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СТРАТЕГИЯ и ПЛАН ДЕЙСТВИЙ
сохранения снежного барса в Узбекистане

STRATEGY and ACTION PLAN
for conservation of the Snow Leopard in Uzbekistan

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INTRODUCTION

Uzbekistan is located in central part of Central Asia and has boundaries with four other republics of former Soviet Union – Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, and also with Afghanistan on the south. Most of the territory of the republic is occupied by plains, and only on the east and south-east the mountain ridges of Pamir-Alai and Western Tien-Shan are situated. Mountains cover about ¼ of the area of republic, however, they play the basic role in life support of human population living in the mountains and in the plains. The mountain ecosystems of the region deliver major natural resources, including fresh water, foodstuffs, wood-fiber, timber, fire-wood, biological products. Many species of wild animals: mammals, birds and fish are traditionally used in domestic economy as objects of hunting and trapping. In mountains the hunt on mammals (ibex, wild boar, roe, fox, hare, badger) and on birds (mountain chukar, snow cock, partridges, etc) is usual. In recent decades trophy hunts have acquired special significance, especially with foreign hunters.

In Uzbekistan as well as in other countries of the region, many species of animals became threatened, have reduced their areas of distribution and numbers, and some of them have become extinct from the area of republic (Turanian Tiger, Cheetah) as a result of increased use of natural resources and agricultural and industrial development. The large species of mammals and birds that have a big practical value as hunting-game craft, and also endemic and locally distributed species occurring within vulnerable intensively developed ecosystems, are faced by the greatest threat. It is evident, that without acceptance of special legislative measures on conservation of some species of wild animals and their habitats, there will be a permanent direct threat to their survival. It is necessary to note, that the legislative base in the area of nature conservation is improved in republic step-by-step, as well as the international cooperation is increasing, awareness and concern of social communities in ecological questions is growing. From year to year the network of non-governmental environmental organizations gets stronger and actively cooperates with state nature protection agencies in questions of wildlife conservation and forming of ecological thinking at wide communities.

By signing of Convention on Conservation of Biological Diversity (CBD) (1995) Uzbekistan declared the responsibility for conservation of national biological resources in the face of international community. Further actions in this direction include the joining of Uzbekistan to other biological conventions such as CITES (Convention on international trade by endangered species of wild fauna and flora) and CMS or Bonn Convention (Convention on conservation of migratory species), in 1997 and 1998 accordingly. Besides, Uzbekistan participates in the preparation of new international agreements on the conservation of threatened species, including also the snow leopard.

Among the basic documents, deciding the policy of the state in the area of wildlife conservation, it is necessary to note the National Strategy and Action Plan on the conservation of biological diversity in Uzbekistan. The text of this document was approved by Chairman of Cabinet of Ministers of Uzbekistan Republic I.A. Karymov on April 1, 1998 (Resolution No 139). The publication of the Red book of rare and threatened animals of Uzbekistan (2003) was the next action towards conservation of biological diversity. It represents the state document, which can be used as the base for legislative protection of biological resources.

Biological diversity of the republic of Uzbekistan is protected within a protected area system represented by 9 strict nature reserves, 2 national parks, 9 special sanctuaries and 1 Ecological Center established for the restoration of threatened wild mammals in semi-captive conditions.

The mountain ecosystems have a huge ecological value and ensure regulation of many natural processes occurring in the country and in the region. In particular, the landscape zoning of mountain areas ensures a greater level of biological diversity, than on the plains. In many respects due to mountain areas Central Asia is one of world centers of the abundance of biological variety. Species diversity of flora and fauna in mountain regions and their abundance are in direct dependence on the state of ecosystems. The declining of ecosystems has led to a reduction in biodiversity. The number of threatened plant and animal species is growing in the mountains, and Snow Leopard belongs to such species. In mountains the processes of degradation such as deforestation and erosion, waste pollution of the environment and cutting of pastures

connected with human development of these territories accrue. Therefore large animals, such as snow leopard and its main prey species experience growing anthropogenic pressure.

Snow Leopards occupy a special place among the representatives of the unique fauna of high mountains. Biologists, frequently regard it as a key indicator of the status of Asian high-mountain ecosystems, as it is at the top of the food chain, requires vast areas living, move over significant distances and maintain their well-being only in pristine habitats. In those areas, where the Snow Leopard occurs in significant numbers, the natural environment can be evaluated as most safe and productive. Rocky landscapes with their thin soil make high-mountainous ecosystems the most fragile among other landscapes of the Earth. At the same time, watersheds have an important role in water conservation and, mountain watercourses feed the lower lands and foothills with dense human populations (SLIMS, 2001).

Snow Leopard (*Uncia uncia* Shreber, 1775) is included in the IUCN Red List with the status Endangered (EN). Snow Leopard is also included in many national Red Books of the range countries.. In the new version of the Red book of Uzbekistan (2003) Snow Leopard was assessed according to new IUCN Criteria, version 3.1.(2001) as Critically Endangered (CR) (species with declining numbers and narrow range close to extinct). Major factors in the global population decline of this cat is the wide development of mountain areas by human communities and associated poaching, resulting from the high demand for the skin, parts of the body and derivatives used in Chinese medicine; deterioration of food base and degradation of mountain habitats. Snow Leopard is also included in an Application 1 of CITES (Convention of International Trade in Endangered Species of Wild fauna and Flora) and Appendix 1 of CMS (Convention on Conservation of Migratory Species of Wild Animals). In Uzbekistan the edge of the species range is represented by boundary areas of two independent, unconnected groups – Tien-Shan and Pamir-Alai. Both populations occupy territories, which are developed as the result of extensive economic activity (Western Tien-Shan) and are under the control of frontier troops creating a new destabilizing factor.

World range of Snow Leopard encompasses Mongolian and Gobi Altai, Hangai, Tibet, Himalaya, Hindu Kush, Pamir, Tien-Shan, Djungarian Alatau, Tarbagatai, Saur, Southern Altai. These mountain areas include parts of the territories of 12 states: China, India, Pakistan, Nepal, Afghanistan, Mongolia, Bhutan, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan (Fig. 1). Under pressure of negative anthropogenic factors the Snow Leopard has vanished from many parts of its primal range. The area of the world range of the species was reduced from 3 million sq.km to 1.8 million and became fragmented in separate regions. In Central Asian region Snow Leopards are extinct in the mountains of Karatau range (Southern Kazakhstan) and the western extremity of Zeravshan range (Uzbekistan). Its number has been sharply reduced in Western Tien-Shan and in southwest of Pamir-Alai mountains.

The range in Uzbekistan represents the extreme western boundary of the Snow Leopard's area of occurrence, and the state of its core Tien-Shan and Pamir populations depends also on the status of boundary areas. The satisfactory status of the species in the peripheral parts of the range can be considered as indicator of well-being of population as a whole. At the same time, the peripheral nature of Snow Leopard distribution in Uzbekistan, as well as the influence of some negative factors cause a high degree of species vulnerability and dictate the necessity of taking urgent protective measures.. The formulation of a national Strategy of Snow Leopard conservation in Uzbekistan will allow some primary questions of species conservation to be solved and attract the attention of the environmental community to protection of this key mountain species. Sufficient experience on creation and realization of Conservation Strategies for threatened species has been accumulated. So, in 1996 the experts of the IUCN/SSC Cat Specialist Working Group elaborated the Status Survey and Conservation Action Plan for wild cats of the world (K. Nowell, P. Jackson, Wild Cats, 1996). The International Snow Leopard Trust (ISLT) together with experts from the range countries and international environmental organizations (IUCN, WWF, secretariats of CITES, CMS) elaborated the International Strategy of Snow Leopard Conservation (2003). Since the middle of 1990 some national strategies on conservation of large cats have been prepared: Strategy for conservation of Amur Tiger in Russia (1996), Strategy for conservation of the Far-east Leopard (1999), Snow Leopard Management Plan of Mongolia (2000), Strategic Plan for the Conservation of Snow Leopard in Pakistan (2001), Strategy for Conservation of the Snow Leopard in the Russian Federation (2002), Strategy for Conservation of the Snow Leopard in Nepal (2003). One tasks of national strategies and action plans is the clarification of problems of species survival in modern

conditions and development of main principles (philosophy) for resolving questions of species conservation, constructing of information network for gathering and sharing data on the status of populations of threatened species, and creation of a base for the permanent cooperation among all interested stakeholders.

The formulation of the present document was conducted in close cooperation with state and public organizations working in the field of biodiversity conservation, in open consultation processes with the zoologists studying the vertebrate animals in mountain areas of Uzbekistan.

The present document of the draft of Strategy is the version proposed for discussion within the framework of a Round Table held in Tashkent on December 10, 2003.

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1. BIOLOGY AND CURRENT STATUS OF SNOW LEOPARD

1.1. Taxonomy, field characteristics and mode of life

Taxonomic status

Snow Leopard or Irbis – *Uncia uncia* (Schreber, 1778) – is a large predator living in high mountains of Central Asia. It belongs to family of Cats – *Felidae* and it is the only representative of the genus *Uncia* Gray, 1854, which on a series of morphological attributes occupies an intermediate position between the large cats of the genus *Panthera* Oken, 1816 and small cats of the genus *Felis* Linnaeus, 1758.

Biological features

Snow Leopard is comparable on the size and appearance with leopard. On a series of craniological and ethological attributes it shows similarities with the small cats. Length of the body is 112-125 cm, tail – 92-105 cm, height at the withers is 60 cm, at sacrum – is 50 cm, mass of the body ranges from 33-40 kg in females, to 45-50 kg in males. Fur is very light, almost white with smoky tint. On the basic background are sparse of large ring-shaped and close set small black marks. The fur has a dense underlayer, a long, thick tail, wide pads with short toes and powerful pectoral muscles as adaptive attributes for life in severe climatic conditions of high mountains. The geographic variability of irbis is expressed very slightly, that reflects the relative homogeneity of conditions of habitats within all the species range.

Mode of life

Snow Leopard usually has a solitary mode of life. Sometimes there are groupings composed from 2-6, or more often 2-3 individuals. As a rule, all animals belong to one family. Irbis seeks shelter in a cave or crevice among a heap of rocks with good masking conditions. It is active predominantly at dawn and twilight, and in the day time it shelters in caves and crevices among rocks. Quite often it makes extensive movements during a day. The move is carried out predominantly along “routing lines” following relief – along river valleys, watershed ridges, foots of rocks. The tracks are divided into “hunting”, oriented along mountain ridges and playing the basic role of locating prey species, and “transit”, passing through apron plains, glaciers and moraines. Here animals, as a rule, do not hunt, and it is a zone serving to link separate groups and settling of Snow Leopard. The boundaries of an individual home range of irbis can encompass territory within the bounds of one river basin with fragmentary inclusion of adjoining apron plains (Koshkarev 1989).

Mating takes place in the period between the end of January and middle of March. In May – July the female gives birth to 1-5, and more often 2-3, cubs. Till to the age about one year the cubs do not part with the mother. At the age of 2-3 years young females can already start breeding, the males achieve puberty by 4 years of age. The maximal life expectancy in the wild is 12-13 years, in captivity it reaches 21 years (Blomqvist and Sten 1982, Wharton and Freeman 1988), though one case is known, when one female has lived for 28 years (“Strategy for Conservation of the Snow Leopard in the Russian Federation” 2002).

1.2. Typical habitats

Snow Leopard is an inhabitant of high mountains of Central Asia. Usually it occupies the upper zones of mountains from 3000m up to 4500m, preferring areas with strongly broken relief – rocky gorges, heaps of stones and outcrops of rocks alternating with small plateaus and apron plains with alpine vegetation, where the ibexes and mountain sheep – argali inhabit, and where there is a lot of suitable shelter. In the winter period the irbis makes vertical movements, following wild ungulates to the lower belts of the mountains. In Uzbekistan Snow Leopard usually does not come down below the zone of juniper forests – 2500-2800 m, but except for winters with heavy snow it can be found in lower zones of the mountains, than usually.

The conservation of vulnerable high-mountainous ecosystems is a base for the species survival.

1.3. Current status of the Snow Leopard in Uzbekistan

Distribution

In Uzbekistan the irbis occurs on Ugam, Pskem and Chatkal ranges of the Western Tien-Shan, and on Turkestan, Zeravshan and Hissar ranges of Pamir-Alai system. The area of occurrence of Snow Leopard in Uzbekistan is about 10 thousand km² that represents *no more than 0.5 % of the area of world range (Fig.1)*.

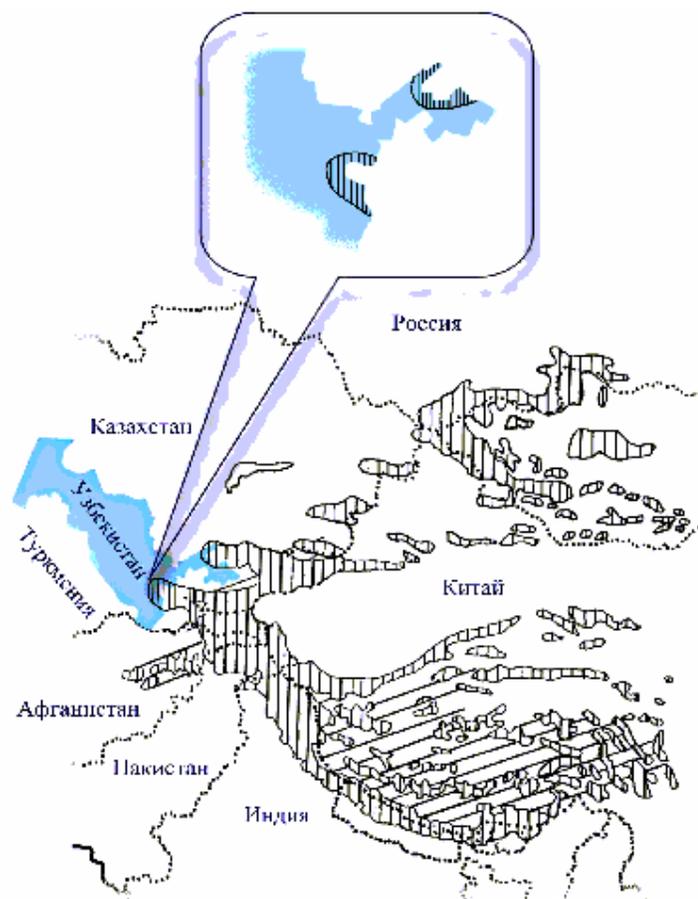


Figure 1. World range of Snow Leopard – interpretation of picture with accent on Uzbekistan on Distribution of the snow leopard (*U. uncia*) (K.Nowell, P.Jackson, Wild Cats, 1996)

Number

The global population of Snow Leopard is assessed at 4510 – 7350 individuals (K. Nowell, P. Jackson in Wild Cats, 1996). Its density is on average estimated from 0.8 individuals per 100 km² (Koshkarev 1989; Annenkov 1990 in Wild Cats 1996) up to 10 individuals per 100 km² (Jackson and Ahlborn 1989 in Wild Cats 1996). The data on the density of the Uzbekistan population is absent. In adjoining Kazakhstan the density of irbis was defined at 0.8 – 4.7 individuals per 100 km² (Koshkarev 1989 in Wild Cats 1996). In Uzbekistan the number of irbis by different estimations ranges from 30 up to 50 individuals, i.e. *less than 1 % of the world population*. In Western Tien-Shan by expert estimations it comprises 10-15 individuals, in Hissar-Alai – 20-30 individuals of Snow Leopard. The number of this predator varies seasonally, in connection with natural transboundary migrations.

1.4. Food

The natural preys of Snow Leopard are mountain ungulates, and less often rodents. *In Uzbekistan the basis of Snow Leopard food is made up of Siberian Ibex* (*Capra sibirica* Pallas, 1776). Less often the diet includes Wild Boar (*Sus scropha* L. 1758), and Siberian Roe (*Capreolus pygargus* (Pallas, 1771)). In summer time irbis hunts the Menzbier's Marmot (*Marmota menzbieri* (Kaschkarov, 1925) and Red or Long-tailed Marmot (*Marmota caudata* (Geoffroy, 1844).), Red Pika (*Ochotona rutila* (Severtzov, 1873) and tolai hare (*Lepus capensis* L., 1758). Chukar (*Alectoris chukar* (J.E. Gray, 1830) and Himalayan Snow Cock (*Tetraogallus himalayensis* G.R.Gray, 1843) also make up part of the diet of Snow Leopard.

Irbis as a rule attacks from shelter, quietly creeping up to prey. Snow Leopards make regular vertical movements following wild ungulates – during summer in the subalpine and alpine mountain belts, during winter – in the forest belt of mountains.

As numbers of natural prey fall, the Snow Leopard is forced to feed on domestic livestock – sheep, goats, less often foals and young large-horned cattle. In exceptional cases it attacks large livestock: adult horses, cows, donkeys. The attacks on domestic animals often take place in winter. The basic food competitors of Snow Leopard are the wolf and lynx.

1.5. Biological peculiarities most significant for species conservation

Features of biology and mode of life conducive to Snow Leopard Survival

- *The high mobility* of a species promotes movement and genetic interchange between individuals from different groups, and it allows them to move to more secure areas of habitat.
- Typical for all cats *secrecy and caution* also promote survival of irbis.
- *The inaccessibility of habitats*, conditioned by severe climatic conditions and sharply intercepted relief, provides natural security for Snow Leopard.
- *The opportunity of transferring onto other objects of prey* assists the species survival.

Features of biology and mode of life impedimental to Snow Leopard survival

- *Spatial conservatism*, i.e. constantly staying in the same places, increases the probability of Snow Leopard capture.
- *The high snow cover in winter*, strongly confines opportunities for movement of Snow Leopard, that constrain it to come down to the lower mountain belts, where it becomes more often the prey of hunters.
- Irbis *does not demonstrate great fear* in respect of man. When it meets with people, it does not hurry up and can be easily killed.
- Snow Leopard *does not exhibit aggression in relation to man*. The cases of an attack of Irbis on the man are practically unknown. Young snow leopards are easily tamed.
- Despite a rather miscellaneous diet of Snow Leopard *numbers are in close dependence on numbers of the basic prey – mountain ungulates, especially ibex*.

2. LIMITING FACTORS

2.1. Factors of direct impact

Illegal hunting

By an expert estimation not less than 10 individuals of Snow Leopard are killed annually in Uzbekistan.

- *Illegal hunting for selling of skin and other parts of the body of Snow Leopard*. The skin of snow leopard has demand, both on local, and in the international market. Its cost can range from 1000 to 3000 US dollars. The experts note that the world market of furs in recent years was strongly reduced because of measures taken to regulate trade in skins and promoting the rights of animals. At the same time demand for the body parts of the snow leopard, sustained by the markets of China and countries of Southeast Asia remains high. In traditional oriental medicine the parts of

the body of large predators are utilized widely as raw materials for preparation of medical products.

- *Live Capture.* In the Soviet period the greatest number of snow leopards for the keeping in captivity (for zoos) was taken from territory of Kyrgyzstan and Tajikistan. In Uzbekistan in connection with low number of this animal, its capture for this purpose did not take place. Now, in the republic snow leopard adults and cubs are illegally captured for sale and kept in private menageries.
- *Traditional hunting of Snow Leopard.* For a long time, in mountain regions the Snow Leopard is killed for the sake of its beautiful warm fur, and as the honorable trophy showing the prowess of the hunter. In the past the skin of Snow Leopard was prepared as a valuable fur. The prohibition on hunting of Snow Leopard and its inclusion in the Red data book of Uzbekistan was essential (indispensable), but insufficient to completely eliminate hunting of this predator. At present cases are known where the animal (irbis) was shot (killed) for the sake of sport and prestige of the hunter.
- *Killing by local people in revenge for the attacks of domestic livestock.* The belief that Snow Leopard strongly reduces the number of domestic cattle existed for a long time. In reality this belief is considerably exaggerated. Irbis attacks the domestic livestock, more often on medium-sized animals – goats and sheep, sometimes on large animals – horses, cows and donkeys. The majority of these cases, as a rule, are connected with the decline of wild ungulate numbers as a result of epidemics, overhunting, etc., that force the predator to choose other kinds of prey. Cases of attacks on livestock are more often in winter, when high snow cover makes hunting mountain ungulates more difficult. Many cases are known of herders killing snow leopards with sticks when defending livestock. ***Thus, the main cause of attacks of Snow Leopard on domestic animals is the decline of wild ungulate numbers. Very often such cases finish by killing of a predator (snow leopard).***

Decreasing of Snow Leopard numbers owing to diseases

This theme is not studied in Uzbekistan. In Mongolia cases of snow leopard illness by mange (rash) have been described (2003 Snow Leopard Survival Strategy). In Kazakhstan there was a case of a Snow Leopard with rabies (hydrophobia) (Heptner, Naumov, 1972).

2.2. Factors of indirect impact

Deterioration of food base

Perhaps more serious threat for the species survival is the decline of prey species, and first of all, the decrease in wild ungulate numbers – the main source of snow leopard food. The causes of species-prey decline of Snow Leopard are:

- *Decreasing numbers of prey species as a result of illegal hunting.* Poaching of mountain ungulates, marmots and other species is one of the causes of Snow Leopard population decline. Administration of limits for visiting boundary mountain areas, and prohibition on keeping and carrying rifled guns by civil citizens provide preconditions for stabilization and increase of wild ungulate numbers. However, the continuing lowering of living standards in mountain villages leads to the poaching by local inhabitants who hunt mountain ungulates for skins and meat, and marmots for fur, meat and healing fat.
- *Decreasing of numbers of prey specie as a result of overhunting.* There are known some cases, when the main causes of the decline of wild animal populations were overhunting. For example, in the end of 1980s in Western Tien-Shan the sharp increase in hunting of wild boar led to the decline of the numbers reproducing and a considerable decrease in its numbers. To the present, the Tien-Shan isolated population of wild boar has not been restored to the previous level. And although this species is a not a main prey for Snow Leopard, but the decline of this ecologically plastic species has shown that in the conditions of wrong management any species can be easily declining due to over-exploitation.
- *Decreasing of numbers of prey species in the result of diseases.* Periodically the populations of wild ungulates are stressed by transmissible diseases. For example, one of the reasons for a sharp decline in Siberian Ibex numbers, begun in 1970, was an epizootic of mange (rush) or sarcoptoze. Now this epizootic has finished.

- *Decreasing of numbers of prey species as a result of competition with domestic livestock for pastures.* Competition with domestic livestock for pastures leads to decreasing of numbers of wild ungulates, which are natural prey species of Snow Leopard. The consequence of this can be a decline in the number of Snow Leopards and a change of its food from wild animals to domestic livestock. The last fact leads to the conflict between the interests of local human populations in the mountains and irbis as wild predator. Often the solution to such conflicts is the killing of the snow leopard. In Uzbekistan the high-alpine meadows are utilized as seasonal pastures for cattle and livestock. At past up until the beginning of 1990 the mountain pastures were exploited by local herders, as well as shepherds from neighboring republics. At present owing to a worsened economic situation the number of domestic livestock on pastures has decreased. And only inhabitants (citizens) of Uzbekistan can use the pastures with special permits (card for pasture of cattle) which can be received from local forestry offices. On the card is shown the name of shepherd, type and number of grazed cattle and number of accompanying dogs.

2.3. Others

To other factors are such causes which influence on snow leopard directly or indirectly through influence on its prey species or habitats.

Degradation of habitats

Snow Leopards inhabit a rather narrow range of high-mountain ecosystems: subalpine and alpine meadows, rocks, snow places and glaciers. The state of irbis populations is connected closely with state of its habitats. Negative changes of the environmental conditions reflect on the survival of this predator and its prey. Worsening of quality and fragmentation of natural habitats are connected with development of mountain regions and the degree of use of the high-mountain ecosystems. Construction of new villages and expansion of existing mountain villages, paving roads, electrification, development of mountain slopes by agriculture (fruit trees, walnut, cereals, potatoes, tobaccos, etc.), and deforestation lead to a considerable degree to decline and decrease of the areas of natural habitats of wild animals, and make the preconditions for erosion of mountain slopes. Overgrazing of high-mountain meadows under pastures reduces the productivity of meadows substantially.

At present, in most areas of Snow Leopard occurrence this tendency still exists. However, in recent years in some places the influence of urbanization is reducing, because the inhabitants of some villages located closely to Snow Leopard habitats in boundary zones were moved to plains areas (close to Zaamin nature reserve and Hissar nature reserve, in the basin of Tupalang River), and anthropogenic disturbance has decreased in these regions.

Factors of disturbance

In the past the factors of disturbance were created by high level of visits to high-mountain areas by shepherds, collectors of medical plants, walnuts and fruits, hunters, tourists and pilgrims. At present, the factors of disturbance have declined as a result of the establishment of a frontier regime in the boundary mountain areas and a rise in prices of transport (automobiles, helicopters). However, the blasting operations conducted for discovering minerals create a high level of disturbance for wild animals (for example, the extraction of barium ore 2 km from Chatkal nature reserve, suspended in 2002). The military maneuvers, periodically conducted in some mountain regions (for instance, in Kashkadarya and Surkhandarya regions mountain areas) present a source of disturbance for wild animals and prevent the movements of wild animals by traditional migratory routes.

Influence of frontier-military regime on the populations of wild animals

Establishment of a frontier-military regime within Snow Leopard habitats, on one hand, creates favorable conditions for survival of populations of this predator and its prey through control and protection of the mountain areas. Toughening of control on keeping and using unregistered fire-arms led to a sharp decrease in their use. On other hand, the permanent presence in the mountain regions of military forces in itself causes disturbance to wild animals.

Human population growth and decline in living standards

About 10% of the population of Central Asia lives in the mountain regions. Growth of the human population in the region is extremely high and exceeds the rate of such growth in Europe by 2-3 times. As a consequence of an unfavorable economic situation in many mountain regions and escalating poverty the migration of inhabitants of mountain villages to towns and cities on the plains is observed. The human population of the mountain regions in Republic comes across many problems connected with survival in the period of the economy in transition, for example, such as remoteness, fragility of environmental resources, complicated climatic conditions. In the mountain regions the economic activity is limited. The growth of human population leads to the increase of permanent influence on the vulnerable ecosystems of high-mountains. The average family in a typical mountain village consists of 6-8 persons. The majority of people have a low subsistence wage. Besides that, in the mountain villages the level of unemployment is much higher than in the plains regions, especially among young people, therefore many villagers survive by exploiting natural resources and wildlife, first of all, collecting fire-wood, different kind of plants (medical, food, decorative – mostly for selling) and hunting and capture of wild animals.

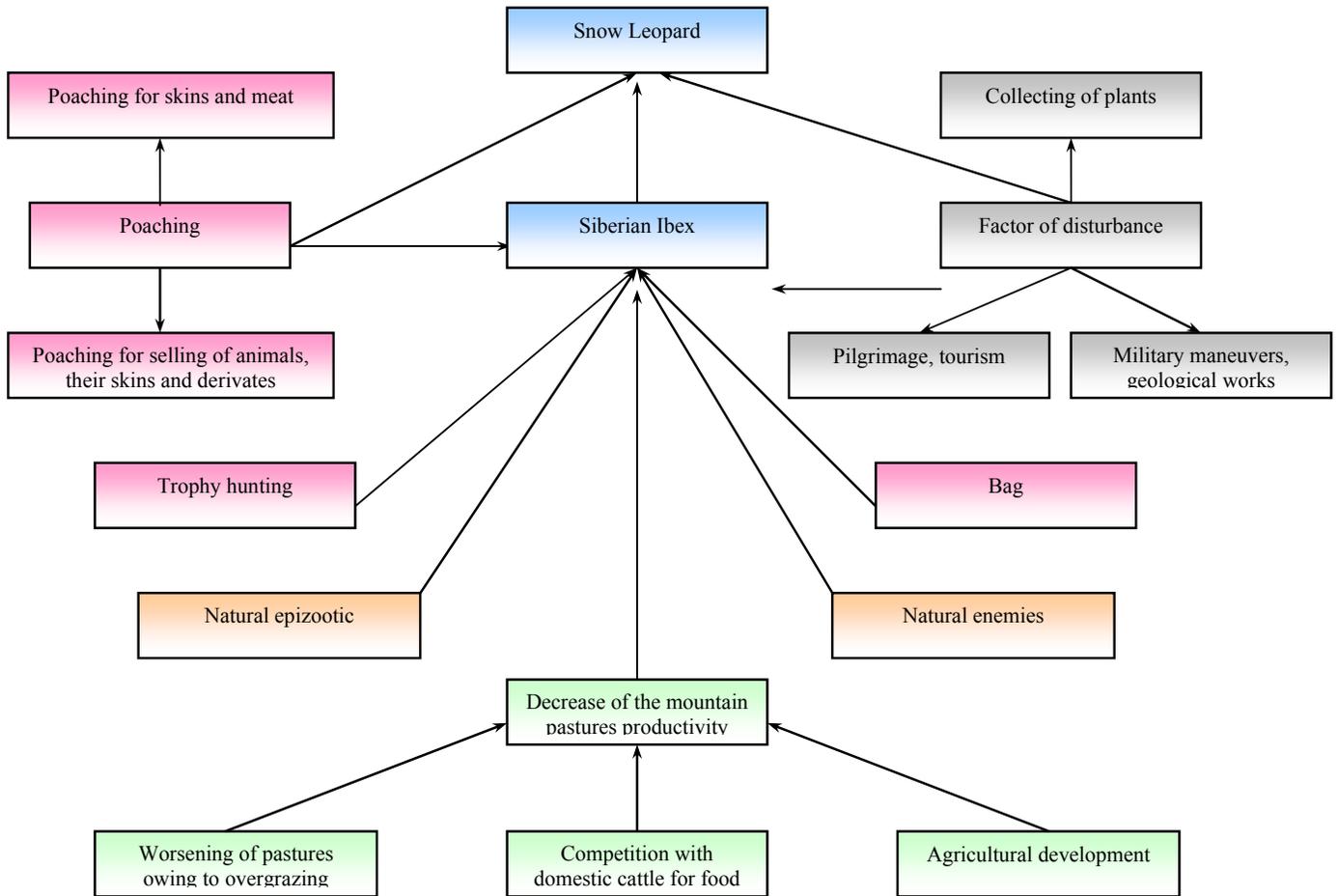


Figure 2. Factors limiting the numbers of Snow Leopard and its main prey – Siberian Ibex in Uzbekistan.

Climate change

The global warming of climate can lead to irreversible changes in the vulnerable mountain ecosystems, including areas of Snow Leopard habitats. In the Central Asian region the area of glaciers decreased by 19% during the last 30-35 years. Further decrease in the area of glaciers and eternal snows can result in the loss of some parts of Snow Leopard habitats.

Development of tourism and recreation activity in the mountains

Recreation activity in Uzbekistan is mostly concentrated in the mountain regions, where the numerous rest-houses and zones, sanatoria, forest cottages, scout camps and other campsites are located. Most well-known tourist activities of different categories of complexity are also represented in the mountain regions. Sport mountaineering and mountain climbing, mountain ski sport and orienteering, hang-gliding and para-gliding are present very widely in Tien-Shan and Pamir-Alai mountains. Water sports (rafting, canoeing) are also developing in mountain areas of the region. Recreational pressure on mountain regions continues to grow as a result of human population growth in cities and towns located nearby in the plain regions.

3. EXISTING CONSERVATION MEASURES

3.1. Legislative base for Snow Leopard Conservation

Inclusion of Snow Leopard in the Red Book of the Republic of Uzbekistan (1983, 2003) enabled special measures for the conservation of this species to be taken at the national level. The following environmental laws “About Nature Conservation” (1992), “About Special Protected Areas” (1993), “About Protection and Utilization (Use) of the Animals” (1997) and regulation of the Parliament of the Republic of Uzbekistan “About Reinforcement of the Conservation of Rare and Endangered Species of Plants and Animals and regulating of their Use” (1993) and Cabinet of Ministers [decree?] “About Measures on Reinforcement of the Conservation of Rare and Endangered Species of Plants and Animals and regulating of their Use” (1993) provide the legal basis for protection of threatened species included in the national Red Book. At present, the fine for poaching of Snow Leopard is 50 minimum salaries or 2 years imprisonment. However, cases of arrest of poachers are practically unknown, as a result of lack of enforcement of conservation measures and insufficient financing of ranger staff and protected areas wardens. It is necessary to improve not only legislation, but its implementation through economic and legal mechanisms.

3.2. Protected areas

In Uzbekistan Snow Leopard is protected on the territories of three strict nature reserves: Chatkal, Hissar and Zaamin, and two national parks: Ugam-Chatkal and Zaamin. All these protected areas cover approximately 65% of the total area of Snow Leopard occurrence in Uzbekistan. However, more probably, just within protected areas the density of snow leopard settlements is close to optimal and its numbers here are higher than on adjacent areas.

Strict nature reserves

CHATKAL BIOSPHERE strict nature reserve is located within the western spurs of Chatkal range (Western Tien-Shan mountain system) on the territories of Parkent and Bostanlyk districts of Tashkent region. Its area is 451.6 sq. km. The reserve consists of two parts: Bashkyzylsay and Maidantal located between altitudes from 1200 to 3800 m. This reserve is now under the leadership of Tashkent regional administration (“khokimiyat”). Not more than 2-3 individuals of Snow Leopard are estimated to inhabit the area of the reserve. The prey base for Snow Leopard in Chatkal reserve is made up of Siberian Ibex and Menzbier’s Marmot. It should be noted that Akbulak sanctuary formerly existed adjacent to the reserve in the basin Akbulak River but was closed when its designated term ended, and this worsened the situation for snow leopard protection in the reserve and adjacent territories.

HISSAR STATE nature reserve is located in Kashkadarya region of Uzbekistan within the western slopes of Hissar range at altitudes from 1750 to 4349m. The total area of reserve is 814.3 sq km. On the east and south-east the reserve borders the Surkhandarya region of Uzbekistan along the Hissar ridge, and on the north with Tajikistan. This is the biggest reserve in Uzbekistan. It was created in 1983 by connecting two independent mountain reserves – Miraki and Kyzylsu. At present the Hissar reserve is under the control of the State Committee for Nature Protection of the Republic of Uzbekistan. On a preliminary assessment the number of Snow Leopard in the reserve is 12-19 individuals, however, this number varies by season, because snow leopards move outside the nature reserve to the adjacent mountain massifs. The main food objects of Snow Leopard here are Siberian Ibex and Long-tailed Marmot.

ZAAMIN STATE nature reserve is located in Djizak region of Uzbekistan on the northern slopes of the Turkestan range at altitudes from 1760-3500 m. This reserve occupies an area of 268.4 sq. km and is under the control of the Main Department of Hunting Management, Nature Reserves and National Parks of the Ministry of Agriculture and Water Management of the Republic of Uzbekistan. It borders Tajikistan on the east. On the area of nature reserve 2-3 Snow Leopards were recorded. The main prey of Snow Leopard here is Siberian Ibex.

National parks

National parks are a type of protected area relatively recently established in the republic. The national parks occupy about 30% of all protected areas. The first national park in Uzbekistan is Zaamin, located on the northern slopes of Turkestan range, and established in 1976. Its area is 241.1 sq. km. Individual Snow Leopards are recorded on the territory of park from time to time.

Ugam-Chatkal national park was established in 1990. It is located on Ugam, Pskem and Chatkal ranges. Its territory is 5745.9 sq km. Chatkal strict nature reserve is included in the area of Ugam-Chatkal national park. The number of Snow Leopard in the park is estimated at 10-15 individuals.

Unfortunately, the protected areas can secure the survival of only a small part of the Snow Leopard population, because they are not large and they are spatially isolated from each other. Therefore it is necessary to improve and to enlarge the mountain protected areas in Snow Leopard range.

3.3. Transboundary cooperation

The states of Central Asia have established a basis for cooperation in the area of biological diversity conservation. At government level some important decisions were taken, that created regional organizations (including Regional Ecological Center), and initiated joint programs and projects. The countries of the region actively develop collaboration on regional and international programs, being members of many international and regional organizations and parties to the main international ecological agreements on biodiversity, climate, desertification and others. All these conditions establish the opportunities for the wide development of regional cooperation in the area of conservation of the vulnerable biodiversity of mountain systems.

The areas of Snow Leopard distribution in Uzbekistan are located in the boundary regions with other countries. The species changes its location during a year more than once, moving over big distances along watershed ridges which often serve as state boundaries. Therefore it is more important to develop transboundary cooperation and coordination of actions between neighboring states in the mountain regions for this species.

The first steps in the development of regional collaboration in the area of biodiversity conservation were undertaken during implementation of the GEF project on conservation of biodiversity in the Western Tien-Shan which was begun in 1998. The Snow Leopard was chosen as one of the key species for the analysis of success of actions in the project and attracting wide attention to the problems of fauna protection in this vast region. Besides that, at the end of 1990 the working group on the conservation of Snow Leopard, called "Asia-Irbis", was established and began to work in Central Asia. The activity of this group was supported by international organizations - Sacred Earth Network (SEN) and International Snow Leopard Trust (ISLT). The working group organized two regional workshops: the first was held in Aksu-Djabagly nature reserve (Kazakhstan) in 1999, the second was held in Ala-Archa National Park (Kyrgyzstan) in 2001. Both meetings brought together representatives of non-governmental and state organizations, field researchers and rangers involved in the practical study and conservation of Snow Leopard. The Snow Leopard Conservation Strategy in range countries were discussed in spring 2002 at the Snow Leopard Survival Summit in Seattle (USA). During the Summit a decision was taken to establish and develop the Snow Leopard Network (SLN). At present this network interacts successfully, attracting attention to the problems of Snow Leopard conservation at different levels – international, sub-global, regional, national and local. Every year in range countries projects study and protection of Snow Leopard, have been realized with the support of ISLT. So, it is possible to hope that such activity will promote the necessary attention to this species at all levels and will serve as a basis for the species's survival in future.

Besides, since the middle of the 1990s, international cooperation in the countries of the region in the investigation of problems of development of mountain regions became stronger. As a result of several international conferences ("High-mountain investigations: changes and perspectives in XXI century", Bishkek, Kyrgyzstan, 1996; "Mountains of Central Asia", Bishkek, Kyrgyzstan, 2000) the Central Asian Mountain Informational Network was created. For the establishment of inter-sectoral cooperation and development of strategic vision of united actions in 2000-2001 there was realized project "The Regional cooperation on the sustainable development of mountain territories in Central Asia" with support of Asian Bank of Development and government of Switzerland. The project "Regional Strategy of the sustainable

development of mountain regions” was elaborated with technical and financial support of the Regional Ecological Center in 2002. One of the main goals of the International Year of Mountains and Global Mountain Summit (Bishkek, Kyrgyzstan, 2002) was drawing-up a united approach for the solution of the problems of mountain regions development in the different countries on multi-sectoral and multilateral base.

3.4. Red listing

Inclusion of Snow Leopard in the Red Book of Uzbekistan (1983, 2003) and the IUCN Red List (2003) provided the basis for the development of a conservation strategy and action plan for the protection of this species. Nowell & Jackson (1996) identified priority projects concerned with conservation of Snow Leopard in the wild. In particular, the project number 73 was designated as the assessment of the current status of Snow Leopard in Russia and republics of Central Asia. To the present, the primary assessments of the population status in the region were conducted. Their results have shown the necessity of urgent measures for protection of Snow Leopard in the countries of the region. In Uzbekistan where both groups of Snow Leopard, Tien-Shan and Hissar-Alai, are located on the edge of the range, and the species itself is close to extinction unless special conservation measures are undertaken. Therefore all received data of expertise require the formulation and reinforcement of the actions on the species protection.

3.5. International Conventions

Uzbekistan Republic joined the Convention on Conservation of Biological Diversity (CBD) in 1995. Ratification of this Convention stimulated the elaboration and approval of the National Strategy and Action Plan of the Conservation of Biological Diversity (1998). Snow Leopard is included in Appendix 1 of CITES since 1975 that means the prohibition on the international trade of this species, the parts of its body, derivatives and their productions. Uzbekistan was the first country of the region to sign this Convention (CITES) in 1997. So, all questions connected with import and export of Snow Leopard in Republic are regulated by the responsible CITES Authority. Since 1985 the Snow Leopard has been included in Appendix 1 of CMS or Bonn Convention. Uzbekistan joined this convention in 1998. At the Meeting of Parties (September 2002) the representatives of Uzbekistan encouraged the initiative proposed by this Convention on the decision of Snow Leopard as a species requiring coordinated conservation actions in range countries.

3.6. Scientific investigations and monitoring

Snow Leopards have not been well studied as a result of its biological peculiarities such as secretiveness and caution, and also the remoteness and inaccessibility of its habitats. Insufficient knowledge of the species biology in Uzbekistan creates difficulties in conducting special protection measures. At present in Uzbekistan there are no special programs aimed at the study of Snow Leopard biology and ecology. In the past, Snow Leopard was studied in strict nature reserves also mostly incidentally, during conducting fauna surveys. In 1980-1990 the special researches on the biology, number and distribution of Snow Leopard were conducted in Hissar reserve. In Chatkal reserve during last 40 years, the regular seasonal (spring-autumn) accounts of fauna are conducted by staff of the reserve. During such surveys all large mammals and their tracks are registered on 16 constant routes, the data on Brown Bear, Ibex, Wild Boar, Roe, Snow Leopard and others are accumulated in the special nature chronicles. In other mountain reserves the annual accounts of wild animals have been conducted since 1982.

At present the following projects related to mountain areas and conservation of their biological diversity conducted: “Correlation of extinction risk for Central Asian biodiversity” (INTAS, 1999-2003), ISLT projects (1999, 2002, 2003), SEN (2000, 2001), GEF-Western Tien-Shan (1998-2003) and some others.

3.7. Propagation

Awareness of Snow Leopard, its prey and habitat conservation is partially provided within international projects mentioned above. The scientific workers of nature reserves and scientists from Uzbekistan National Academy are involved in this process. Awareness covers the broad masses of the human population in mountain regions either through mass media (radio, newspapers), or directly through the work with local communities, students and school children. Public awareness among inhabitants of mountain villages located close to Snow Leopard habitats has a special value. However, all these actions are realized on an inadequate scale. The staff of special protected areas does not include an administrative

unit responsible for work with local communities. Only in Chatkal biosphere strict nature reserve is there a special department for work with local communities.

4. NECESSARY CONSERVATION MEASURES

4.1. Reinforcement of environmental legislation

In spite of the fact, that laws regulated protection of threatened species, including Snow Leopard, have been taken in the Republic of Uzbekistan, their realization meets with some difficulties. First of all, it is necessary to strengthen the enforcement of existing environmental legislation, including the improvement of economic stimulus for workers of environmental services and wildlife protection inspectorate. Also it is desirable to modify existing environmental legislation in accordance with requirements of international conventions (CITES, CMS). Taking into account that distribution of Snow Leopard in Uzbekistan is confined to mountain frontier regions, it is necessary to create the legislative mechanism of interactions between environmental inspections and military-frontier services.

4.2. Development of Protected Areas network

At present the total territory of special protected areas in Uzbekistan is insufficient for the conservation of such large species as Snow Leopard. As a rule, the protected areas cover parts of the habitats of separate individuals or families of Snow Leopard, but do not protect local groups as a whole. Despite the fact, that the area of Ugam-Chatkal national park covers significant areas, the weak conservation regime of this authority does not ensure the necessary defense for Snow Leopard. In the National Strategy of Biodiversity Conservation of Uzbekistan (1998) one of the first and main principles is defined as improvement of protected areas network and its increase to 10% of the area of the Republic. Now some projects include proposals for the development of the protected areas network. In Uzbekistan the degree of Snow Leopard habitats covered by protected areas is 65%, however, only 5.8% of the area is presented by strict protected areas or “zapovedniks”. Therefore, for the improvement of territorial protection of local groups of Snow Leopard, it is necessary to recommend the following:

- *Reinforcement of the conservation function in existing reserves, especially in frontier regions.*
- *Optimization of relations between the administration of strict nature reserves and other adjacent land tenures.*
 - Establishment of buffer zones in Hissar, Zaamin and Chatkal strict nature reserves.
- *Enlargement of existing protected areas:*
 - Enlargement of Chatkal biosphere reserve by addition of territories of Shavasay River basin (e.g. rehabilitation of the reserve to the boundaries that existed until 1952); and all basin of the Akbulak River.
 - Widening of Zaamin nature reserve and Zaamin national park through addition of the adjacent northern slopes of Turkestan range.
 - Smoothing of Hissar strict nature reserve through addition the territory around Chapukh village (where the inhabitants were moved to the plain areas), located in the lower part of nature reserve in basin of Tankhas-Darya River.
- *Establishment of new protected areas:*
 - Creation of Pskem reserve in the upper parts of Pskem River.
 - Establishment of new reserve on the southern slopes of Chatkal range, close to Maidantal part of Chatkal Reserve, and adjacent area of Angren Plateau in Namangan region of Uzbekistan.
 - Establishment of the new strict nature reserve in the upper parts of Tupalang and Sangardak rivers (Surkhandarya region of Uzbekistan) on the adjacent areas of Hissar nature reserve.
- *Creation of ecological corridors between protected areas of neighboring countries:*
 - To propose the initiative on the enlargement of the territory of Aksu-Jabagly strict nature reserve in Kazakhstan to the boundaries of Uzbekistan (Ugam-Chatkal national park current boundaries)
- *Establishment of a transboundary park, included the existing nature reserves and proposed protected areas:*
 - Transboundary park which will cover Pskem, Ugam and Maidantal ranges (Kazakhstan, Kyrgyzstan, Uzbekistan).
- *Allocation of territories with regime of limited economic use:*

- Creation and development of hunting managements with the aim of conservation of habitats, rehabilitation and maintenance of the wild animals numbers, which will allow strongly regulated trophy hunting of ungulates to be conducted within special parts of such managements. The selection of such areas requires the special study and consultations with competent experts.

4.3. Restriction of illegal hunting

Improvement of the work of inspection staff through raising their professional skills, training and material incentives. Involvement of local communities in species protection through interactions with local environmental inspections. In current conditions the interactions between nature conservation agencies and local military-frontier services are effective methods of combating poaching and smuggling of biological resources, therefore it is necessary to promote such cooperation. It is necessary to suppress through approved court orders and widely clarify in mass media all cases of poaching (illegal hunting).

4.4. Resolution of conflicts with local herders

Because some cases of attacks on domestic livestock by Snow Leopard are known, it is necessary to recommend the compensation for domestic animals killed through a special expert commission. Compensation should be given as services or food products following the example of practice applied in Mongolia and some other countries of Snow Leopard range. Also it is necessary to develop the interaction of the workers (administrations) of protected areas and local communities raising public awareness and publicity. In some cases it may be useful to use the experience of other countries of Snow Leopard range (Mongolia, India, Pakistan, Kyrgyzstan, Nepal) to resolve conflicts with herders through assistance in building of safe corrals on summer pastures and improving control of livestock.

4.5. Popularization of Snow Leopard Conservation

Mountains of the region have an important significance for the cultural and esthetic education of the younger generations and the development of human communities, providing human societies with the basis for cultural growth and recreation. Distribution of information and public awareness among local human populations on the questions of nature protection was undertaken during implementation of several projects supported by international organizations such as ISAR, SEN, ISLT and some others. Experience of work with local communities has shown that distribution of information and educational materials has an important impact, especially on the younger generation. First of all, such measures as distribution of leaflets, booklets, posters and other popular editions in local languages play a significant role. Organization of competitions in the schools of rural regions and Days of Parks have shown that local communities react with understanding to the problems of wild animal conservation. So, it is necessary to support the practice of public awareness and popularization of ideas of wildlife protection on a permanent basis.

4.6. Involving local communities in protection activity

At present the practice of cooperation between nature conservation services, staff of nature reserves and local communities is just beginning to be developed. First attempts to involve the inhabitants of territories adjacent to protected areas in resolving biodiversity conservation problems were undertaken within the framework of TACIS project on Western Tien-Shan (2001-2003). The TACIS project enabled the participation of local communities through realization of a small grants program, supporting initiatives sympathetic to saving biological diversity. In particular, attraction of local inhabitants to the protection of biological resources through the development of small business, tourism, etc. In neighboring countries of the range (Kyrgyzstan, Mongolia, India, Pakistan) ISLT has assisted in the development of projects for the support of traditional handicrafts using natural native products (woolen manufacture, carpet production, ceramics, felt, etc.). Such practice serves as a good alternative and gives local communities the opportunity to develop without a negative influence on wildlife. Probably, in Uzbekistan it is also possible to study and apply such positive experience on the assessment of local market and forming of the scheme of sustainable use of environmental products.

4.7. Population monitoring and conducting of scientific researches

In Uzbekistan, as it was shown above, a good basis for the development of monitoring of Snow Leopard populations already exists, and, first of all, in mountain strict nature reserves (Chatkal, Hissar, Zaamin).

Positive results of such investigations were received in the course of implementation of GEF Western Tien-Shan transboundary project. However, the scientific investigations were conducted only on the area of Chatkal nature reserve within Uzbekistan and have a short-term character. Therefore it is possible to recommend the involvement of the staff of all nature reserves, covered by the range of Snow Leopard, and workers of zoological institutions to conduct monitoring of Snow Leopards in Uzbekistan on a permanent basis (development of scientific themes in strict nature reserves on study of Snow Leopard and its prey). For this it is necessary to train the personnel conducting monitoring and introduce the use of standard international methods in the practice of survey and study of Snow Leopard in the Republic. The first step in realizing these actions should be preparation and publishing of the methodological guides and training for staff of protected areas in their use (scientific workers and rangers) and experts from scientific institutions. The necessary precondition for the practical realization of such program should be the creation and support of the information network for collection and analysis of data on Snow Leopard, its prey species and habitats in Uzbekistan and its integration into existing international SLN- Snow Leopard Network.

4.8. International and regional collaboration

The experience of practical cooperation in the field of biological diversity conservation at the regional and international levels has shown that the most significant results in the area of species protection can be reached under coordinated actions. Snow Leopard is the species for which the coordinated actions and regional cooperation is most significant owing to its distribution on the territories of many states and occurrence within transboundary areas. In this connection, a special value should be given to coordination of activity at the regional level through joint conservation actions. For this purpose, it is possible to use the work of the regional initiative group “Asia-Irbis”. Snow Leopard Network (SLN), initiated by ISLT, also strengthens international cooperation and exchange of information at the global level.

Using of international conventions such as CITES and CMS it is possible to find real solutions for effective protection of Snow Leopards in the range countries. Besides that, it is necessary to develop regional cooperation – multilateral and bilateral – with neighboring countries to reinforce anti-poaching efforts and suppress the illegal trade in wild animals.

5. ACTION PLAN ON THE CONSERVATION OF SNOW LEOPARD IN THE REPUBLIC OF UZBEKISTAN (2005-2010)

No	Items of strategy	Planned actions	Executors	Terms
1.	Reinforcement of environmental legislation	<p>1.1. Reinforcement of the acting environmental legislation according to CITES requirements</p> <p>1.2. Preparation of guide on the protection of wildlife in the boundary zones for the frontier guards</p> <p>1.1. Improvement of the economic stimulation of the workers of wildlife authorities (inspections, nature reserves)</p> <p>1.2. Optimization of the fine (penalty) system on the illegal use of bio-resources</p>	<p>State Committee NP of UzR</p> <p>Asia-Irbis/UZS, State Committee NP of UzR</p> <p>State Committee NP of UzR</p> <p>State Committee NP of UzR</p>	<p>2005-2007</p> <p>2005</p> <p>2005-2010</p> <p>2005-2010</p>
2.	Development of Protected Areas network	<p>2.1. Organization of buffer zones in Chatkal, Zaamin and Hissar reserves</p> <p>2.2. Organization of Pskem reserve</p> <p>2.3. Preparation of basis on the enlargement of the Hissar and Zaamin reserves</p> <p>2.4. Defining of the opportunities for the development of hunting manages; description of existing potentialities</p>	<p>State Committee NP of UzR, Nature Reserves department of the Ministry of Agriculture, regional administrations</p> <p>State Committee NP of UzR, Tashkent region administration, GEF Western Tien-Shan project</p> <p>Academy of Science, State Committee NP of UzR, Nature Reserves department of the Ministry of Agriculture</p> <p>Asia-Irbis/ UZS</p>	<p>2005-2008</p> <p>2005-2008</p> <p>2006-2008</p> <p>2005-2006</p>
3.	Restriction of illegal hunting	<p>3.1. Collecting of information about violations of environmental legislation and wide coverage by mass media</p> <p>3.2. Development of training</p>	<p>Asia-Irbis/ UZS, nature reserves, national parks</p> <p>State authorities,</p>	<p>2005-2010</p> <p>2005-</p>

		programs and equipping of rangers of protected areas	international projects	2010
		3.3. Attracting of local inhabitants to cooperation in area of prevention and control of violations	Nature reserves, national parks	2005-2010
4.	Resolution of conflicts with local herders	4.1. Establishment of commission on the assessment of damage and compensation of lost live-stock	State Bio-control, experts of nature reserves and Institute of Zoology	2005
		4.2. Share by experience with other countries of Snow Leopard range	Snow Leopard Network (SLN)	2005-2010
5.	Popularization of Snow Leopard Conservation	5.1. Publishing of leaflets permanently	Nature reserves, national parks	2005-2010
		5.2. Publishing of placards and calendars	Asia-Irbis/ UZS, State Committee NP of UzR	2005-2010
		5.3. Permanent rubric on radio and other mass media	Asia-Irbis/ UZS, nature reserves, national parks	2005-2010
		5.4. Carrying out of Snow Leopard day (in the day of Mountain Conservation)	Nature reserves, national parks	2005-2010
6.	Involving local communities in protection activity	6.1. Assessment of potentiality of local market	Asia-Irbis/ UZS, ISLT	2006
		6.2. Development of ecotourism within Snow Leopard habitat's regions	Asia-Irbis/ UZS, Tourist companies, ISLT	2007-2010
		6.3. Support and training in the development of alternative production in Snow Leopard regions	Asia-Irbis/ UZS, ISLT	2007-2010
7.	Population monitoring and conducting of scientific researches (snow leopard and its preys)	7.1. Preparation and publishing of methodic guides on the conducting of censuses and surveys of the Snow Leopard and its preys according to SLIMs (short clear instructions for rangers)	Asia-Irbis/ UZS, Nature reserves, national parks	2005
		7.2. Training for the workers of nature reserves on the applying of unified methods and running of databases	Asia-Irbis/ UZS, ISLT	2005
		7.3. Establishment of Snow Leopard and its preys populations monitoring within protected areas systems and around	Asia-Irbis/ UZS, Nature reserves, national parks	2005-2010
8.	International and	8.1. Promotion of the Snow	Asia-Irbis/ UZS, regional	2005-

	regional collaboration	Leopard network development	NGOs, ISLT	2010
		8.2. Information exchange and replenishment of the databases of the Snow Leopard Network (SLN)	Asia-Irbis/ UZS, Nature reserves, national parks, regional NGOs, ISLT, SSC/IUCN	2005-2010
		8.3. Participation in International actions and informing of nature conservation community and environmental authorities	Asia-Irbis/ UZS, ISLT, SLN, SSC/IUCN, CITES, CMS	2005-2010