

**NATIONAL ACTION PLAN  
(2010 – 2014)**

**For Conservation of the Leopard  
(*Panthera pardus*, L.) in  
the Azerbaijan Republic**

**Ministry of Ecology and Natural Resources  
of the Azerbaijan Republic**

**Baku – 2009**

## Content Table

1. Foreword.....	3
2. Introduction .....	3
2.1. Leopard Biology and Ecology .....	5
2.2. Leopard Systematic and Historical Range.....	6
2.3. Leopard Distribution and Current Area.....	7
2.4. Leopard Legal Protection Status.....	9
2.5. Measures Taken for Protecting Leopards.....	10
2.6. Problems of Leopard Conservvation .....	13
3. The Main Objective of the National Action Plan .....	16
4. Basic Duties and Intended Activities.....	17
4.1. Measures at Species/Population Level .....	17
4.2. Measures at Landscape Level.....	18
4.3. Decrease of Dangers.....	19
4.4. International Cooperation, Legal Status and Enlightenment.....	21
5. National Action Plan (2010-2014) for the Conservation of Leopard in the Azerbaijan Republic .....	23
References: .....	28

## **1. Foreword**

A National or Regional Action Plans are the means of carrying out conservation strategies at wider management levels. The Strategy for the Conservation of the Leopard in the Caucasus Ecoregion has defined basic aims, general procedures, and international relationship and activities for achieving the effective conservation of this threatened species. In order to fulfill the vision, target and objectives formulated in this strategic document, the creation of National Actions Plans for Leopard Conservation in the countries of the Caucasus Ecoregion is needed. This national strategic process for Leopard Conservation must actively involve governmental organizations (GOs), Non-Governmental Organizations (NGOs), scientist, local communities and other group of stakeholder who has a stake on this topic.

## **2. Introduction**

In the Caucasus Ecoregion, the leopard is considered a threatened species. It has been listed in both the Red Book of the International Union for Conservation of Nature and Natural Resources (IUCN) and Red Book of Azerbaijan Republic as Near Threatened (NT) and Critically Endangered (CR), respectively.

Recent researches, carried out by scientists of the Caucasus Ecoregion, have shown that now, there are left only small and isolated populations of leopard. Hence, it is important to carry out urgent conservation measures for conserving this species in Caucasus, including in this effort the territory of Azerbaijan. As these remnants of leopard populations are located at the international political borders in each of the Caucasian countries, the conservation of this species depends not only on experts' knowledge about the ecological integrity of the leopard's natural environment, but also on an active involvement of local communities in conservation efforts and effective and proactive international relationships between the countries where these leopard populations exist. Therefore, it is advised to implement the Conservation Strategy and National Action Plans in each country where leopards spread. A Conservation Strategy (CS)—being the foundation of National Action Plans (NAPs)—has firstly to identify the problems and threats and then to define the general goals and strategies for achieving the conservation of leopards in each country; whereas a NAP has to be developed for carrying out conservation activities based on the principles defined in the CS.

As leopard is one of the species from the cat family that have high living ability, population of this species can live in nature despite the absence of its main wild prey. However, if

it is not conserved, this rare animal can lose this characteristic. For that reason, some large-scale measures with the purpose of conserving leopards have been organized in the Azerbaijan Republic.

In 1967, a legal instrument prohibiting shooting leopards was adopted in the Azerbaijan Republic. In June 4<sup>th</sup>, 1999, a new piece of legislation called “About World of Animals” was adopted in Azerbaijan. Its purpose is to provide effective use and storage of embryos and sexual cells of animals living in semi-independent and non-independent conditions, and permanently and temporarily migrating through the territory of the Azerbaijan Republic. With this legislation, the government of Azerbaijan has sought to create a legal basis to regulate the management, conservation and use of wildlife.

In addition and according to the article 3.1 of the Azerbaijan Republic Cabinet Ministerial Decision No. 176, October 6<sup>th</sup>, 2004 on “Types, degrees and rules of payments for animal life-use and illegal hunting, the amount for injuring one leopard is three thousand three hundred Azerbaijani Manats (AZN 3,300). If the animal was hunted within the boundaries of Protected Areas, the amount can be two to three times the cost of injuring a leopard.

The most effective measure for leopard conservation is to create a network of Protected Areas that will conserve all important ecosystems, main vegetation types, corridors and valuable conservation areas for this species. For updating this Protected Area network, the creation of some additional measures appeared to be necessary. As a result and in line with this approach, the government of Azerbaijan thanks to the lobbying work done by the Ministry of Ecology and Natural Resources (MENR) has increased the covering area of its Protected Area network up to 778,464.7 ha, which now includes 8 National Parks, 14 Nature Reserves and 21 Sanctuaries, covering 9% area of the territory of Azerbaijan. As a comparison, before the creation of the MENR there was not even one National Park, and the total area under any protection regime covered just 2.2% of the territory of Azerbaijan; whereas now just the area covering the 8 national parks represents 3.1% of its territory.

With the purpose of conserving rare species of flora and fauna, such as leopards, for future generations, the following three protected areas covering their habitats have been recently created in the Azerbaijan Republic:

- Ordubad National Park
- Hirkan National Park

- Gakh State Nature Sanctuary

### **2.1. *Leopard Biology and Ecology***

As member of cat family, a leopard has taut, muscled, strong and slender body; round and big head; long tail; and strong legs. Legs are relatively short. Length of body (depends on geographical area) is 91 - 180 cm. The length of tail is 75 - 110 cm. Its weight is 32 - 40 kg (sometimes 100 kg). Males are bigger than females. Fur is thick, in pale chaff or yellow, or light reddish-brown color; and there are small or rounded black spots on its body, tail and legs. Lower and inside parts of legs are in white color. In winter, its fur gets thicker, longer and brighter. Color of younger individuals is brighter, in grayish yellow (sometimes dirty-white color).

A leopard is quick animal. It can run over 60 km/h, spring out 6 meter and jump in vertical direction for 3 meters or more. It is also a good swimmer. Leopard is a nocturnal animal. Mainly, it lives alone close to dwelling areas where hunts at night. However, sometimes when the weather is gloomy, it hunts during daytime. Most part of the day it spends in sleeping and laying on tree branches, under rocks or in meadows. It very easily fit living in forests, mountains and even in deserts. Its habitat range varies a lot, from 8 to 400 km<sup>2</sup>.

A leopard mostly hunts on the ground, but sometimes it ambushes its preys by lying on climbs or trees. While hunting, it slowly comes close to its prey and jumps on it, and then throttles it. However, if the prey escapes, leopard will not follow it. If the catching is big, leopard carries it on tree or hides it in meadow in order to protect it from other carnivorous (i.e., hyena, lion, and tiger). It can carry an animal of three times their size. It mainly feed with herbivores - antelopes, asian spotted deer, roe; and sometimes monkeys, rodents, and birds. Sometimes they hunt domestic animals (i.e., sheep, horses), injure foxes and wolves. They can thief catching of other leopards and carnivores, as well. It can be said that leopards did not attack humans (if not cause to be irritated). They often run away from human.

Based on the literature, main part of leopard's nutrition comprises bezoar goat, wild sheep, roe, deer, and wild boar in the Caucasus Ecoregion. Sometimes leopards even catch rabbits, partridges, pheasants, and Caucasian blackgrouse. Its competitors are wolves, lynxes, bears and also ownerless dogs. Wolf diseases, plague from infectious diseases, paratyphoid pasterellosis, etc, can infect leopards.

All sense organs are well developed in leopards. In nature, the life range of leopards goes from 10 to 11 years, in some cases up to 21 years. Breeding occurs during the whole year, and

interbreeding happens in January and February. Pregnancy period continues for 98-106 days. After it, one or three cubs are born. The cubs are born blind with pale-spotty color skin. After ten days, cubs' eyes open up. Leopards use caves, cracks of tress, tree roots, etc. as dens. Cubs feed with milk for 100 days, and when they are 70 days olds they start eating meat. Younger individuals go for hunting with their mother approximately when they are ten months old. When younger individuals are one year old they begin to hunt by themselves and have the ability of defending themselves. However, they live under protection of their mother until they are 18 to 24 months old. They reach puberty when they are 2.5 or 4 years old (females mature faster than males).

## **2.2. Leopard Systematic and Historical Range**

During the last years of 19<sup>th</sup> Century and the first decades of the 20<sup>th</sup> Century, the scientific community considered that two subspecies of leopards have spread over the Caucasus Ecoregion: Caucasian leopard (*P.p. ciscaucasicus*, *Satunin*) and Transcaucasian leopard (*P.p. tullianus*, *Valeciennes*). The first subspecies is not only bigger than the last subspecies of leopard, but also its fur's color is paler.

In Azerbaijan, the exact distribution area of these subspecies was never defined. It was supposed that the regions of the Great Caucasus were the habitat of "*P.p. ciscaucasicus*," whereas the regions of the Lesser Caucasus and the Talish Mountains were the habitat of "*P.p. tullianus*." However, the problem of which subspecies live in the plains between the Greater and Lesser Caucasus has not been clarified yet. In the northern-western part of Azerbaijan in one of the caves in Aghstafa district, together with other archeological findings belonging to bronze period (beginning of the III millennium B.C.) the jaw of a leopard (*P.p. ciscaucasicus*) of small size was found. Skeleton remains of a leopard have also been found in Azikh cave, Garabagh district, which belonged to the subspecies *P.p. ciscaucasicus* (Gadjiyev, 2000).

In the eastern part of Azerbaijan, between rocks, a lower leopard jaw was found in Gobustan, being this jaw bigger than the Aghstafa leopard's jaw. According to Burchag-Abramovich and Jafarov (1949), local hunters killed a leopard during the snowstorm of 1946 in Absheron peninsula, around Mashtaga village. The fur of that leopard is dark with bright, yellow shades rule. It does not differ from the fur of those leopards distributed in Lankaran. The shape of the skull proves that it belongs to *P.p. tullianus*.

Based on the above listed archeological findings, both *P.p. ciscaucasicus* and *P.p. tullianus* were supposed to be distributed in the Caucasus Mountains of Azerbaijan during past times and until 1980's in Talish Mountains. However, the color of leopards furs found in Nakhchevan at the end of 1980 were very bright, which has been a feature peculiar to *P.p. tullianus* (Gadjiyev, 2000). Therefore, it can be argued that both subspecies historically met in the plains of the Republic of Azerbaijan. Heptner and Sludski (1972) only acknowledged the spread of *P.p. ciscaucasicus* in the Caucasus.

According to Miththapala et al. (1996), seven subspecies of leopards spreading from East territories of Pakistan to west territories of Turkey are part of the *P.p. saxicolor* (Iranian or Persian leopard).

### **2.3. Leopard Distribution and Current Area**

Leopard range is wider than the area of other members of cat family. Leopards live in humid valleys, rocky areas, and thick impenetrable mountainous forests. They are met at 1000 - 1500 m., even 3000 m. above sea level (a.s.l.).

Satunun (1905) and Dinnik (1914) widely described distribution of leopards in the Caucasus. Based on these studies, it can be concluded that leopards were spread almost in all Caucasus.

In the Azerbaijan Republic, leopard former range area covered the Greater and Lesser Caucasus, Alazan and Araz (Nakhchevan AR) valleys and Talish. Nowadays, this species is found only in Talish mountains, Zangazur range, Karabakh and accidentally in foothills of Greater Caucasus.

In Mountainous Karabakh, currently occupied by Armenia, there is no exact information on current status of leopards. It is supposed that this species exists in Balakan and Zagatala regions (Zagatala and Ilisu Reserves). More traces of leopards have been found in Talish area and south of Zangezur range (Lukarevsky et al., 2004).

According to the literature, arid and inaccessible slopes of Zangezur Mountains are of great significance for conserving leopards in the Lesser Caucasus. In Talish Mountains, the traces of leopards are observed in old broad-leaved forests at the height of 700 - 1500 m. a.s.l.

Likewise, leopards were widely spread in the Greater Caucasus until the beginning of the twentieth century (Heptner & Sludski, 1972). In the Great Caucasus, the spread of leopards has

been linked to the area of bezoar goat. Hence, in the past, stable area of leopards coincided with the area of bezoar goat. However, during snowy period this species could broaden its area to the west. Thus, the leopard area historically was of broadening character.

The area of northeast population of leopards was almost completely isolated in the Great Caucasus. It might be supposed that there is a narrow “bridge” linking the leopard range in Murovdagh region, between the Greater and Lesser Caucasus.

In Talish, leopards inhabited in big valleys covered with old forests (birch, lime-tree, oak, walnut-tree, etc.), rocky places and ravines, glades and rich populations of preys, such as wild boar and roe deer. According to the information provided by local hunters, number of roe deer here is 10 - 15 individuals per 2000 ha. In addition, Guliyev (2000) estimated that 100 boars per 1000 ha spread in this territory. Likewise in Talish, leopards were often met in the Zuvand depression till early 1900's, although this area substantially differs from Hirkan forests.

Analyzing literature and local people information, it can be noted that areas inhabited by leopards are different in the Greater Caucasus. Leopards prefer living in leafy and mixed forests, thick shrubby jungles, but they also live in rocky and stony places, as well as in snowy areas with a few precipitations in winter.

Based on the results of an inventory carried out in 2007 by the MENR, the Zoology Institute of Azerbaijan, Baku State University, and specialists from non-governmental organizations, it was estimated that there were 17 leopards in Azerbaijan, distributed as follow: 4 leopards in Hirkan National Park, 8 leopards in Ordubad National Park (other 2 leopards in Nakhchevan), 1 leopard in Gakh State Nature Sanctuary, and 2 leopards in adjacent to Hirkan NP territories (Lankaran, Astara, Lerik, Yardimli, Jalilabad, Masalli, and Bilasuvar districts). In 2008 Hirkan NP reported about 5 leopards inhabiting the park area.

In the Hirkan National Park, although after spring counting the traces of leopard cubs are usually met, the expected increase could not be noted in autumn counting. Different reason, such as the suspected death of the cubs due to different reasons, such as leaving the Hirkan National Park territory, are suspected the cause of this situation. However, during the autumn counting of 2008, rangers of Hirkan National Park reported that 2 leopards walked with their cubs in different areas of the National Park.

As known, each leopard has its own living area, especially leopards having cubs are very careful to leave the territory. The difference in the sizes of the traces proves the cubs belong to

different leopards. Nevertheless, it should be mentioned that if these cubs survived the winter, they would probably have looked for new territories, which could have been within the territory of the National Park or neighboring forest. Unfortunately, once leaving the territory of the National Park, leopards are in danger. This is because they are living too close to human settlement as well as sometimes attacking livestock. Evidence of leopard being hunted in different villages in previous years has proved this situation.

The findings of researches have shown that leopards constantly move during a year. However, these migrations may be in small and big circles. Big circle usually happens as a result of increase in snow cover during winter, which pushes leopards to use temporary settlements. Generally, leopards inhabit near territories where food sources, such as boars, roe deer and other animals live compactly. They just leave the territory during short periods of time. In such periods of short absence, leopards usually prefer much warmer slopes and places with thinner snow cover. Big circle may sometimes be repeated in summer months, as well. They may also live in useful temporary areas as long as a month. Then, they may continue their way in any direction, which might be the territories they inhabited before.

Based on the opinions of experts in forestry and results of researches conducted in the Hirkan National Park, it can be argued that leopards' inhabitation in their previous settlements still occurs. The fact that a leopard damaged cattle supports this assumption. This incident was seen by the employees of Hirkan National Park as an isolated event and explained as the result of the age and physical state of the animal (i.e., it was an old and weak leopard).

In 2008, leopards were more active and covered more area. At the beginning of March, a man saw a leopard descending from the National Park in direction Divanbil. This individual walked near lake Khanbulan for 2 days and even appeared near dwelling houses. It seems that lack of food (i.e., wild prey) and noise in the surrounding scared the leopard and it went back. The employees of the National Park operatively met local people and held raising awareness campaigns in order to ensure the protection of this animal. As a result, the leopard moved through Khanbulan, Nisyaki, Divonbil, Ulyasi territories until October and temporarily inhabited in the rocky places of Nisyaki mountain.

#### **2.4 *Leopard Legal Protection Status***

Leopard is a very rare animal. It is included in the Red book of Azerbaijan and IUCN Red list as a rare species facing with danger of disappearing.

In 1967, a legal instrument prohibiting shooting leopards was adopted in Azerbaijan. In June 4<sup>th</sup>, 1999, a new piece of legislation called “About World of Animals” was adopted in Azerbaijan. Its purpose is to provide effective use and storage of embryos and sexual cells of animal living in semi-independent and non-independent conditions permanently and temporarily migrating through the territory of Azerbaijan. With this legislation, the government of Azerbaijan has sought to create legal basis to regulate the management, conservation and use of wildlife.

In addition and according to the article 3.1 of the decree No. 176, October 6<sup>th</sup>, 2004 of Cabinet of Ministers of the Azerbaijan Republic on “Types, degrees and rules of payments animal life-use and illegal hunting” the amount for injuring of one leopard is 3,300 Azerbaijani Manats. If this animal was hunted within the boundaries of protected areas, the amount is from two to three times the cost of injuring a leopard.

Leopards can be seen in highly populated areas in Caucasus. The protection of this species till today has not been possible due to its high “plasticity.” As leopard is a species with high vitality within the cat family, its population still lives long even after the complete extirpation of its wild preys. But if this unique animal is not protected, it will not be able to keep this feature.

The number of leopards has been decreasing in the whole territory of Azerbaijan although like other predatory animals by killing sick animals and hunting a lot of harmful animals as monkeys leopards are of great significance in nature. The major treat is related to the reduction of natural areas and wild preys. In addition, leopards are often hunted because they are considered harmful and dangerous to humans. Likewise, leopard fur is considered very valuable in the world. The substance from its organism is used for preparing different traditional medicines in Asia. Moreover, habitat fragmentation due to construction and rehabilitation of road, incidental hunting, natural disasters, etc. are considered factors that have been disturbing this rare species.

## ***2.5. Measures Taken for Protecting Leopards***

The most effective measure for leopard conservation has been the establishment of a protected area network. In Azerbaijan, this network has been seeking to reach modern standards (i.e., protection of all significant ecosystems, establishment of corridors and buffer/supporting zones), as well as the fulfillment of several international agreements. For instance, there were 14 State Strict Nature Reserves (IUCN category I) and 20 State Nature Sanctuaries (IUCN category IV) until 2001, which covered a total of 478,000 ha of the territory of Azerbaijan.

Conservation of biological diversity, protection of geo-fund of rare species of fauna and flora, and their scientific study is of special significance and a pivotal axis for directing the activities of the MENR in order to effectively protect the environment and provide solution to ecological issues. Likewise, the MENR has continued looking forward to furthering developing the protected area system of Azerbaijan, as well as the integrity of its ecological network. At the moment, the government of Azerbaijan has increased the covering area of its protected area network up to 778,464.7 ha, which includes 8 National Parks, 14 Nature Reserves and 21 Sanctuaries, covering 9% of the territory of Azerbaijan. As a comparison, before the creation the MENR there was not even one National Park and the total area under any protection regime covered only 2.2% of the territory of Azerbaijan, whereas now just the area covering the 8 national parks represents 3.1% of its territory.

Protected areas within the Republic of Azerbaijan have been established for the conservation of leopard and other rare fauna and flora species have been set aside, which includes:

- **Ordubad National Park:**

The Ordubad National Park (ONP) has been created by presidential decree on June 16th, 2003 in the Ordubad region. It covers 12131,0 ha. The ONP was named after academician Hasan Aliyev. In addition, the Ordubad Sanctuary is located at 27870,0 ha in adjacent territories. The purpose of the ONP is to protect unique components of its landscape, promote monitoring of its ecosystems, raise awareness about nature on local people and visitors and create sustainable tourism opportunities.

The territory of ONP and Ordubad Sanctuary is highly rich in rare plants. Thus, 77 species of rare plant species growing in the territory of Azerbaijan exist in these two protected areas, which include species listed in the Red Book. Besides to leopard wildcat, manul cat, brown bear, bezoar goat, moufflon, wolf, jackal, fox, striped hyena, stone martin, badger and other mammals can be found in the territory of the park.

- **Hirkan National Park:**

The Hirkan National Park (HNP) was established by presidential decree on February 09, 2004. It is located at southeast part of Azerbaijan in the territory of Lankaran and Astara administrative regions. Its initial area was 21,435 ha, but on April 23<sup>rd</sup>, 2008 by order No 137 of the Cabinet of Ministers of the Republic of Azerbaijan, the area of

HNP was extended 18,923 ha, using lands of forest fund. Currently, the HNP reached to 40,358 ha.

The purpose of the National Park is to protect both relict and endemic plants of Tertiary period and species of flora and fauna included in the “Red Book” of the Azerbaijan Republic, monitor nature, raise awareness about nature among local people and visitors, and catalyze tourism and recreational opportunities.

Although the territory of HNP does not rise so high above the sea level (i.e., the highest point is around the 1000 m. a.s.l.), rising from east to west we can observe change of forest under altitudinal zones: chestnut-leafed oak, iron tree, hornbeam forests are mainly spread in the bottom, together with acacia, Hirkan fig, Caucasus hersimmon. When going up, mainly iron tree, partially chestnut-leafed oak lessen, and beech trees replace them. Fern, Hirkan box-tree, and different lianas are widely spread in the forest of the National Park. Most of these plants are included in the “Red Book” of the Republic of Azerbaijan.

Among mammals leopard, spotted deer, lynx, badger, wild boar, roe deer, raccoon are met here. This National Park is of great significance for leopard conservation.

- **Ilisu Strict Nature Reserve:**

By order No. 57 of the Government of Azerbaijan, the Ilisu Strict Nature Reserve (ISFR) was established on February 20<sup>th</sup>, 1987. It is situated in southern slope of Great Caucasus (Gakh region), between Zagatala and Ismayilli reserves. Its altitude ranges from 700 - 2100 meters a.s.l. It initially covered 9, 345 ha but now the ISNR was expanded over 17,381.5 ha.

The purpose of the ISNR is to protect nature, increase the numbers of threatened species of plants and animals, restore clean-cut areas of forests, and prevent erosion and floods.

The relief of the territory includes steep slope and valleys. Its average annual temperature is 5-12°C. During the year, its precipitation gradually increases from 920 mm. to 1400 mm.

Thirty-five species of mammals, belonging to 5 groups, live in the territory of the Reserve. They consist of herbivores (i.e., red deer, roe deer, chamois, dagestanian tur and wild boar), carnivores (i.e., brown bear, hyena, wolf, jackal, fox, otter, stone and pine martins, weasel, badger, raccoon, jungle cat, steppe cat, wild cat, lynx, leopard), rodents, bats and insectivores. About 90% of wild mammals’ fauna of the country can be found in

this protected area. Leopard, lynx and hyena are included in both the “Red book” of the Azerbaijan Republic.

Around 90 species of birds are spread in the area, belonging to 11 families. The territory is also an irreplaceable area for wild birds. Nests of unique birds, such as black griffon are found there, as well. Five species of amphibians are spread in Ilisu reserve, and twelve species of reptiles live in the territory. Seven of these reptiles are lizards and two species are snakes.

- **Gakh State Nature Sanctuary**

Gakh State Nature Sanctuary (GSNS) was established on June 16<sup>th</sup>, 2003. Its territory covers 36,836 ha. The purpose of this protected area is to protect local fauna and restore threatened species of animals in the summer pastures located in its borders with ISNR and Ajinohur plain.

GSNS is believed will enhance opportunities for conserving species, by promoting and facilitating the spread of leopards, deer, partridge and pheasant, which were animals widely spread in Gakh. Its establishment constitutes an irreplaceable action for effectively conserving the integrity of ecosystems and biological diversity in the territories.

Scientific research and monitoring activities on the flora and fauna species inhabiting the GSNS, as well as surrounded areas where leopards live are regularly hold. Reports of these scientific works are yearly summarized in the form of “Nature chronicle” and presented to the Department of Protection of Biological Diversity and Development of Protected Areas of the MENR. In addition, an inventory of mammals is collaboratively carried out every year between the MENR, the Zoology Institute of Azerbaijan National Academy of Sciences, the Baku State University, and specialists from non-governmental organizations.

## **2.6. *Problems of Leopard Conservation***

For centuries, attitudes toward leopards have been different in various countries. This aspect has also been similar in Caucasian countries. Leopards have often frightened people, and only brave people hunted them. Most of the leopards were hunt because they attacked domestic animals. As a result of this leopard-human interaction, leopards’ populations have always been under pressure.

Moreover, hunting of herbivores - the wild prey of leopards in countries from the Caucasus Ecoregion - caused a dramatic decrease in their numbers during 1920 – 1940. Hence, leopards more often attacked domestic animals, which in turn raised negative pressure on their populations. According to Alakbarov (1966), 2 or 3 leopards were hunted in Nakhchevan and Talish each year. During these years, cases of leopard hunting were sometimes observed in Karabakh and Murovdagh mountain chains. The last record of a leopard being killed in Greater Caucasus was on 1932 in Balakan.

Until 1971, leopards were hunted because they were considered being a pest to agriculture activities in countries of the Ex-Soviet Union. The situation for leopards became more dangerous in countries from the Caucasus Ecoregion in early 1990's. If before only separate hunters exceptionally killed leopards, during the 1990's more organized hunting activities were carried out. During early 20<sup>th</sup> century, only isolated individuals remained in the territory of Azerbaijan, which did not even create "demes" (i.e., elementary population groups). In addition, snow cover has become one of the main problems that leopards have. In wintertime, snow remains for 4 - 6 months in the Caucasus Mountains, and during this period, tracks of leopard are clearly seen on the snow. This paves way to their hunters, making leopards more vulnerable. Other anthropogenic impact to leopards population is related to cattle breeding, use of land, and basic agricultural activity.

The following list depicts the basic activities that need to be carried out for effectively conserving leopards:

1. Gap analysis of legislation regarding the conservation of leopards and big mammals in each countries of the Caucasus Ecoregion;
2. Analysis and assessment studies for establishing an effective protected area network for conserving leopards;
3. Analysis of the management effectiveness in the protected areas created for conserving leopards and
4. Involvement of local people (communities) in leopard conservation activities.

Talish region, one of the areas where leopards live, limits with Iran in the south and the Caspian Sea in the east. Although people have inhabited this region since ancient times, it weakly developed due to having a humid sea climate, which has created several sanitarian difficulties (e.g., malaria). For this reason, many people preferred to inhabit upper and middle mountainous

areas of this region. However, a greater number of people have started inhabiting this area for the last 50 - 70 years. These particular situations can probably explain the good quality of mountain ecosystems and forests that still remain in the region.

Natural forests, as well as fauna are conserved till today in the region. Only tiger, red deer, and bezoar goat have perished there. Big mammals, such as brown bear, roe deer, and wild boar are still met in most parts of the region's forest. Talish region is a unique and rare area of the world, in which rare species, such as lynx, leopard still live.

In Talish, tracks of leopard have only been seen in the southwest part of the region. These few tracks have proved the rareness of this species, and the character of the tracks has indicated that they belonged to leopards inhabiting the area instead of individuals crossing through the territory.

Thickness and quantity of snow on high and middle mountain zones constitutes a factor on leopards' movement, especially young individuals, which in turn can have pernicious impacts on leopards. As a rule, it is known that leopards avoid thick snow cover and only like to move in areas with thin snow cover. If there is too much snow on the ground, they sit under rocks for days, waiting the snow to melt. Thus, urgent conservation measures for this unique animal have to be done during the winter month (i.e., November – February).

In general, the most effective and conventional form for protecting animals and ecosystems is to establish PAs. However, the territory of the Talish region is becoming highly populated, and this could become a constraint. So, a National Park regime, like the HNP, seems to be more effective. This type of conservation regime can promote both the conservation of local communities' way of life and the achievement of biodiversity conservation goals at the same time.

In Zangezur leopard habitats surrounded by human settlements. According to local people and hunters, bezoar goats – the main prey of leopards - are also met around the settlements. So, only real and effective protection may solve the security of leopards. Thus, an anti-poaching program should be the main component for protecting leopards in the Caucasus Ecoregion.

The execution of the following activities is advised for securing and conserving leopards:

- Establish ecological corridors;

- Develop an effective protected area system;
- Ensure the integrity of habitats where mature-female leopards spread by taking into account problems with zoning of protected areas;
- Implement complex programs with local communities for ensuring survival of leopard;
- Establish anti-poaching units;
- Control the use of toxic and chemical substances;
- Implement communication programs with local people;
- Improve the inventory and monitoring methods of leopards;
- Reintroduce one of main pray of leopards – the red deer in the Hirkan National Park;
- Establish new protected areas around Mingachevir water reservoir where leopards spread;
- Increase the area of the Hirkan National Park to include the all leopard habitats in Talish,
- Establish sanctuaries in non-protected territories.

### **3. The Main Objective of the National Action Plan**

The current National Action Plan for Conserving Leopards in Azerbaijan aims at i) creating opportunities for leopards to live in their natural environment with other wild animals and in harmony with people, and ii) ensuring the management of leopard populations, the conservation of their wild preys and living areas, and the constant improvement of relation between leopards and local communities.

As depicted in the above sections of this National Action Plan, leopards are in danger both in Azerbaijan and in entire Caucasus Ecoregion. Only some isolated populations of this species survive in the Ecoregion. Thus, urgent protection measures for the conservation and survival of this rare species in the territory of Azerbaijan are needed.

At this time, a common problem that the Republic of Azerbaijan and other Caucasian countries face is how to effectively share and spread leopards that are living in the wild but under complete isolation.

## **4. Basic Duties and Intended Activities**

### **4.1. Measures at Species/Population Level**

#### **Conservation of leopard wild prey**

- Inventory and monitoring of different herbivores (i.e., bezoar goat, moufflon, wild boar, roe deer, chamois, etc.) inhabiting in the areas where leopards live;
- Development of basic principles for protecting of main habitats of leopard's wild prey;
- Implementation of effective regulation to control hunting of leopard's wild prey within and outside of protected areas;
- Reproduction and reintroduction of leopard's wild prey in areas where hunting is part of people's culture;
- Implementation of a monitoring program for leopards based on standardized methodology;
- Search of leopards in other natural areas where the species could be found;
- Preparation of a common scheme for collecting data from monitoring of populations;
- Organization of mechanisms for exchanging knowledge and experiences on leopard's research and management;
- Training of specialists and involvement of volunteers from scientific institutions in leopard's research and conservations activities;
- Establishment of common data base on monitoring of leopard populations in the Caucasus Ecoregion;
- Development of training courses for protected area employees where leopards are distributed;
- Establishment of long-term observation activities in the areas where leopards live;
- Identification and control of territories that leopards use as temporary shelters, breeding dens etc;
- Population analysis of leopard and estimation of its self-restore opportunities;
- Identification of population dynamics factors and analysis of restoring opportunities for leopards;

#### **4.2. *Measures at Landscape Level***

##### **Protection and Control of the Territories where Leopards Live:**

- Provision of legal basis on resource and landscape planning in the country;
- Identification of gaps for conserving leopards;
- Effective protection of leopard and its territories, especially in the areas where groups of this species live (i.e., Hirkan and Ordubad National Parks, Alazan-Mingachevir area, etc.);
- Analysis of anthropogenic impacts on the territories where leopards live;
- Preparation of basic standards for protecting the territories of leopard and its wild prey;
- Increment the number of leopards and their wild prey living in Azerbaijan;
- Feasibility analysis for reintroducing leopards in their historical ranges;
- Prevention in the use of toxic, chemical substances and fertilizers within and around the territories (mainly in forests) where leopard and its wild prey spread;
- Prevention on roads construction and rehabilitation, development of new infrastructure, as well as unsustainable and illegal activities, such as uncontrolled collection of medicinal plants, mass tourism, illegal hunting, etc. within the territories where leopard and its wild preys live;
- Improvement in controlling territories outside protected areas where leopards live; and
- Estimation of the impact that the use of natural resources might have on leopard populations, especially outside protected areas.

##### **Establishment and Effective Management of Protected Areas:**

- Establishment of wildlife corridors and new protected areas with the purpose of supporting the conservation of leopard populations in Azerbaijan;
- Analysis of the protected area system where leopard live to identify necessary measures for enhancing its conservation;
- Development of management plans for protected areas that are significantly important for conserving leopards;

- Support the implementation of management plans for protected areas that are significantly important for leopard conservation;
- Provision for increasing the size of protected areas to include within their boundaries the areas where leopards live;
- Support protected areas that are necessary for conserving leopard populations;
- Determination of the role and potentiality that protected areas from Azerbaijan have in conserving leopards in ecoregion;
- Establishment of new protected areas around Mingachevir water reservoir;
- Enlargement of the Hirkan National Park area to include the territories where leopards live; and
- Establishment of sanctuaries in key conservation areas that are currently not under any conservation regime.

**Elimination of Barriers and Creation of Corridors:**

- Identification of significant wildlife corridors and “stepping stones”;
- Elimination of obstacles (e.g. roads, railroads, etc.) and provision of integrity to wildlife corridors;
- Organization of land-use planning with aim of creating “stepping stones” for leopards, for conserving territories that cannot be established under any legal protection regime;
- Establishment of protected areas, in the form of “steeping stones” for leopards, in the territories where this measure can be implemented;
- Preparation of legal basis for establishing wildlife corridors;
- Preparation of plan for controlling the conservation of leopard activities and actions in the most significant protected areas for this species; and
- Organization of working-group meetings and establishment of agreements on methodologies and tasks for leopard conservation with the participation of governmental and non-governmental organizations.

**4.3. *Decrease of Dangers***

**Struggling against Poaching:**

- Fulfillment of activities for assessing the effectiveness of actions for fighting against poaching;
- Provision of financial support to anti-poaching brigades for carrying out their activities;
- Effective implementation of regulations for hunting leopard wild prey within and outside protected areas;
- Preparation of necessary methodological materials for senior ranger staff; and
- Conducting trainings for protected areas staff.

### **Management of Conflicts**

- Ex-situ conservation of natural resources and sustainable use of natural resources;
- Identification of the communities living close to leopard habitats;
- Effective and active communication with the members of local communities in leopard habitats;
- Conducting workshops with heads of local administrations regarding traditional knowledge and sustainable use practices of natural resources;
- Documentation and renewal of local knowledge and traditions for managing natural resources;
- Institutional assistance (i.e., political, technical, financial, etc.) to communities for better communication with internal and external actors;
- Preparation of sustainable income programs for local communities;
- Socio-economic assessment of local communities, as well as the identification and implementation of socio-economic programs together with different stakeholders' groups, such as community members, governmental and non-governmental organizations, donor, etc.;
- Involvement of local people in conservation activities for leopards, as a way to gain long-term support of the communities;
- Preparation and fulfillment of a communication strategy with local people as a basis for starting collaborative work;

- Preparation and configuration of mechanisms for encouraging the active participation of local people in conservation activities for leopards;
- Effectiveness assessment of compensation mechanisms, and development of future activities for the compensation program.

#### **4.4. *International Cooperation, Legal Status and Enlightenment***

##### **Improvement of Cooperation and Mutual Work:**

- Strengthen of international cooperation for conserving leopards;
- Exchange of information among different state organizations of the Caucasian countries on illegal trade of leopard and its derivatives;
- Sign of an international memorandum for conserving leopards by taking into consideration the current political situation in the Caucasus Ecoregion;
- Involvement of foreign specialists in order to hold scientific research and monitoring activities in the areas where leopards are distributed;
- Train of customs and border guards for identifying the species and its derivatives that are listed in both CITES appendixes and the Red Book of Azerbaijan;
- Establishment of working groups for coordinating the protection and research activities for conserving leopards;
- Preparation of common international documentations on the trade of leopard and its derivatives; and
- Exchange of experience and information with international organizations.

##### **Improvement of Legal Status in the Areas Where Leopards Spread:**

- Improvement of current legislation and, if necessary, preparation of new one;
- Elaboration of addendums and amends to current legislation;
- Involvement of specialists from Caucasian countries and international organizations for elaborating addendums and amends to current legislation;
- Preparation of scientific, legal, and other supporting documents;
- Agreement on the prepared recommendations with local authorities; and

- Application of prepared recommendations.

### **Informing and Enlightening People**

- Improvement of knowledge in leopard conservation;
- Organization of a sharing information system and training seminars for several communities;
- Fulfillment of the information sharing programs;
- Preparation and application of educational program for schools;
- Preparation and application of a information sharing system for scientific organizations, universities and other representatives of civil society;
- Implementation of trainings for local stakeholders, including frontier-guards;
- Publication of documents and training materials;
- Elaboration and implementation of informing activities in the media;
- Elaboration and implementation of training programs at schools;
- Implementation of communication measures for informing people on the significance that leopard has for nature, as well as the importance of its conservation;
- Preparation of communication materials for conserving leopards, such as posters, pamphlets, films, brochures and magazines as propaganda, for being displayed in mass media and in local communities' organizations;
- Socio-economic assessment of local communities and identification of sustainable economic opportunities;
- Involvement of international organizations in financing activities for conserving leopards;
- Implementation of model projects for communities living close to leopard habitats for improving alternative livelihoods;
- Dissemination of the experiences learned from model projects.

## 5. National Action Plan (2010-2014) for the Conservation of Leopard in the Azerbaijan Republic

PURPOSE	ACTIVITIES	PRIORITY	TIME FRAME	INDICATORS	RESPONSIBLE ORGANIZATIONS	REQUIRED RESOURCES (AZM)
<b>1. Investigation and monitoring of leopard and its wild prey populations – different herbivores (i.e., red deer, bezoar goat, mouflon, wild boar, roe deer, tur, chamois and etc.) in leopard's habitats</b>	1.1 Analyze both leopard and its wild prey populations statuses in the country	1	2010-2011	National report on the status of leopard and its wild prey populations, prepared and approved by Ministry	Ministry of Ecology and Natural Resources (MENR), Institute of Zoology (IZ), Non-government Organizations (NGOs)	5,000
	1.2. Develop a standardized methodology for leopard monitoring	1	2010-2011	Methodology prepared and confirmed by Ministry	MENR, IZ	0
	1.3 Train specialist from Protected Areas (PA) to carry out monitoring activities and involve volunteers from scientific institution in leopard monitoring and conserving activities	1	2011-2012	At least 2 specialists in PAs are trained for carrying out monitoring. Employees of the scientific institutions voluntarily participate in activities for researching, monitoring and protecting leopards	MENR, IZ	10,000
	1.4. Implement a long-term monitoring program for leopard and its wild prey populations in relevant areas (i.e., Hirkan and Ordubad National Parks, Alazan-Mingechaur zone, etc.)	1	Long-term	Annual reports received from each relevant (target) area	MENR, IZ	0

PURPOSE	ACTIVITIES	PRIORITY	TIME FRAME	INDICATORS	RESPONSIBLE ORGANIZATIONS	REQUIRED RESOURCES (AZM)
	1.5. Create a baseline for monitoring leopard populations based on information collected from countries of the Caucasus Ecoregion	2	Long-term	National Information Baseline on status of leopard and its wild prey populations is created and updated each year	MENR, IZ	10 000
<b>2. Development of legal basis for protecting leopard and its habitats</b>	2.1. Develop amendments and addendums to the legislation in order to increase the effectiveness of leopard conservation	1	2010-2011	Corresponding legal instruments are prepared and changed	MENR	3,000
	2.2. Create the legal basis for implementing conservation corridors	1	2010-2011	Amendments and addendums in the Law on PA for creating conservation corridors are prepared and approved	MENR	0
<b>3. Ensure protection of leopard and its wild prey in areas of their distribution (Hirkan and Ordubad National Parks, Alazan-Mingechaur areas and etc.)</b>	3.1. Establish, training and equip anti-poaching brigades in Hirkan and Ordubad National Parks, Alazan-Mingechaur areas, etc.	1	2010	Special anti-poaching brigades are established, trained and well equipped in each target area	MENR	80,000
	3.2. Prevent and prohibit the use of toxic chemical substances, fertilizers, etc. in habitats (especially in the forests) where leopard and its wild prey live	2	2010	Use of toxic-chemical substances is effectively prevented and stated in the corresponding legal instrument	MENR	3,000

<b>PURPOSE</b>	<b>ACTIVITIES</b>	<b>PRIORITY</b>	<b>TIME FRAME</b>	<b>INDICATORS</b>	<b>RESPONSIBLE ORGANIZATIONS</b>	<b>REQUIRED RESOURCES (AZM)</b>
	3.3. Develop and update Management Plans for PA where leopard populations live	1	2010-2011	Management plans are prepared and approved for Ilisu, Turyanchay State Forest Reservers; and Ordubad, Hirkan National Parks	MENR, IZ, NGOs	60,000
	3.4. Develop infrastructure and equipment in PA according to their Management Plans	1	2011-2012	Infrastructure and equipment are developed and/or improved in above four listed PAs	MENR	It will be determined in the process of management planning
<b>4. Restoration and increment the numbers of leopard and its wild prey</b>	4.1. Conduct a feasibility study for the reintroduction of leopards into historical ranges with the involvement of International Union for Conservation of Nature (IUCN) cat specialists' group	2	2011	Report prepared and considered by the Ministry	MENR, IUCN	15,000
	4.2. Develop reintroduction programs, when necessary, of leopards and its wild prey into historical ranges with participation of the SSJ/IUJN, Cat, Reintroduction Groups	2	2012	Reintroduction plan prepared and approved by the Ministry	MENR, IUCN	25,000
	4.3. Starting implementation of reintroduction programs	2	2013-2014	The restoration proces in the historical area of leopard and its prey species started	MENR	It will be determined during the development of the program

<b>PURPOSE</b>	<b>ACTIVITIES</b>	<b>PRIORITY</b>	<b>TIME FRAME</b>	<b>INDICATORS</b>	<b>RESPONSIBLE ORGANIZATIONS</b>	<b>REQUIRED RESOURCES (AZM)</b>
<b>5. Establishment of the PA Network, including the enlargement of existing PAs, for improving leopard conservation in Azerbaijan</b>	5.1. Develop a PA system plan in leopard's range for planning the PA Network of the Republic of Azerbaijan	1	2010	Plan for PA Network development including potential leopard habitats and migration ways is prepared and approved by the Ministry	MENR, IZ, NGOs	3,000
	5.2. Increase the territory of the PA system to maximize the covering area of identified and potential leopard habitats and migration ways (e.g., corridors, stepping stones, etc.)	1	2011-2014	Project for enlarging the corresponding PAs, including conservation corridors, is prepared by the Cabinet of Ministers of the Republic of Azerbaijan	MENR	20,000
	5.3. Start works for creating a transborder PA network	2	2012-2014	Transborder PA network plan prepared and approved by relevant governmental organizations	MENR	20,000
<b>6. Involvement of local communities in conservation activities for leopards</b>	6.1. Identify target groups and develop special programs for involving local people in conservation activities for leopards	1	2010	Program for involving of local people for conserving leopards is prepared and approved by the Ministry	MENR and other organizations	3,000

PURPOSE	ACTIVITIES	PRIORITY	TIME FRAME	INDICATORS	RESPONSIBLE ORGANIZATIONS	REQUIRED RESOURCES (AZM)
	6.2. Implement activities, identified in the special program	2	2012-2014	Special program is prepared and its corresponding activities are implemented	MENR	It will be identified at the end of the process for preparing the special program
<b>7. Acquirement of required financial recourse for implementing the National Action Plan</b>	7.1. Involve local and international organizations, as well as business sector for financing leopard conservation activities	1	2010-2014	Grant projects supported by different donors are signed and implemented	MENR, IZ, NGOs	0
	7.2. Conduct a feasibility study for creating the National Fund for leopard conservation (with participation of the international experts)	2	2010	Report prepared and considered by MENR	MENR	10,000

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