 from Kazakhstan during the same period (Anon, 2013). A small quota (10) may be issued annually in Tajikistan. Some of these have been offered to foreign hunters (S. Michel, *in litt.* to TRAFFIC, Aug 2013) but no trophy exports have been registered with CITES. The illegal harvest may equal or exceed the legal harvest and is apparently occurring in the Russian Far East, where Brown Bears are poached for the commercial trade in gall bladders and paws (McLellan *et al.*, 2008).

Table 5.**Brown Bear *Ursus arctos* harvest in Russia 2000-2010**

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Population size	133 490	135 700	136 570	148 490	159 420	159 950	164 050	168 830	179 660	182 990
Reported harvest	3310	3620	3781	4364	3740	3070	3733	3891	4512	4215

Source: Federal State Enterprise Centre for Control and Analysis of Information on Hunting Animals and their Habitats (Tsentrkhokontrol).

Wolf *Canis lupus*

The Wolf is distributed throughout the project countries, is common in places, and is widely regarded as vermin owing to its predation on domestic livestock. It can be hunted (shot and trapped) legally in all project countries. There are no harvest limits or quotas in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. Quotas are issued in Russia, but Wolves can be shot or trapped outside the hunting season for vermin control, under special permits. Trophy fees for foreign hunters are typically very low (e.g. USD 500) and Wolves are usually offered to trophy hunters as a “side-product” when hunting another trophy species. It is listed as Least Concern on the IUCN Red List and in App. II of CITES. However the EU prohibits import of Wolf trophy specimens from Tajikistan³ and until recently Kyrgyzstan⁴. In Russia, 85 927 were harvested in 2000-2009 (no figure available for 2006-2007) (Table 6).

³ <http://www.unep-wcmc-apps.org/eu/taxonomy/CountryResults.cfm?Country=TJ&SearchType=ECImportRestrictions&CFID=50219065&CFTOKEN=84457673> (viewed on 11 Sept 2013)

⁴ <http://www.unep-wcmc-apps.org/eu/taxonomy/CountryResults.cfm?Country=KG&SearchType=ECImportRestrictions&CFID=50219065&CFTOKEN=84457673> (viewed on 11 Sept 2013)

Table 6.
Wolf *Canis lupus* harvest in Russia 2000-2010

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Population size	45 680	45 100	44 890	45 480	43 030	42 990	44 980	44 500	48 720	49 650
Reported harvest	13 588	12 530	13 080	13 090	10 951	10 150	NA	5991	7047	NA

Source: Federal State Enterprise Centre for Control and Analysis of Information on Hunting Animals and their Habitats (Tsentrokhotkontrol)

Notes: NA – Not Available

Snow Leopard *Panthera uncia*

Snow Leopards are distributed across the mountains of Central and South Asia from the Himalaya north to southern Siberia. They occur in all the five project countries. Snow Leopards are classified as Endangered on the IUCN Red List and they are included in Appendix I of CITES and of CMS. No hunting of Snow Leopards is permitted anywhere within their global range. O’Gara (1988) proposed allowing trophy hunts of Snow Leopard in Mongolia, but the proposal was not taken up following widespread objections from international conservation organizations.

The Snow Leopard is a high-profile, charismatic species that receives a significant amount of conservation attention. The Snow Leopard Survival Strategy (McCarthy & Chapron, 2003, Mallon, 2007) is currently being updated, with publication planned by October 2013. The government of Kyrgyzstan has organized a Global Snow Leopard Forum (GSLF) in Bishkek, in collaboration with the World Bank and other partners in October 2013. All project countries have developed national Snow Leopard action plans that are at varying stages of endorsement and implementation. National Snow Leopard conservation priorities are also being refined as part of the GSLF World Bank initiative.

Eurasian Lynx *Lynx lynx*

Lynx are distributed widely across Eurasia and occur in all the project countries but only Russia issues an annual hunting quota. In 2000-2010, 2839 were harvested in Russia of which 167 trophies were exported, mostly to the EU (138 items; 82.6%, **Table 7**). Lynx is listed as Least Concern on the IUCN Red List and in App. II of CITES.

Table 7.
Eurasian Lynx *Lynx lynx* harvest in Russia 2000-2010¹

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Population size	25 680	24 790	24 930	24 900	23 340	23 960	21 830	21 240	22 120	20 710
Reported harvest	420	344	370	380	388	86	73	170	278	340

Source: Federal State Enterprise Centre for Control and Analysis of Information on Hunting Animals and their Habitats (Tsentrokhotkontrol)

Houbara Bustard *Chlamydotis undulata*

Houbara Bustards breed in the arid steppe and semi-desert zones of Kazakhstan and Uzbekistan and in very small numbers in the Altay region of Russia (Ubsu-Nuur depression). Hunting Houbara with falcons is a very popular traditional pastime in Arabia and elsewhere. Houbara are heavily hunted and poached on their migration routes and wintering grounds. Between 1998 and 2002, the abundance and density of Houbara Bustards in Kazakhstan declined by 60% and 49%, respectively

(Tourenq *et al.*, 2005). The number of Central Asian Houbara Bustards now wintering in the Arabian Peninsula has declined, very likely as the result of decades of unregulated off-take and severe habitat degradation in Arabia (Combreau *et al.*, 2011).

In response, The International Fund for Houbara Conservation (IFHC) was established in Abu Dhabi in 2006 to restore and sustain the wild Houbara Bustard population within the UAE. IFHC has expanded to become a leading organisation in promoting Houbara Bustard conservation throughout its range, funding a wide-ranging programme of scientific research on the species and establishing captive breeding centres in UAE, Morocco and Kazakhstan. Work began in 2008 on the Sheikh Khalifa Houbara Breeding Center near Shymkent in southern Kazakhstan to breed and monitor Houbara Bustard with a production target of 5000–10 000 Houbara Bustard chicks per year. The centre is not yet working at full capacity, but has a foundation stock of 740 birds (www.houbarafund.org). Another breeding centre has been established in Uzbekistan.

Private Houbara Bustard hunting areas for Arab falconers have been established in Kazakhstan and Uzbekistan, but details of their extent and of harvest levels are hazy. Houbara Bustard is listed in CITES Appendix I and CMS App. II. No 'trophies' are recorded in trade, but according to anecdotal information, traditionally whole birds are exported to be presented as gifts and the extent of controls at private sites is unclear.

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

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