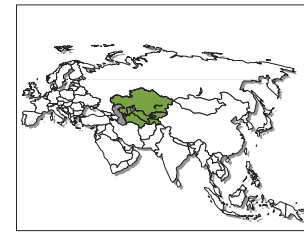
CONSERVATION AND USE OF WILD UNGULATES IN CENTRAL ASIA – POTENTIALS AND CHALLENGES



Stefan Michel
Nature Protection Team, Tajikistan

Abstract. Central Asia inhabits a rich fauna of wild ungulates providing a high potential for sustainable use. During the last hundred years the region faced a considerable loss of population numbers and distribution ranges. Conservation efforts are usually focusing on protected areas and rarely consider potentials of wild ungulates for sustainable land-use. Trophy hunting in exceptional cases contributes to conservation, but more often relies on protected areas and encourages poaching by local people not benefiting from revenues of hunting programmes. Many species are under threat due to uncontrolled hunting and habitat degradation. Well managed utilization schemes could provide a significant potential for rehabilitation and sustainable use of wild ungulate species and their habitats. Requirements for sustainability of utilization are: understanding of ecological background, monitoring of populations and trends, recognition and adequate involvement of local people, transparency and independent control. National efforts in this direction are supported by international state and non-governmental organizations.

Keywords: Former Soviet Union, Central Asia, wild ungulates, conservation, sustainable land-use, trophy hunting

Introduction

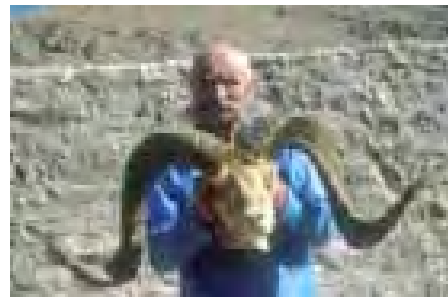
For the purpose of this article the states located east of the Caspian Sea and south of Siberia, i.e. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan are summarized as Central Asia. Despite considerable differences in their political systems, the countries have much in common in terms of culture and land-use, and share many aspects in pre-Soviet history and Soviet legacy. Thus it seems justified referring to the region as a whole in this brief overview.

Central Asia is a region which has been deprived of much of its populations of larger animal species as well as of entire ecosystem types at an immense rate before and during the Soviet era and immediately after. Where nowadays the city of Tashkent spreads, Turan tigers *(Panthera tigris virgata)* were still roaming in gallery forests stalking numerous wild boar *(Sus scrofa)* and Bukhara red deer *(Cervus elaphus bactrianus)*, just a bit more than one hundred years ago. Since then, in the entire valleys of the Amudarya, Syrdarya and other rivers gallery forests have been excessively clear cut with subsequent development into farmland and pastures. The last Turan tiger was killed in the 1950s. Bukhara deer subsist only in few fragmented forest parcels. Lately the deer population reached critical levels of only few hundred animals and could only be preserved by intensive conservation efforts, including captive breeding. Even wild boar, a problem species in many parts of the world, is largely extinct and the remnant populations are too low for being effectively utilized.

Large sections of steppe and semi-desert areas, once home for large herbivores as Asian wild ass *(Equus hemionus kulan)*, goitered gazelle *(Gazella subgutturosa)*, saiga antelope (*Saiga tatarica tatarica*) and probably wild horse *(Equus ferus przewalskii)* have been cultivated as arable lands. Most of the remaining drylands were equipped with watering points for intensive livestock production. Land-use intensification and relentless commercial hunting and poaching have caused the almost complete extinction of the

mentioned herbivores in the lowlands. The Asian wild ass subsists only in few reserves, in several of them recently reintroduced. The saiga antelope population numbers collapsed from more than one million heads in the 1970s to a few thousand. The goitred gazelle survives only in the most remote desert areas, by far in too low numbers to provide a prey basis for the Asian cheetah, which seems now to be extinct in the entire region.

The mountain ranges of Central Asia (Tien Shan, Pamiro-Alai, the Pamirs, Kopetdagh and some smaller ranges) and the Central Kazakhstan hill country are home for several *Caprinae* species like local varieties of argali *(Ovis ammon)*, urial *(Ovis orienalis)*, markhor *(Capra falconeri)* and ibex *(Capra sibirica)*. These wild sheep and goat once have been abundant and widespread as petroglyphes (rock drawings), historical travel narratives and even recent reports suggest. Nowadays even the Siberian ibex, still the most widespread and abundant species is missing from large mountain areas of its former home range and may even be difficult to observe inside protected areas. The other capra species, the markhor, subsists only in fragmented small populations. The distribution areas of the different subspecies of wild sheep (urials and argalis) became extremely fragmented as well. At least two subspecies, the Bukhara urial *(Ovis orientalis bocharensis)* and the Karatau argali *(Ovis ammon nigrimontana)* are under acute threat of extinction. The other subspecies' populations are reported to subsist at a stable but low level at best, or rapidly declining in the worst case.



Local hunter with the skull of an argali from the Kyzylkum desert, an area where nowadays hardly any argali could be found. (Photo: Henry Mix)

Despite this depressing situation wild ungulates in Central Asia could still account for potentially a high economic contribution to sustainable land-use, especially in arid drylands and many mountain regions if remaining populations would be managed well and given time to recover. However, the fast loss of these species is usually only recognized and documented by a narrow circle of experts. Neither politicians nor the major stakeholders with an interest in the use of these species are aware of, or are flatly denying the acute risk of permanent depletion of these valuable resources. On the other hand, and equally concerning, many conservation efforts are concentrating on pure protection concerns and rarely consider the potential or actual economic value of these animals. Consequently, the ordinary citizens of the Central Asian republics perceive conservation as unnecessary "luxury". Conservation legislation is rarely enforced because of budget restraints. Additionally, the lack of effective access and benefit sharing regulations encourages local poachers as well as companies who market hunting rights to see game as nobody's property which should be taken before somebody else is doing so – another striking example of Hardin's "Tragedy of the Commons".

The intention of this article is to promote a focussed dialogue regarding the economic, social and ecological potentials and challenges for the long-term sustainable use of the Central Asian game species and the requirements of sustainable hunting systems. This dialogue could provide new approaches for sustainable

hunting in the republics in question, which may benefit local rural people and ensure the conservation of species, genetic diversity and optimal game population levels. Last but not least, the Convention on Biological Diversity, of which all the mentioned states are members says: *"Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations"*.

History of wildlife use and conservation

People in Central Asia used wildlife just as elsewhere in the world. Archaeological artefacts, in particular petroglyphes showing hunting scenes, provide evidence about the historical importance of hunting species like saiga, deer, ibex and wild sheep. Hunting is still considered an important cultural asset. Skulls of hunted animals are often displayed at holy sites (shrines) or at special places in the dwellings. While game was and is still often seen as an open access resource, freely available for everybody, traditional regulations and rules from centuries past indicate that concerns about the sustainability of hunting are not just a modern phenomenon. For instance people from Badakhshan (Tajikistan) reported about customary restrictions concerning hunting seasons, age and sex of hunted animals and take-off rates; they mention that responsibilities where clearly assigned within the rural communities and hunting areas of neighbouring villages clearly demarcated. Members of formerly nomadic communities, as the Kyrgyz of the Eastern Pamirs tell of traditional rules, concerning the number of animals one hunter was allowed to hunt. Nevertheless, even in pre-Soviet times unrestricted hunting caused already sharp declines of game populations. For example, the saiga antelope was almost extinct in the 1920s.

Soviet period conservation and game management are often referred to as success story. This is only partially true. The Soviet power installed a system of strictly protected reserves, the *zapovedniks* and managed to restore the almost extinct saiga populations by strict enforcement of a hunting ban. On the other hand, the excessive cultivation of virgin and even marginal lands without consideration of ecological costs and long term profitability at national economy level led to a dramatic habitat loss for wild ungulates. Moreover, the remaining ungulate populations were perceived as a resource to be exploited for the fulfilment of the production targets. Certainly, some scientists raised a voice of concern regarding the sustainability of such resource use, but decision makers were more concerned about the achievement of prescribed short term take-off quantity than long-term sustainability. Thus examples for overexploitation of game populations during Soviet times are numerous. The large-scale commercial saiga harvest was rather limited by availability of staff, time and ammunition than by officially set quotas and consequently repeatedly led to population collapses. One regional saiga population, the Kalmykian herd never recovered from that destruction. The extermination of goitered gazelles in the large desert areas of Turkmenistan, Uzbekistan, and Kazakhstan or the shrinking of populations of Marco Polo sheep *(Ovis ammon polii)* in the Pamirs were all caused by unrestricted commercial hunting. Despite these cases of state-organized overexploitation made worse by widespread poaching by local people, the prevailing strictly organized Soviet structure, secure basic livelihoods, severe restrictions on the possession of arms and ammunition and a functioning control system in the *zapovedniks* and game reserves ensured that most species enjoyed some minimum level of protection.

The situation worsened considerably during *perestroika* and the first years of independence of the Central Asian countries. Economic liberalization and the opening of boundaries for trade and people allowed the mass export of wildlife products, in particular saiga horns, and the selling of trophy hunts to foreign hunting tourists. State institutions in charge of wildlife conservation and game management were the principal perpetrators abetted by weakening enforcement of use restrictions. Moreover, local rural people suffering from a rapidly worsening household income situation and even the collapse of agricultural production structures (in particular

in Kazakhstan and Kyrgyzstan) showed little acceptance of any state-imposed restrictions on wildlife use. The collapse of the saiga populations in Kazakhstan was principally caused by a limitless take-off of saiga rams to export their horns. The slaughter was carried out by the state brigades in charge of saiga management and by country-wide operating commercial poacher syndicates and finished off by locals living in the range areas. In Tajikistan the civil war caused the local extinction of several game species as armed groups occupied protected areas as operational bases and the easy availability of firearms allowed the suffering rural people to satisfy their nutritional needs by hunting wild animals. After the civil war in Tajikistan, the weapons were collected by the government, yet the Pamirs, border troops who rarely received any significant monetary compensation often lent arms to shepherds to supply them with meat of Marco-Polo sheep. More often than not they supplemented their income by killing large rams and selling the horns to visiting trophy hunters.

An acute lack of public funding for protected areas, and protected area staff hampered conservation efforts during the first years of independence; conservation and wildlife management experts moved to better paid jobs or emigrated from the region; inadequate legal and institutional frameworks, widespread corruption and a general lawlessness worsened an already bad situation.

Nevertheless, a few courageous people achieved some considerable success, preventing much worse losses even under these trying conditions. Many protected areas could at least be formally maintained, in some cases even extended. Some new protected areas were established, most notably the Tajik National Park. While the existing, extended and newly established protected areas might be considered being just “paper parks” they provided and provide a basis for step by step improvement of conservation management. Despite certain limitations, like livestock grazing inside the protected areas, or poaching by park staff, they ensured at least some level of protection compared to open access areas. Internationally financed projects significantly contributed to the survival and extension of the protected areas systems. They assisted with the introduction of management principles which included the local rural population; they introduced new protected areas categories like the biosphere reserves and helped with the implementation of species-specific anti-poaching and rehabilitation activities.

The development of private hunting companies, usually based on the lease of hunting rights on defined hunting areas differed by character and impact. In many areas the emphasis was being put on short term exploitation, sometimes even factoring in the utilization of game populations of adjacent protected areas. A prominent example is the establishment of a markhor hunting area on parts of the Surkhan *zapovednik* in Uzbekistan. In other cases there was not even the pretext of setting land aside for hunting reserves and hunting just took place at the borders or even inside protected areas. The circumstances under which international trophy hunting was done, combined with the lack of adequate benefit sharing mechanisms for the locals, encouraged local men, who felt disenfranchised from their game resources, to resort to widespread poaching. On the other hand, there are examples of hunting companies, for instance in the Tajik Pamirs, who invested quite successfully in the protection of the game populations, provided attractive employment opportunities for local people and contributed in some extent to public budgets. The sustainability of such hunting companies was and is often at risk by the geographically limited areas at their disposal, the short duration of leasing contracts, insufficient monitoring and wildlife management at population level and intense poaching in the areas surrounding the hunting leases.

Wildlife use and conservation at present

Many of the above stated challenges still remain despite of national efforts and international assistance to the Central Asian countries. Except of some comparably small species-specific projects (on saiga, Bukhara deer, snow leopard), most activities of internationally supported projects certainly were specifically justified by the conservation needs of endangered species, but were in planning and implementation based on broader

approaches of protected areas development, livelihoods improvement and environmental awareness creation. These approaches without doubt are justified and necessary, but with limited resources, those species acutely endangered by direct persecution and habitat degradation often disappeared from the focus of attention. Targeted monitoring activities on population dynamics and take-off were rarely implemented. Thus these larger international conservation projects' impact on endangered ungulate species and the improvements of the game management systems achieved by those projects seem to be low or are at least difficult to evaluate.

Conservation efforts by national institutions and international conservation bodies are often linked to pure preservation and rarely take the potential or actual economic value of game animals into account. Strictly protected areas (*zapovedniks*) or other seriously restricting preservation measures are the preferred methods for the protection of threatened species. The low effectiveness of these methods and even potential adverse effects, e.g., underpaid zapovednik staff becoming poachers, are rarely considered. On the other hand, efforts concerning the sustainable use of game species are more often than not strongly opposed.

Working partnerships between hunting companies and service providers and scientists hardly go beyond the formal setting of quotas by the appointed management institutions. Moreover, quotas are often based on doubtful data as systematic monitoring was almost impossible during the last 15 years and survey techniques are frequently antiquated and not founded on contemporary scientific standards. Recent wildlife surveys are lacking or are limited in extent and time. Thus the population numbers for important game species are based on extrapolations from outdated data and subjective interpretations.

In some marginal rural areas the utilization of wildlife resources still plays a considerable role in local livelihoods. This is in particular the case in the Eastern Pamirs of Tajikistan where the Marco Polo sheep is one of the primary meat sources; to a lesser extent in vast semi-desert and steppe areas in Kazakhstan where goitered gazelle and saiga are hunted on subsistence basis; and in many other regions where wildlife contributes at least partially to the food basket or is used for income creation. The current policies and legal frameworks consider nature resources as state-owned and neglect the interests of local people and their need to use these resources. There is hardly any legal access right for local people to wildlife resources and only an extremely limited share of the economic revenues coming from their utilization by outsiders reaches local levels. Quite often, stakeholders from government and from hunting companies see any wildlife use by local people as illegitimate competition.

In Soviet times, Kazakhstan had an institution for wildlife exploitation and management, the *okhotzooprom*. With the collapse of the saiga population, at least partly caused by the same institution, the country lost an important resource basis. Less than two decades ago the saiga and other ungulates held a high economic importance for sustainable land management; now this potential is widely forgotten. However, recently the government of Kazakhstan implemented a "*Program for Conservation and Restoration of Rare and Extinct Ungulate Animal Species and Saiga (2005-2007)*". While official numbers suggest a slight recovery of the saiga populations, there is still reason for concern. Despite significant efforts in terms of creation and extension of protected areas, increasing inspection staff numbers and salaries, poaching (subsistence, commercial and by rich sport hunters) is rampant, in particular on the Ustyurt population. New infrastructure projects like gas and oil pipelines cause disruption of migration routes and monitoring data are unreliable, and may even be politically biased. While the saiga receives much attention, other species are even more under pressure. This concerns the goitred gazelle as well as the wild sheep subspecies Karaganda Argali *(Ovis ammon collium)* in the low mountains and in the Kazakhstan hill country. The situation is hardly under control. An effective involvement of local people in protection, management and utilization of ungulate species is so far not under consideration and state based approaches are clearly preferred.

In comparison to other Central Asian countries Kyrgyzstan has transferred more decision making authority to local communities. A new and more inclusive approach to conservation has been introduced in the Issyk

Kul biosphere reserve. However, so far no sustainable management systems for wild ungulates are in place and protected areas have limited and poorly paid staff. A number of private hunting areas have been established, but the limited size of these areas, insufficient managerial capacity and other shortages prevent them from becoming an instrument of sustainable management of wildlife. Reportedly, staff of hunting areas is often involved in year round poaching activities, with game species getting a rare period of relative peace only during the official hunting season when international hunters are present.

Tajikistan's wildlife resources have been heavily affected during the years of civil war and economic crisis when arms were abundant and when many people under absence of alternatives had to rely for survival on natural resources. In some areas Marco Polo sheep and ibex are still important sources of meat for individual consumption and the local market although authorities are making efforts to prevent poaching by confiscating of firearms, establishment and enforcement of protected areas. Marco Polo trophy hunting is regulated by demarcated concession areas which can be leased for a number of years and the issuance of a limited number of Marco Polo licenses for these areas. Some of these hunting areas, but not all, have quite effective protection systems, well paid and motivated staff. The license fees are shared by the central and local governments providing at least some potential for direct local benefits. However, local communities complain about not getting a share of the incomes from the licenses. Additionally there seems to be an illegal market for trophy hunts, in particular for Heptner's markhor.

Turkmenistan modified the *zapovednik* system during the last years and provided local people with some access to the resources of the formerly strictly protected areas. It seems that poaching was tolerated in a great extent. The Asian wild ass (kulan) population of the Badghyz reserve declined from estimated 4,000-5,000 in 1993 to few hundreds after 2000 with one subpopulation going extinct. The situation of wild sheep and goitered gazelles is probably worse.

The many problems of the early transition period are still manifest in Uzbekistan. Poaching is widespread, even inside protected areas. Sale of game meat at markets is normal, in particular of saiga in the Autonomous Republic of Karakalpakstan. Effectively managed hunting areas are the rare exception. Hunting tourism relies on formally protected *zapovedniks* and their immediate vicinity. Especially critical is the purchase of trophies of endangered species from enclosures. These trophies can be imported to the home countries of the hunters as captive bred animals while the real origin remains in the dark. A breeding centre for goitered gazelles maintains a sustainable population but so far could not fulfil its original purpose of rehabilitating the wild population. Instead of releasing surplus animals into the wild, trophy specimens from the breeding centre are marketed to hunters and zoos. A rare success story is the rehabilitation of the Bukhara deer population in one reserve and its surroundings with intensive assistance by a WWF-supported project. The development of any sustainable use of wild ungulates in Uzbekistan first requires a significant improvement of the conservation management system for the rehabilitation of the target species' populations, including the institutional setting and managerial capacity, monitoring schemes, effective protection, and benefit sharing mechanisms for ensuring of support by the local people.

Potentials and risks for the sustainable use of wild ungulate populations

The described situation will most likely reduce any expectations about sustainable use of wild ungulates in Central Asia. Ungulate numbers are considerably below the optimal levels and in many case even these low numbers are declining. In areas, where large and increasing numbers of people put pressure on small and shrinking ungulate populations and their habitats, these species are at risk being exterminated within few years. Under the current conditions sustainable take-off rates remain low and the contemplation of consumptive forms of wildlife use must be based on sound ecological assessments and include integrated as well as independent control mechanisms.

However, this alarming picture should not distract from contemplating the potentials of wise use of wild ungulates. If the limiting anthropogenic factors are removed ungulate populations are able to recover in remarkably short time frames. The reproductive ecology of the ungulates in Central Asia is adapted to harsh environment; and natural fluctuations due to drought or *dzhut* (long lasting snow and ice cover of the fodder grounds) are part of the natural system and are quickly compensated for.

On the other hand, it is necessary to consider that many ungulates have only survived in habitats outside the optimum range of these species. Land-use changes, competition of livestock and poaching have forced wild sheep and goats to use only the most inaccessible mountain areas where harsh conditions prevail. The saiga has lost parts of the former home range due to land cultivation and wild asses suffer especially at the watering points from livestock competition and poaching. Anthropogenic induced factors over and above a naturally harsh environment significantly increase the mortality rate and reduce the actual reproduction potential of the concerned species. The flexibility and fast adaptation of the game species, however, would allow the mitigation of limiting factors. Where poaching is effectively controlled and hunting is regulated to cause only minimal disturbance, wild ungulates could quickly learn to coexist with other land-use forms.

Rehabilitation and sustainable use of wild ungulate populations can provide a land-use option which avoids land degradation often caused by intensive livestock grazing and tillage. Wild ungulates are much better adapted to the ecosystems than domestic livestock. Their important ecosystem functions include the spreading of the seeds of plant species over wide areas the redistribution of nutrients through their manure.

The Servertov's argali, the smallest argali subspecies occurs in the hottest part of the argali range area. The need for shelter makes them vulnerable to deforestation and competition with livestock. (Photo: Richard Reading)

The potential of native wildlife for sustainable land-use is high, especially where arable agriculture and/or livestock breeding are costly, risky and/or unsustainable. In the dry steppe zone harvests from rainfed agriculture are hardly predictable and often failing due to inter-annual variations of rainfall. In these landscapes saiga (*Saiga tatarica tatarica*) provide a viable alternative land-use opportunity with their high

adaptability to temporally and spatially varying forage availability and the avoidance of pasture degradation often caused by the less mobile domestic livestock. Similar potentials exist in hilly and mountainous areas where intensive livestock grazing often causes vegetation degradation and soil erosion. In most cases wildlife management and livestock herding are not necessarily mutually exclusive.

Central Asia's wild ungulates are already heavily under pressure by diverse poachers, habitat competition with livestock, and degradation of vegetation. Under these circumstances the promotion of their utilization may bear the risk of intensifying the exploitation and thus giving them the final blow for extinction. In Uzbekistan the sale of 3 to 7 Severtzov argali rams per year to foreign hunting tourists hardly effects the population officially estimated with around 1,500 individuals. But, despite of the hunts being under direct control of the state authority in charge of the core population in the Nuratau *zapovednik,* only negligible funds are reinvested into the protection system; and local people, bearing the restrictions on grazing in this area, do not receive any tangible share. De-motivated *zapovednik* wardens are the result and local people have a moral excuse for illegally grazing livestock in the area and for poaching. This example just illustrates one variant of the risks related to any kind of consumptive use of wildlife populations.

Principles and requirements for sustainable use programs

Prerequisites for any sustainable use of wild ungulates include sufficient ecological knowledge, healthy populations of target species, active conservation management, well-trained and dedicated staff, an adequate legal structure and minimal corruption.

Exploitation of wildlife populations requires a sufficient understanding of the ecology of the target species, its habitat and interactions with other species. Important variables include the factors limiting a population's size, sources of mortality, the age structure and growth rate of the population, key habitat resources and their locations, inter-specific relationships and major threats to the species' habitat. Sustainable use may begin before sufficient research concludes, but in such cases adaptive management approaches must be implemented by well trained and motivated staff

The most important prerequisite to a sustainable hunting program is the presence of at least one healthy population of the target species. This means that the population is at least large enough to sustain some level of harvest without causing the population to decline. In addition, the target population should exhibit a stable demographic structure. Before and during any hunting program periodic monitoring is necessary to provide reliable estimates of the size and composition of the target populations. Ongoing poaching has to be monitored and recognized. All hunter harvested game animals have to be thoroughly recorded by sex, age, trophy class, body condition, location of kill, etc.

Since hunting programs generate significant revenues, they are an obvious target for corrupt officials. As such, agencies that want to develop sustainable hunting programs should first demonstrate their commitment to good Governance, including the ability and willingness to find and prosecute corrupt staff members.

Last but not least, local rural people should be recognized as legitimate stakeholders and users of wildlife. This step, in combination with long term concession lease periods will create the incentives for local people and hunting companies to consider long term use options and thus stimulate sustainability of wildlife use. The assignment of secure user rights and/or a significant share of the proceeds from commercial hunting for local development needs should be linked to clear responsibilities of the beneficiaries and can thus stimulate good conservation management.

Hunting programs should include internal as well as external monitoring and control mechanisms based on defined principles, criteria and indicators of ecological sustainability, economic viability and social acceptance. They should support good governance and avoid biased decision making by defining administrative structures and responsibilities thus providing transparency for stakeholders and the public.

Ongoing efforts and perspectives

The recognition of the risk of irreversible loss of game species in the Central Asian countries is growing. Supported by the Convention on Migratory Species the range countries of the saiga started national and joint efforts for rehabilitation of the saiga populations and their sustainable use. The Central Asian Countries Initiative on Land Management (CACILM) promotes dialogue about needs and perspectives of combating desertification and achieving sustainable land management. Some of the Central Asian countries explicitly included wildlife management as sustainable land-use in their National Programming Framework.

Some domestic and foreign NGOs have started projects and programs targeted on wild ungulates. The largest program is the Altyn Dala Conservation Initiative, aiming at conservation of steppe ecosystems in Kazakhstan while focussing on the Betpakdala saiga population. The activities planned and implemented under responsibility of the Association for Conservation of Biodiversity of Kazakhstan and supported by Frankfurt Zoological Society, Royal Society for Protection of Birds and WWF concentrate on establishment of new protected areas and anti-poaching. The Tajik NGO Nature Protection Team with support of the Snow Leopard Conservancy and the Christensen Fund is implementing a project on community based conservation and use of biodiversity. These activities will be complemented by the involvement of an integrated expert provided to Nature Protection Team by the German Centre for Migration and Development (CIM), which will assist the development and implementation of activities focussing on sustainable management mountain ungulates in selected pilot areas in partnership with local communities, state institutions and scientists.

German development cooperation is currently considering and planning a regional project on sustainable nature resource management and conservation of biodiversity with a strong focus on wild ungulates. This project would be implemented by German Society for Technical Cooperation (GTZ) and will likely become the first larger project of international development cooperation which puts rehabilitation, conservation and use of wild ungulates populations in the centre of efforts for sustainable land-use and economic development of marginal areas in Central Asia.

Future efforts for conservation and sustainable management of Central Asia's wildlife should, in addition to the respective government bodies and national scientific institutions, involve in a concerted action of international hunting associations, IUCN species specialist groups, local hunt managers and service providers, representatives of local communities as well as the regulatory authorities of the main importing regions of trophies.