

Islamic Republic of IRAN

The Iranian Ministry of Cultural Heritage, Tourism and Handicrafts

IMCHTH

Dizmar Protracted Area

Management Plan

2019

Summary of the management plan for the newly proposed components in the Islamic Republic of Iran for extension to Hyrcanian Forests of Iran (inscribed in 2019)

Summary of the management plan for the newly proposed components in the Islamic Republic of Iran for extension to the Hyrcanian Forests of Iran (inscribed in 2019)

(A Brief Summary and some selected Figures of the Management Plan of Dizmar Protracted Area by the Department of Environment, 2019)



**Management Plan of Dizmar Protracted Area
2019**

The Comprehensive Management plan for all Hyrcanian Forests is ongoing and under preparation and it will be ready in the next three months and it will be sent to UNESCO. The Dizmar Comprehensive Management plan is a part of this Comprehensive Management plan and it is under preparation.

Dizmar Protracted Area

Location:

Dizmar Protracted Area is located in north west of Iran. The nominated area is a transition type of the mountainous Hyrcanian Forests located in northwestern Iran at the border of Azerbaijan and Armenia. Dizmar Protected Area is limited by the border of the River Aras in the north, and it includes the mountainous landscape in the south of Aras River. Figure 1 shows the location of Dizmar protected area in Iran and East Azarbaijan Province.

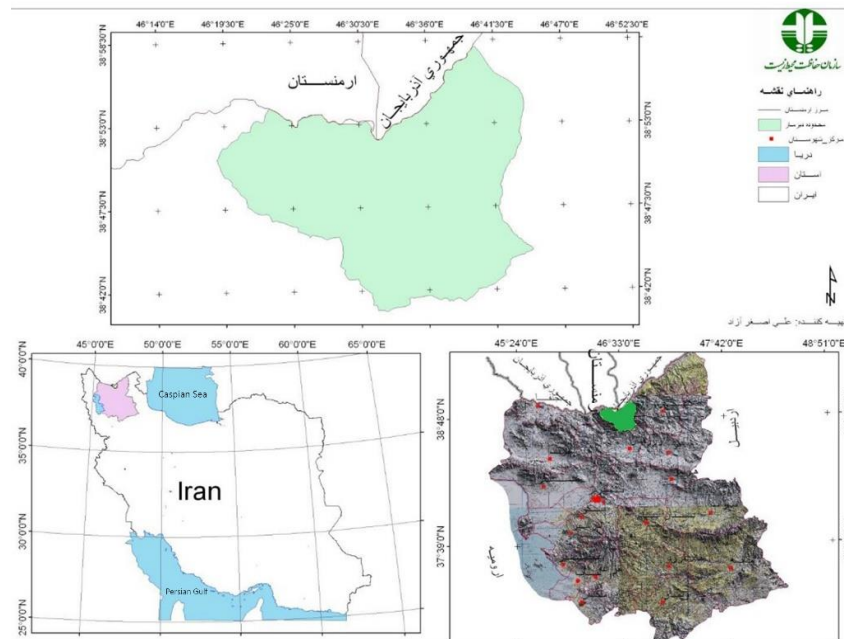


Figure 1: The Location of Dizmar protected area in Iran and East Azarbaijan Province
Figure 2 shows the general View of Dizmar Protracted Area



Figure 2: General View of Dizmar Protected Area (photo by: Ahmad Hajizadeh)

History:

Due to rich biodiversity of fauna and flora in this area It was designated as a protected area on 05 October 2011. Dizmar Protected Area is contiguous with two other protected areas: Arasbaran Biosphere Reserve to the east and Kiyasmaki Protected Area to the west. Figure 3 shows the concentration of the protected sites around Dizmar Protected Area.

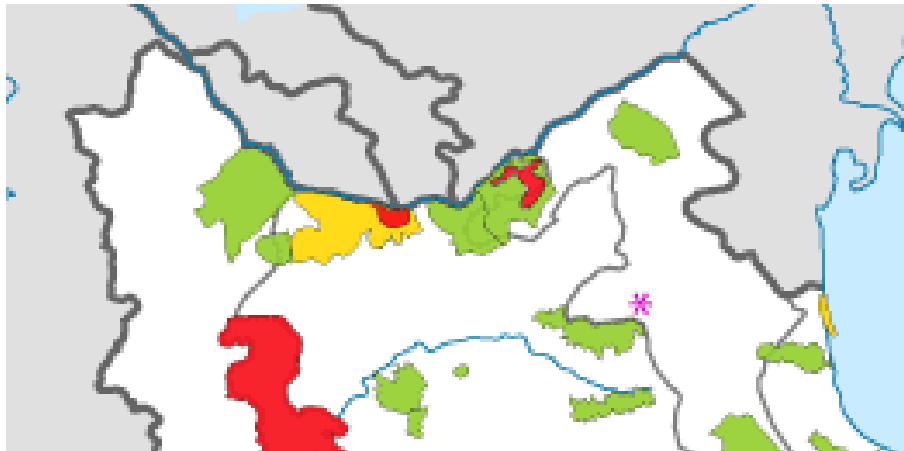


Figure 3: The concentration of Protected sites around Dizmar Protected Area.



Figure 4: Wildlife of Dizmar Protected Area (*photo by: Ahmad Hajizadeh*)

Topography:

Elevation range in this region vary from 329 m a.s.l. near the Aras River in the north-east up to 2,729 m a.s.l. on Andol Peak in the southern parts. Qazandagh (2,572 m a.s.l), This

gradient of elevation and differences in precipitation and temperature causes diverse ecological situation and rich biodiversity of flora and fauna in the area. Figure 5 shows the Slope Classes of Dizmar Protected Area and Figure 6 shows the Aspect Classes of Dizmar Protected Area. These maps show the topography diversity of the area.

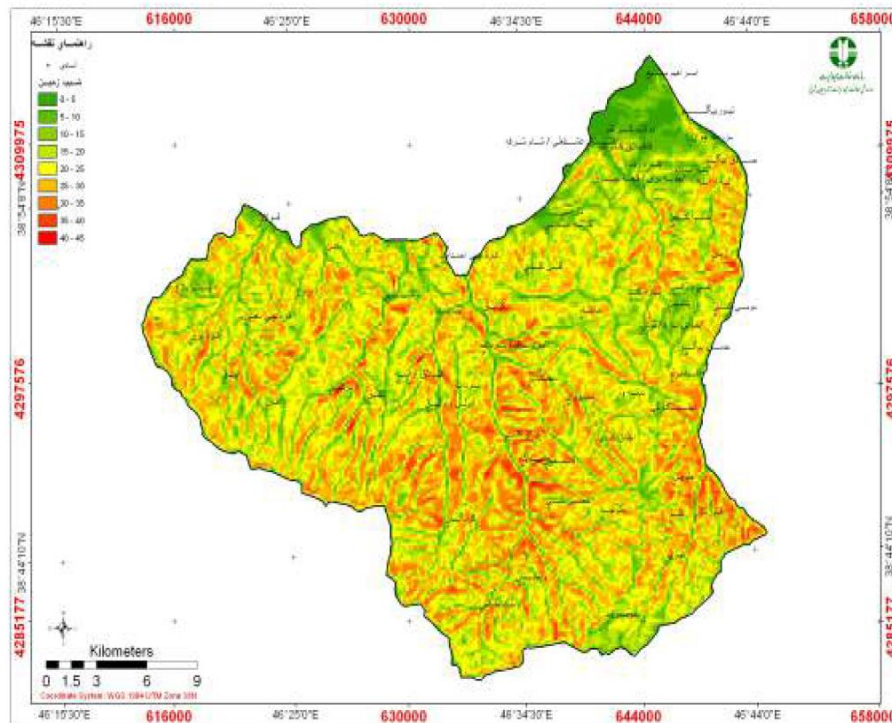


Figure5: The Slope Classes of Dizmar Protracted Area

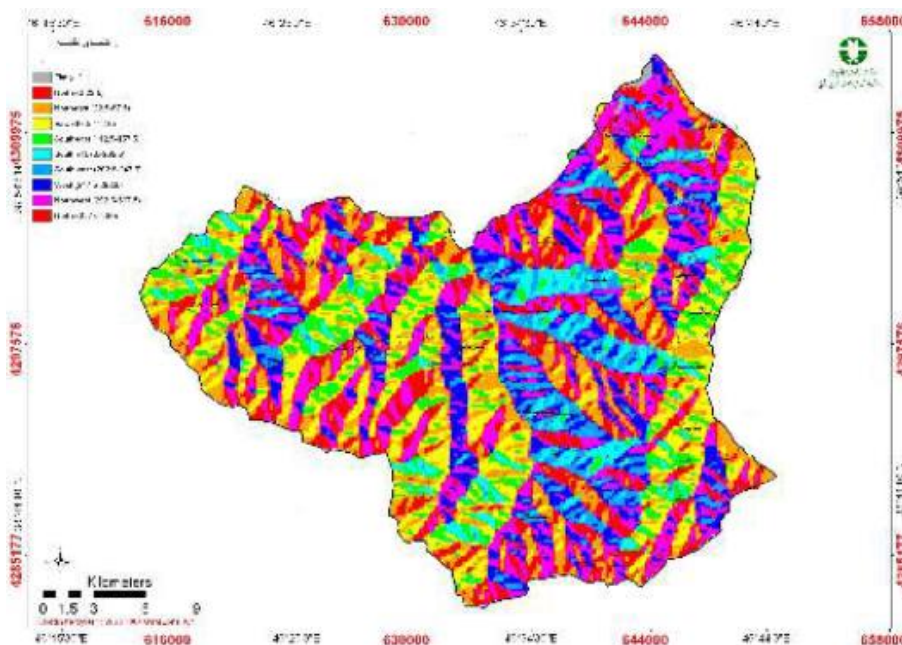


Figure6: The Aspect Classes of Dizmar Protracted Area

Hydrology

Dizmar includes the catchment areas of many rivers originating from the high mountains dominated in the southern, western and eastern parts that feed the mighty Aras River in the North. in the Dizmar watershed. Moisture brought in from the Caspian Sea, the Mediterranean, and Siberian low-pressure fronts, result in precipitation in the region that helps in feeding these rivers and streams that directly flow into the Aras River. Along the Aras River floodplains are widespread. Plateaus are generally high plains consisting of old alluvium with low to moderate slope and the piedmont plains are low slopes. In order to integrate with the Eastern catchment (Ilganehchay catchment) has also been added to Dizmar Protected Area

The annual precipitation of the area is 300 - 600 mm, trapped moisture as air is pushed against the high mountains results in a large number of foggy days and thereby “hidden precipitation”, effectively providing additional water supply permitting ancient, dense deciduous broad-leaved forests, stretched from 400 m up to 2,600 m a.s.l. Figure 7 showsthe main watersheds of Dizmar Protected Area and Figure 8 shows The Hydrology Network of Dizmar Protected Area.

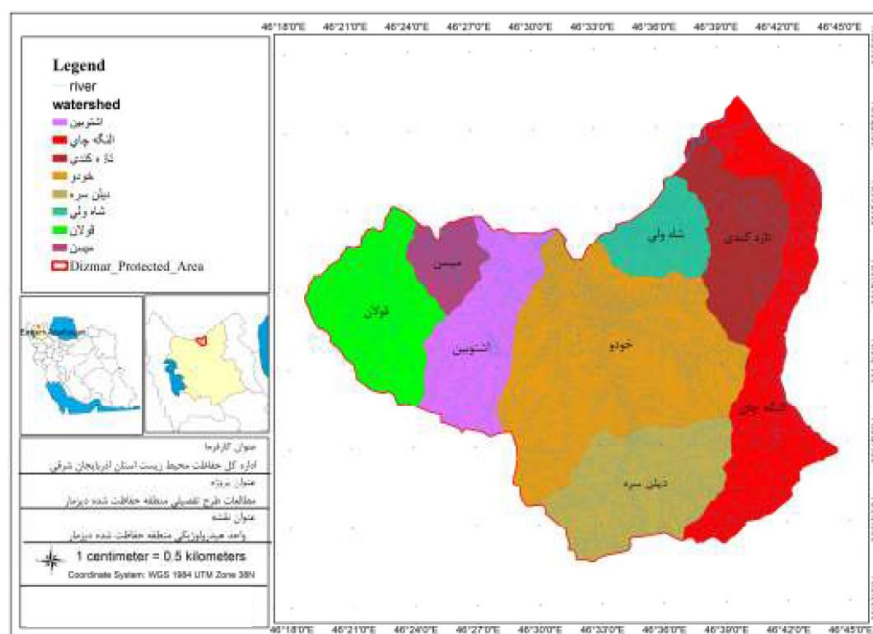


Figure 7: The Main watersheds of Dizmar Protected Area

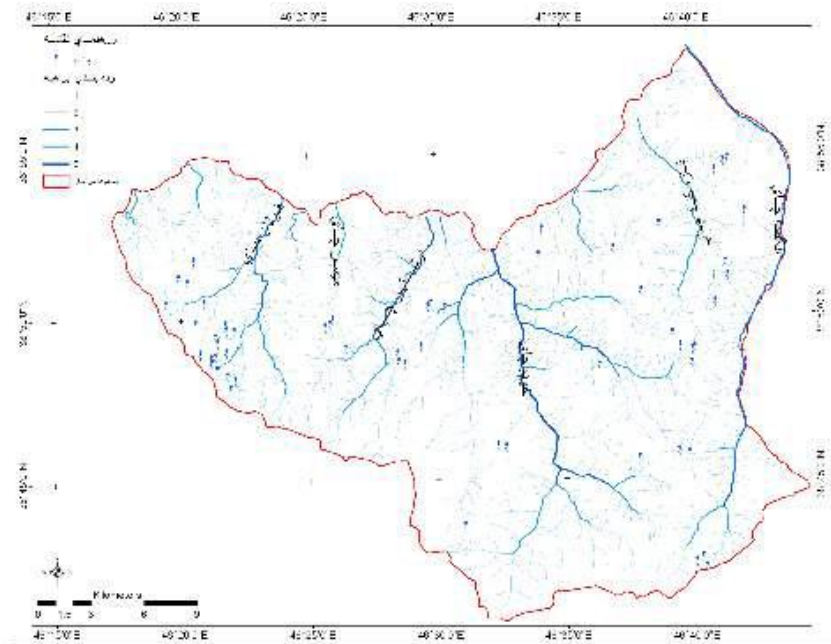


Figure 8: The Hydrology Network of Dizmar Protected Area

Soils:

Soils are generally shallow or of medium thickness and parent rock is often exposed. Soil pH is acidic and becomes more acidic in denser forest areas. The main soil types are forest brown and calcic brown soils. Oak stands are often established on calcic brown soils with a pH value of 5–7.5, whereas hornbeam stands are found on forest brown soils having higher pH values, ranging from 6 to 8. Figure 9 shows the Soil Types of Dizmar Protected Area

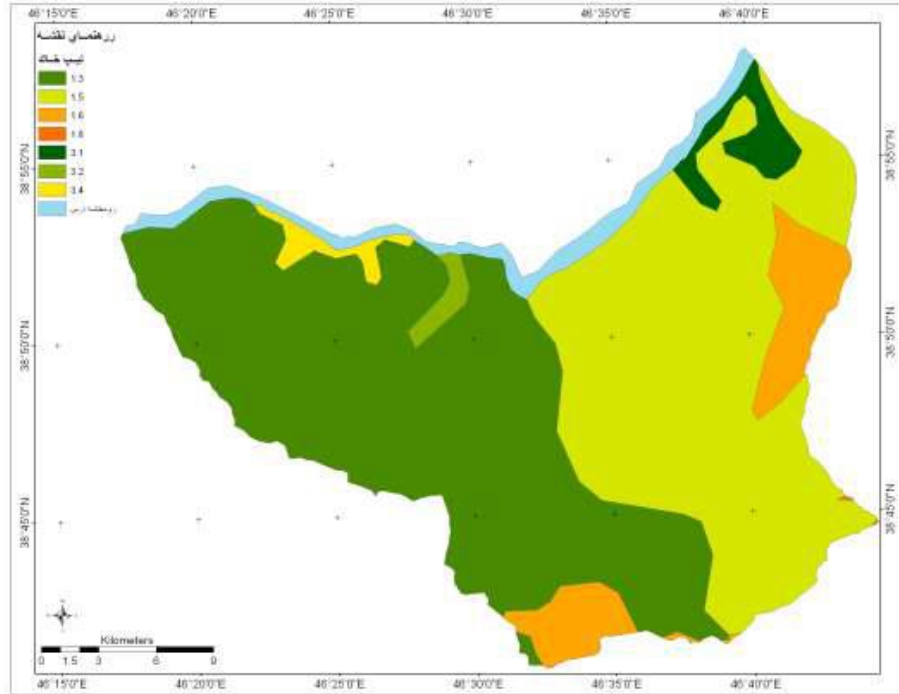


Figure 9: The Soil Types of Dizmar Protected Area

Flora:

The Dizmar protected area is very rich on the basis of plant biodiversity. The complete list of flora of the south Caspian Area is a total number of 3,234 species. Dizmar area has **994 recorded plant species**, equivalent to some 30 percent of the full list just in Its limited surface. Some species of *Sorbus* genus including *Sorbus graeca*, *Sorbus persica*, *Sorbus torminalis*, *Sorbus aucuparia*, some species of *Acer* including *Acer campestre*, *Acer hyrcanum*, *Acer monspessulanum*, and other species such as *Taxus baccata*, *Ulmus glabra* and *Ulmus minor*, *Berberis integerrima*, *Berberis vulgaris*, *Carpinus betulus*, *Celtis caucasica*, *Cerasus avium*, *Cerasus incana*, *Cerasus mahaleb*, *Cerasus microcarpa*, *Cornus mas*, *Corylus avellana*, *Crataegus caucasica*, *Crataegus meyeri*, *Crataegus orientalis*, *Cydonia oblonga*, *Evonymus europaeus*, *Evonymus latifolius*, *Ficus carica*, *Fraxinus excelsior*, *Juniperus communis*, *Juniperus excelsa*, *Juniperus foetidissima*, *Juniperus oblonga*, *Paliurus spina-Christi*, *Prunus divaricata*, *Prunus spinosa*, *Punica granatum*, *Pyrus hyrcana*, *Pyrus salicifolia*, *Pyrus syriaca*, *Quercus robur*, *Quercus macranthera*, *Quercus petraea*, *Rhamnus cathartica*, *Rhamnus pallasii*, *Salix aegyptica*, *Salix alba*, *Salix excelsa*, and so are the main trees and shrubs species.

Fauna:

The area is rich habitat of some wildlife species. The following Map shows the most important distribution habitat and nesting sites of some valuable wildlife

species in the Dizmar region. This map was prepared by Long-term field surveys and continuous monitoring are performed. However, by using experiences of

Environmentalists and using the opinion of experienced experts while field visits and studying the stage plan report. Figure 10 shows habitat and nesting sites of some Wildlife species. Figure 11 shows the density of Wild Goat in Dizmar Protected Area

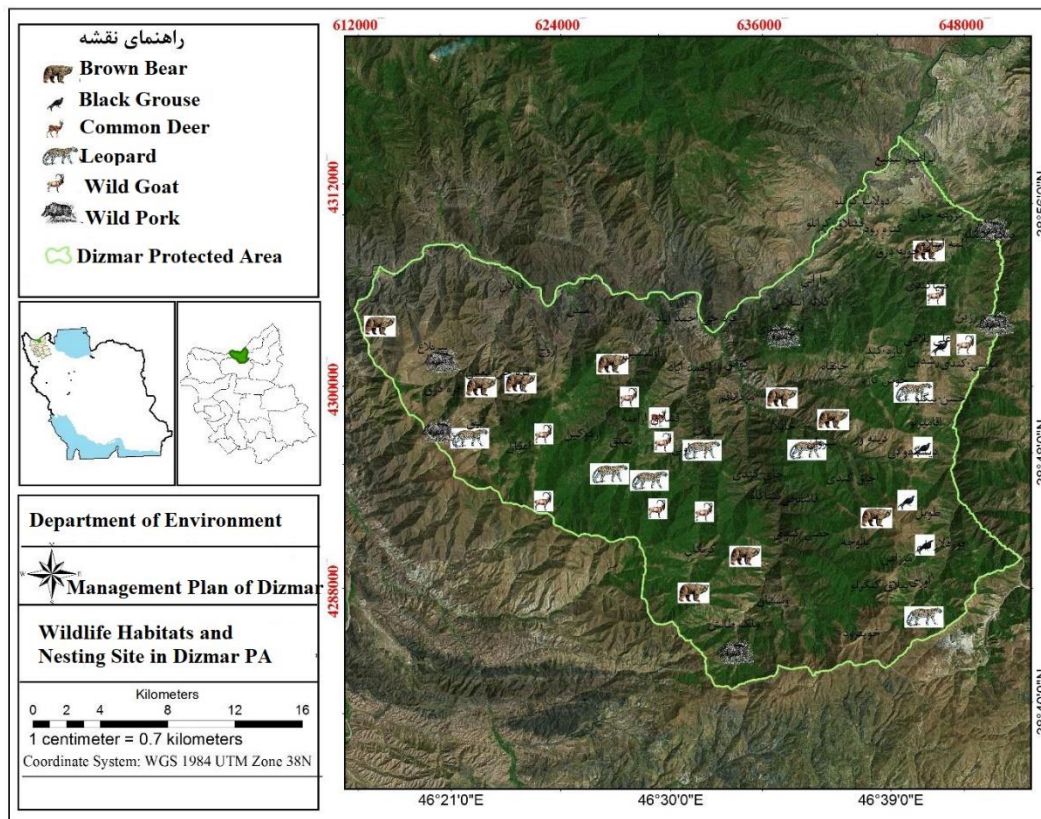


Figure: Habitat and Nested sites of Wildlife

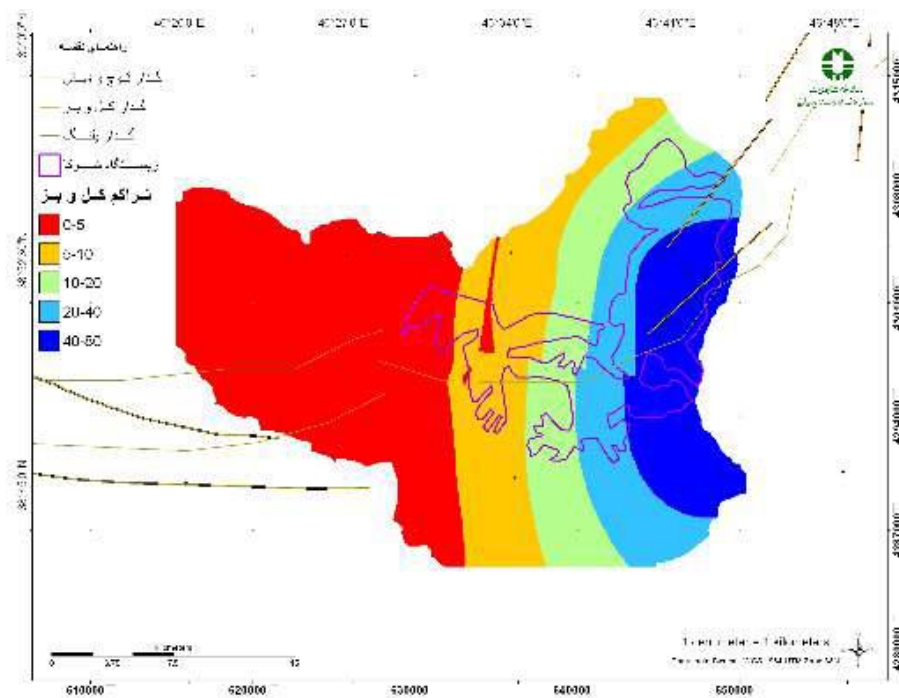


Figure 11: The Density of Wild Goat in Dizmar Protected Area

Management Plan:

Some of the main action plans for the newly nominated Dizmar protected area are as follows:

- Stopping any private sector ownership in the area
- Strengthened conservation of wildlife and flora in the protected area
- Controlling of ecotourism activities in the area
- Developing monitoring plans
- Enhancing local communities' partnership in management and conservation
- Awareness-raising activities for tourism and local communities
- Cooperation with universities and research institutes for research.

Figure 12 shows the management zones of Dizmar Protected Area. The area was including some management zones with intense protection as the core of the protected area and the protection zone as its buffer zone. Tourism is limited to exclusive area.

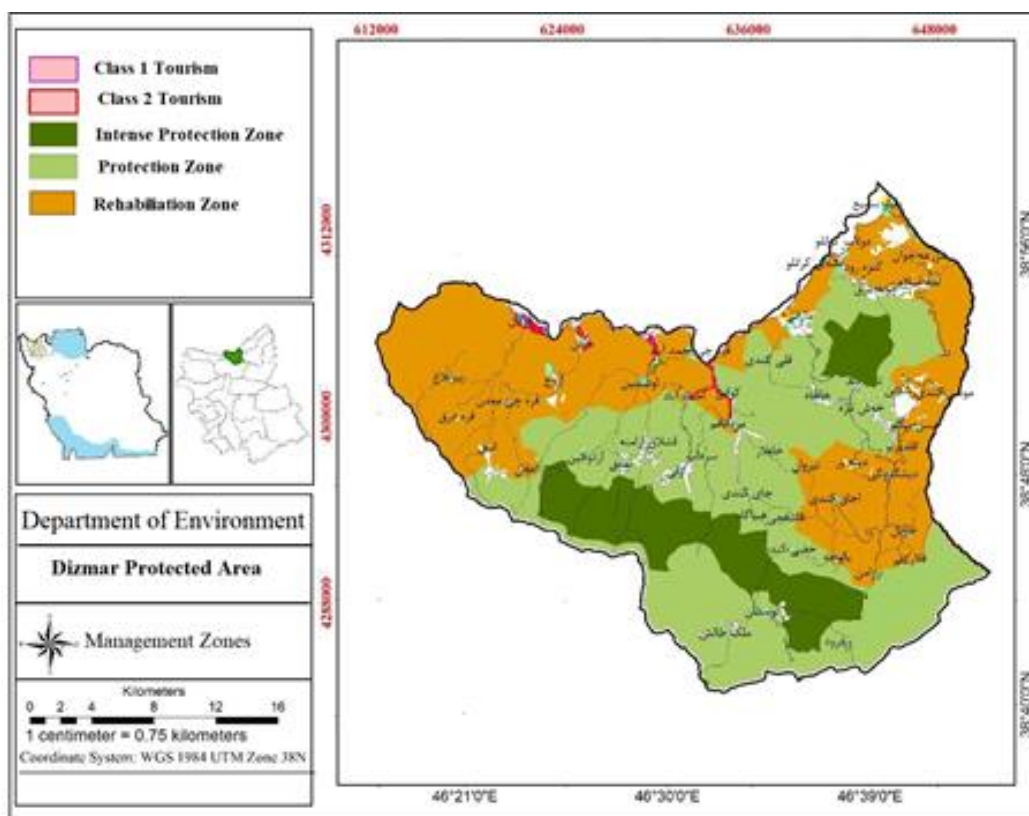


Figure 12: Management Zones of Dizmar Protected Area

Upon consideration for nomination of Dizmar as extension to the Hyrcanian Forests World Heritage Site, both components of Dizmar East and West were managed under the regulation considered for the inscribed sites.

Regulations related to the proposed property:

1. Any kind of interference and consequently degradation and damage to the property is prohibited;
2. All conservation, researches, and excavations must be first approved by the National Steering Committee of Hyrcanian Forests;
3. Any intervention altering the integrity of the property is not allowed;
4. Any kind of tourism activities such as sports and other activities must be permitted by the Ministry of Cultural Heritage, Tourism and Handicrafts and the Department of Environment;
5. Application of heavy machinery and environmental pollutants harmful to the property is not allowed;

6. Supplementary plans regarding illumination, electronic protection as well as mechanical and electronic utilities must be done only after the approval of the National Steering Committee of the Hyrcanian Forests.

Regulations related to buffer zone:

1. Any kind of intervention and damage to the integrity and ownership of the property is not allowed in the buffer zone;
2. Any project of reorganization, expansion of rural areas, development of green spaces, and initiation of tourism infrastructures is just allowed when approved by the Steering Committee of Hyrcanian Base and by getting permission from said committee;
3. Installation and establishment of polluting equipment and topographic changes (unearthing) resulting in damage to the property is not allowed;
4. Any intervention in natural resources and rivers shall be in accordance with the regulations of Forests, Range and Watershed Management Organization (FRWO) and the Department of Environment (DoE);
5. Deploying power lines, installing poles, establishing industrial facilities and developing roads within this area is subject to getting relevant permits from Hyrcanian Base;
6. Cultivation of the lands belonging to the Forests, Range and Watershed Management Organization (FRWO) or the Department of Environment (DoE) in the property without legal permission from the organization is prohibited.

(Organization abbreviations: DoE: Department of Environment, FRWO: Forest, Range and Watershed Organization, MoJA: Ministry of Jihad Agriculture, MoI, Ministry of Interior, NGO: None Governmental Organization, MPO: Management and Planning Organization, MCHTH: Ministry of Cultural Heritage, Tourism and Handicrafts, MoP: Ministry of Petroleum

Management plan and time table of Dizmar (East, Weat)

Area	Activity	Time Table (year)			Responsible	Partners
		Short-term (0-2)	Mid-term (2-5)	Long-term (5-10)		
Property and Buffer zone	Effective protection of plant and animal cormorants and biodiversity of the site, especially key species	*	*	*	DoE, FRWO	-
Property and Buffer zone	Study and monitoring Pest and disease	*	*	*	MoJA	DoE
Property and Buffer zone	Study and implementation of adaptation programs to combat climate change		*	*	DoE	MoJA MoI, MoP
Property and Buffer zone	Monitoring and monitoring the status of plant and animal species		*	*	DoE, FRWO	
Upper and Upper Territory of the Site	Establishment and implementation of participatory programs with the presence of environmental activists, Islamic councils of peripheral villages and local authorities and implementation of educational programs	*	*	*	DoE	MoJA MoI
Property and Buffer zone	Development of protective infrastructure and equipment for site protection		*	*	DoE FRWO	MoI , MPO
Property and Buffer zone and Surrounding grounds	More hunting and fishing control	*	*	*	DoE	MoI, MoJA, NGOs, local authorities
Property and Buffer zone and Surrounding area	Developing and deploying more protection with the participation of local communities	*	*	*	DoE	NGOs , local authorities
Property and Buffer zone	Development of remote control software such as cameras		*	*	DoE, FRWO	

Property and Buffer zone	Use of satellite technology for observing wildlife		*	*	DoE, FRWO	
Property and Buffer zone	Deployment of modern technologies to study the status of plant species			*	DoE, FRWO	
Buffer zone	Establishment of environment office to control and monitor the area		*	*	DoE, FRWO	MCHTH, MPO
Buffer zone	Formation of local tourism cooperatives and their use and participation in the development of ecotourism		*	*	DoE, FRWO	MCHTH
Property and Buffer zone	Further study and identification of wild and wildcat species, fungi, algae and ...		*	*	DoE, FRWO	Universities, research institutes
Property and Buffer zone	Research on plant species in the region		*	*	DoE, FRWO	Universities, research institutes
Property and Buffer zone	Research on the effects of climate change on habitats and biological trends of plant and animal species		*	*	DoE, FRWO	Universities, research institutes
Property and Buffer zone	Research and monitoring of the identification of invasive, migratory and ... species in recent years		*	*	DoE, FRWO	Universities, research institutes
Property and Buffer zone	Developing and equipping the region with modern technology, including easy access to satellite resources and ...		*	*	DoE, FRWO	Universities, research institutes
Property and Buffer zone	Study of genetic reserves and pharmaceutical, protective and ecological values of species		*	*	DoE, FRWO	Universities, Research institutes
Buffer zone	Planning the exit of the livestock from the buffer zone			*	MoJA	DoE
Property and Buffer zone	Install warning signs and comment boards and specify the boundary between site and privacy		*	*	DoE, FRWO	
Buffer zone	Education about attractions (cultural-historical-natural and	*			DoE, FRWO	MCHTH, NGOs
Property and Buffer zone	Making documentaries and films of the property on TV and Internet networks.	*			MCHTH	DoE
Property and Buffer zone	Holding general and professional workshops for local people and managers and authorities		*		DoE, FRWO	

**THE MINISTRY OF ECOLOGY AND NATURAL RESOURCES
OF THE REPUBLIC OF AZERBAIJAN**

HIRKAN NATIONAL PARK MANAGEMENT PLAN



BAKU, DECEMBER, 2005

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Annex 9. Map 13 Planned zoning by 2015 (**Annex 9**)

Annex 10. Plan for Leopard conservation in the Hirkan National Park

Acronyms and Abbreviations

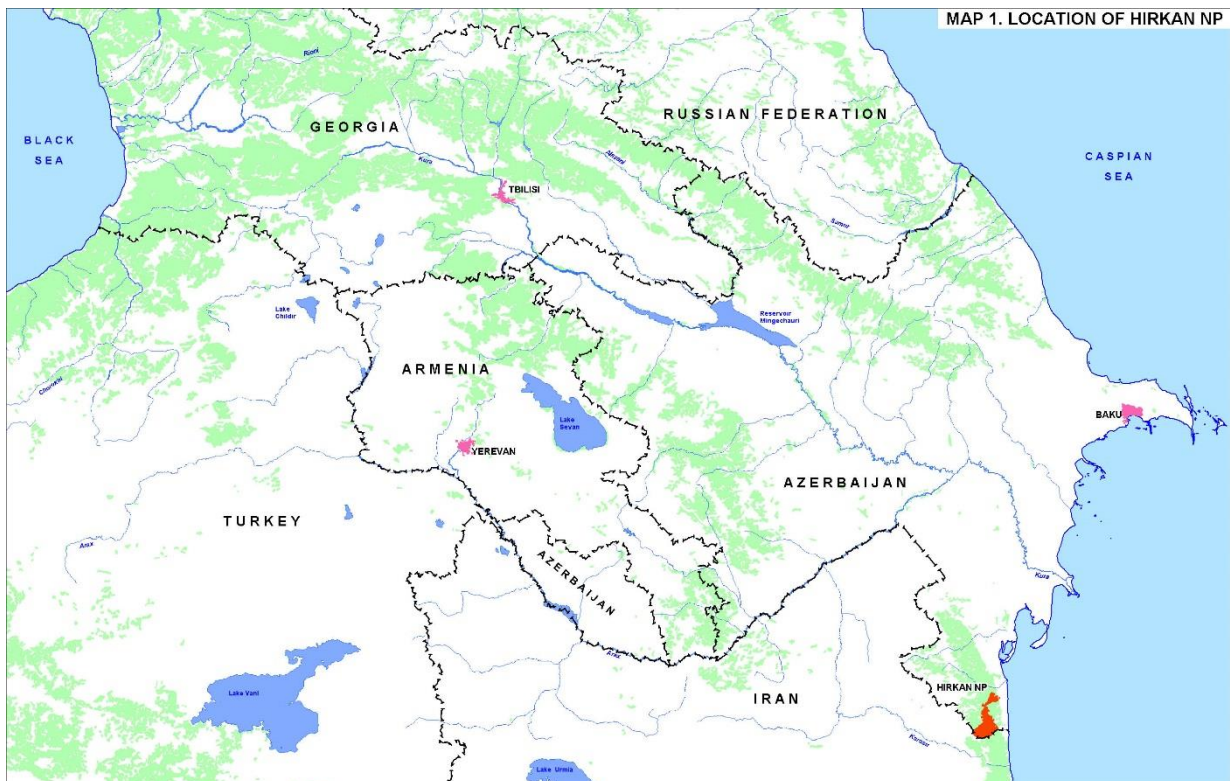
CZ	Core Zone
HNP	Hirkan National Park
MNZ	Managed Nature Zone
MoE	Ministry of Ecology and Natural Resources of the Republic of Azerbaijan
NP	National Park
VIP	Very Important Person
VSZ	Visitor Service Zone
VZ	Visitor Zone

PART ONE: INTRODUCTION TO THE HIRKAN NATIONAL PARK

1.1 Location, History and Purpose of the National Park

Hirkan National Park (HNP) is located in the south-eastern part of the Caucasus Isthmus, close to the Caspian Sea coast (the nearest point - 6 km) and constitutes the core section of the Talysh Mountains, southern part of which is located in Iran and creates north-western end of Alborz Mountain Chain. Geographic location of its central part is 48° 53 ' Longitude East and 38°39' Latitude North (Map 1).

The HNP covers 21,435 hectares of unique Hirkan refugial forest ecosystems. Although man-caused alterations as a result of traditional grazing in forest and older signs of timber cutting and other forest uses are found inside the Park area, the former Hirkan Strict Nature Reserve (2,907 hectares), which was fully incorporated in the HNP and other secluded areas that are difficult in access still sustain pristine wilderness. These areas have served as a refuge to the large spectrum of flora and fauna, representative of the Talysh-Alborz Mountains (Hirkan bio-geographical province). It has provided protection to many rare and endangered species, relic species and species endemic to the Hirkan refugium (Talysh-Alborz Mountains) and the Caucasus.



The rationale for the creation of the HNP was to add additional areas to the former Strict Nature Reserve which on its own is not considered large enough to meet the minimum critical size requirements needed to safeguard the ecological integrity of the ecosystems and wide-range flagship species (particularly highly endangered leopard) this sample area is meant to protect.

Another reason for the expansion of the Strict Nature Reserve and its incorporation into the National Park category was to capitalize on the recreational and educational opportunities offered by a national park in contrast to the Strict Nature Reserve category which does not permit public access according to Azerbaijan Law.

The Park offers good opportunities for nature-based tourism and environmental education and a wide range of recreational opportunities in its surrounding areas: near proximity with the Sea and existing see-tourism potential, as well as some health spas in Lenkoran and Astara districts creates possibility for developing combined (See and Mountain) type of Tourism.

The numerous cultural/historic sites are special attraction in the park and its surrounding zone.

On the basis of the HNP values described above, the purpose of the HNP is defined thus:

“To protect and conserve the diversity of landscapes, ecosystems, wildlife and culture of the protected area and to provide opportunities for the enjoyment and benefit of the people of Azerbaijan and the world”

1.2 The National Context

Azerbaijan has a total land surface area of 86,600 km² with a population 8,3 Million (July, 2004).

Because of great effort of the Ministry of Ecology and Natural Resources of Azerbaijan, a system of protected areas has been successfully developing in the country for the last few years on the basis of “The general plan of protected areas development in Azerbaijan by 2010.” A special note should be made in regards to the expansion of protected areas and the creation of national parks – a new category of protected areas in Azerbaijan.

At present the system includes the following categories:

- Thirteen State (strict) nature reserves (with a total area of 201,136 ha), managed for scientific and research activities and biosphere protection according to IUCN category I;
- Six national parks (with a total area of 117,681 ha), managed mainly for biodiversity conservation and promoting tourism and recreation (IUCN category II);

- Natural monuments, represented by endemic and relict forest districts (more than 15,000 ha) and 2083 century-old trees (IUCN category III); and
- Nineteen sanctuaries (a total area of 272,847 ha), established to protect individual populations of flora and fauna (IUCN category IV).

Thus, 606,664 hectares (or about 7% of the country's territory) are currently under protection in form of 13 Strict Nature Reserves, 6 National Parks, 19 Sanctuaries and number of Natural Monuments. A significant number of animal and plant species, the greater part of which is included in the national and international Red Data Books, are preserved in the protected areas. At the moment, protected areas comprise 160,500 ha or 14% of the country's forest area.

1.3 Legal Framework

1.3.1 General Legislation

The legal status of the protected areas is defined by the law of the Republic of Azerbaijan "On Protected Areas" (No. 840IG, March 24, 2000) and by the Presidential Decree of the Republic of Azerbaijan "On ensuring the adoption of the law "on Protected Areas" (No. 366, July 15, 2000).

In keeping with the law, the protected areas of the republic, according to their purpose, protection regime and use, fall under the following categories:

- State nature reserves (corresponds to IUCN category I)
- National Parks (IUCN category II)
- Natural Parks (IUCN category IV)
- Sanctuaries (IUCN category IV)
- Natural monuments (IUCN category III)

Zoological parks, botanical gardens, dendrological parks, health spas and resorts are considered also as protected territories.

It should be noted that the legislation of the Republic can envisage other types of protected areas as well.

The legal aspects of forest protection and use are regulated by the "Forest Code of Azerbaijan" (1998).

According to economic and ecological values, as well as according to location and functions, the forest fund of the country is considered as "Forests of I category" (which means that main logging is not allowed) is divided into the following categories: (a) Forests under strict protection; (b) Resort forests; (c) Most valuable forest stands; (d) Forest zones around cities and settlements; (e) Wild fruit-tree stands; (f) State protected forest stripes.

Certain protection categories of forests correspond to the IUCN categories, thus making the change of general management regime unnecessary when planning protected areas on these territories.

As a rule, protected areas are established on the basis of national plan for protected areas development, as approved by state authorities. The Ministry of Ecology and Natural Resources of Azerbaijan (MoE) seeks the establishment of new nature reserves and national parks, or the expansion of already existing protected areas. The MoE supervises activities related to the identification of protected areas' borders, the elaboration of the relevant documentation, and coordination with relevant authorities in the region.

After a project on the establishment of a nature reserve or national park is approved, the MoE coordinates the issue with the relevant Ministries and institutions, and introduces a draft of the relevant Presidential Decree of the Republic of Azerbaijan to the Cabinet of Ministers.

New protected areas are established according to the Decree of the President of the Republic of Azerbaijan. General guidelines (Common Charters) on protected areas categories, and charters for separate nature reserves and national parks are approved by Presidential Decree as well.

1.3.2 Responsible Agencies

Protected areas are under the subordination of the MoE, namely the Department of Biodiversity Protection and Protected Areas Development, which is responsible for supervising and approval of annual plans submitted by protected areas administrations.

Management and control over protected areas is partly conducted autonomously and partly through the regional and local bodies of the MoE.

All nature reserves and national parks function autonomously, have directors, deputy directors and other personnel numbering from 13 to 80 employees. Sanctuaries are managed by the administrations of nature reserves and national parks, as well as by local bodies of the MoE. Sanctuaries are protected by a staff comprised of 2-7 employees.

1.3.3 Declaration of the Hirkan National Park

Since 1936 the major part of Hirkan National Park had been a strict protected area and referred as Hirkan State Nature Reserve (IUCN category 1).

Before its establishment the forests of Astara and Lenkoran districts like the rest of Hirkan National Park were considered to be protected forests of category 1 under Forestry Legislation of the Azerbaijan Republic and were banned for economic use.

Thus, Hirkan National Park established under N81 Decree of the President of the Azerbaijan Republic of 09.02.2004 comprises the woods where industrial forestry cut down has never been exercised. Charter of Hirkan National Park was signed by the President of the Azerbaijan Republic on 24.04.2004.

1.3.4 Area and Boundaries

HNP is established on the lands of former Hirkan Strict Nature Reserve and forest districts. In addition to the whole area of former reserve (2,904 ha) forestlands of Lenkoran forest district (Seifidor Forestry, 622 ha) and Astara forest district (Askhanakeran Forestry, Tangerud Forestry and Shuvi Forestry, 17,909 ha) have been transferred to the Park (Map 2, see also Tables 5, 6, 7, 8, Annex 5).

Map 3 shows the polygon and major reference points used in the following boundary description of the HNP.

Point 1 The extreme northern point of the Hirkan National Park falls to the south of the inhabited area Ashaga Apu at the river Vasharuchai. Along the river the park boundaries extend 11.5km southwest and reach Point 2.

Point 2 is situated southwest of the village Tukeser and north of the village Ambobo at the river Vasharuchai. From this point the border stretches 1km to the northwest and returns to the southwest passing around the village Ambobo from the north and the village Daster from the south, and proceeding down to the river Vasharuchai.

Point 3 is located at the river Vasharuchai, from which the border spans up to the crest of the Khondakhyband range and continues along the range in the southern direction up to the highest point (1114.1m). Further on, the border reaches to the crest of the Debavnoband range to Point 4 through the intermountain plain

Point 4 is situated on the crest of the Debavnoband range, with a high point of 1165.0 m. The border then veers to the southeast, covering the forests of the southwestern slopes of the Debavnoband range over the villages Liuliapard, Durya, and Shumrud. The forest district between the villages Durya, Shumrud, Vavlada, and Palykesh are also included within the park's borders.

Point 5 is situated on the river Tangerudchai in the village Vavlad. From here the border of the park extends up to the watershed range between the drainage basin of the rivers Tangerudchai and Istisuchai to a point of 813.6m in height. Further along, the border reaches the highest point of the park (1816.4m, Shyndan Galasy) through the watershed and to the southeast.

Point 6 The starting point is the peak of the mountain Shyndan Galasi, 1816.4m. Further, the park border coincides with the state border of Iran and to the southeast stretches to Point 7 at Zardalyu on the river Astarachai opposite the inhabited Iranian area Verid.

Point 7 From here the park border runs up along the channel of the river tributary Astarachai to the northwestern direction of the watershed between the basins of the rivers Astarachai and Istisuchai up to a point of 1293.0m. From here along the watershed to the east the park border reaches the intersection of the paths Dilmyadi-Unuz and Novushtarud-Amaband.

Point 8 This point is interesting because here the catchment basins of the rivers Istisuchai, Astarachai and Novushtarudchai intersect. Further on, the park border to the south encompasses the forest district between the former villages Unuz and Armudy and returns back to the watershed again by following the river Astarachai down to Point 9.

Point 9 is situated on the river Astarachai, where its small tributary flows opposite the Iranian village Bagaristan. From here the park border passes along the state border up to the village Alasha.

Point 10 is situated in the western corner of the village Alasha. From here the park border reaches the river Tangerudchai to the northwest, bypassing the populated areas Syatuk, Vaznesh, Shuvi, Saliva, Durya, Noyabud and Veneshikesh.

Point 11 is located on the river Tangerudchai at 1.5km to the northeast of the village Akhkerpi (Sipiyapard). From here the park border goes up to the watershed along the small tributary of the river Tangerudchai to the west of the village Oval and in the same direction goes down to the river Syaku. Further along this tributary the border stretches up to the Ulyasy range.

Point 12 is situated on the Ulyasy range opposite Point 2. From here the park border extends to the north along the southern slopes of the range, leaving the villages Giliaporgo, Miki, Chuvash, Bili, Biu, Sygakeran, Marzasa and Sygalonu outside the park area and approaching the village Pensar to the east.

Point 13 Here the border simultaneously turns to the north and towards the Baku-Astara highway, reaching the barrier of the Khanbulan reservoir.

Point 14 is situated at the barrier of the reservoir. From here the border reaches the river Vasharuchai through the motorway Burdjali-Biliasar and meets Point 1.

Point 15 is situated at the “Moscow Forest” – enclave plot (91 ha) of the park; this is part of former Hirkan reserve; the point is situated 0,9 km far from the nearest border of main territory; geographical coordinates of the point are 48°48’15” long. E and 38°38’42” lat. N

Points 16, 17 and 18 are located around enclave plot “Moscow Forest” with geographical coordinates - Point 16: 48°48’45” long. E, 38°38’53” let. N; Point 17: 48°48’43” long. E; 38°38’38” lat. N and Point 18: 48°48’20” long. E, 38°38’25” lat. N.

1.4 Biophysical Framework¹

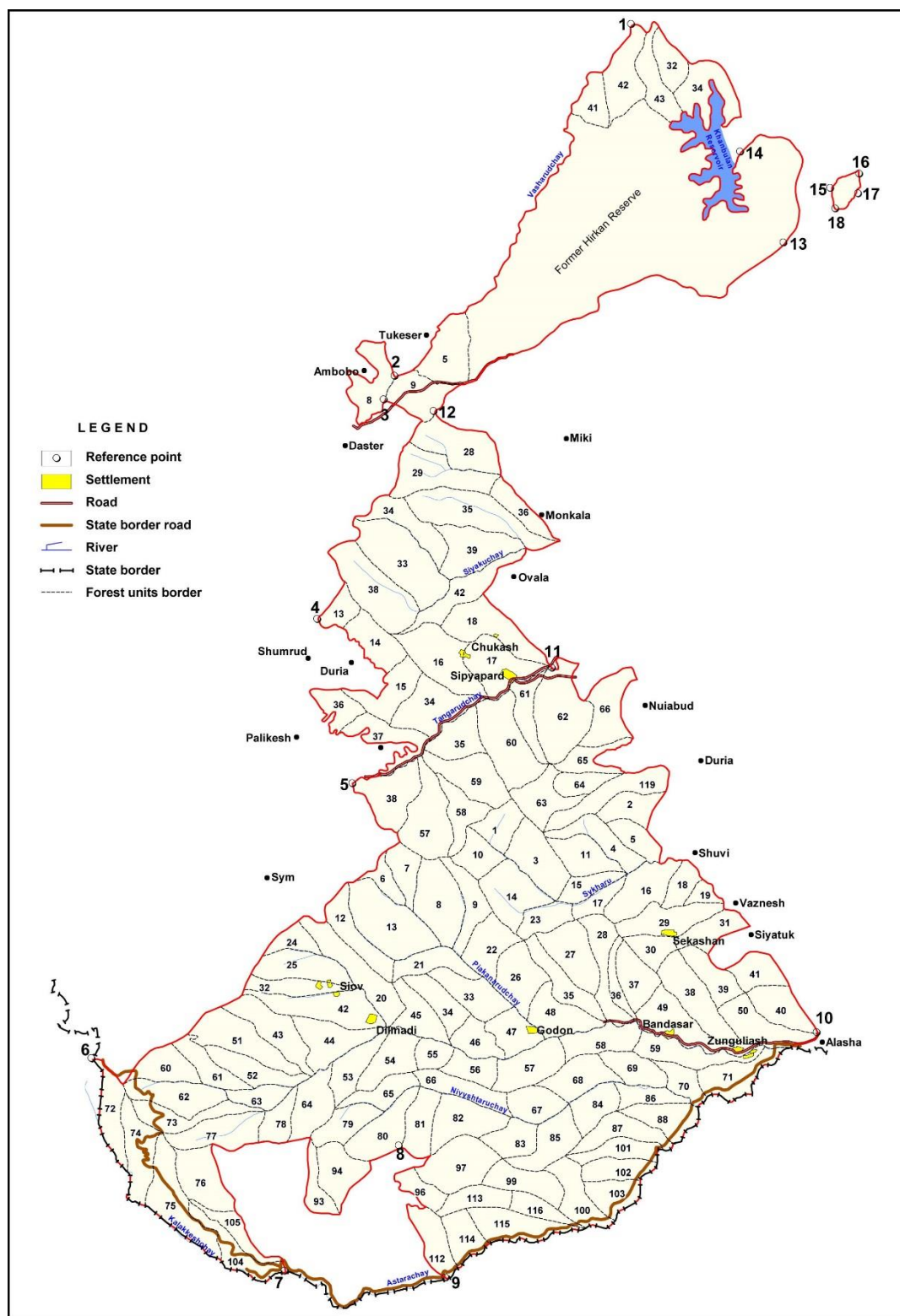
1.4.1 Orography, Geology and Soils

To the northwest the Talysh mountain system directly merges with the Sabalan range; to the southeast – with the Alborz range.

The Talysh mountain system, being the northwestern extremity of the Alborz system, is made up of five elongated ridges reaching 400-2507 m a.s.l., which stretch parallel from the northwest to the southeast at an acute angle towards the Caspian Sea, and ends at a distance of 5-20 km. Kyumyurkei Peak (2494 m) is the highest mountain in the Talysh range, which is situated far from the sea compared to other ridges and it is the watershed of the rivers flowing to the Caspian Sea as well as to the river Kara-su. Along the main watershed range with the highest peaks Maraurt (2570 m) and Kyumyurkei (2494 m) is the state border between Azerbaijan and Iran. This is then followed by the Peshtasar range with mountains reaching 1800-2000 m and the Alashar and Burovar ranges, of 1000 m in height. Alongside the longitudinal ridges there are transversal ones as well. As a result of their crossing, the relief of the mountain system consists of a great number of isolated hollows (Iardimlyn, Dyman).

¹ For preparation of this chapter has been partly used information from proposal for nomination of “Hirkan Forest” on UNESCO World Nature Heritage, developed by: Amrahova Gulnaz, Baku (Ministry of Ecology and Natural Resources of the Azerbaijan Republic), Prof. Dr. Martin Uppenbrink, Berlin, Dr. Hans Dieter Knapp (Internationale Naturschutzakademie Insel Vilm), Nature Protection Fund after M. Succow, Vitaly Kovalyov, Berlin, Society INTERCAUCASUS, Nature Protection Union of Germany (NABU), Professor, Doctor Peter Schmidt, Dresden, Society, INTERCAUCASUS, Dresden Technical University, Askerov Elshad, Baku, Institute of Zoology, National Academy of Sciences of the Azerbaijan Republic, Dr. E.Tagiyeva, Institute of Geography, National Academy of Sciences of the Azerbaijan Republic; by applying the materials of: Dr.V.Hajiyev, Institute of Geography, Academy of Sciences of the Azerbaijan Republic, Dr. G.Goshkarli, Institute of Archeology and Ethnography, National Academy of Sciences of the Azerbaijan Republic, A.Samedov, Institute of Geology, Ministry of Ecology and Natural Resources of the Azerbaijan Republic, A.Shafiyev, Archeology department Executive Authority of Astara District; in association with: National Academy of Sciences of the Azerbaijan Republic, UNESCO National Commission of the Azerbaijan Republic.

Map 3 Reference Points of HNP border



The territory of Talysh mountains and the National Park mostly are folded with the tertiary (from Paleocene until mid Miocene inclusively) deposits. The oldest measures in the Talysh referring to Paleocene can be found in its south-eastern part and are united under the Astara Assize. The Talysh Ridge, extending by a nearly continuous belt along the State border of the Republic of Azerbaijan with Iran, is folded mainly with the low Eocene deposits (the Kosmalyan assise) represented by basalt, lava-breccias, lava-conglomerates and volcanogenic tuffs. Due to their denudation resistance, these rocks, especially basalts, are playing a significant role in the geomorphologic appearance of the Talysh Ridge - very often they create extremely efficacious forms of relief, e.g. the peaks.

Basic features of modern relief of the mountainous Talysh are in direct dependence from its geological structure. It is expressed by the presence of a number of relief steps (blocks) on a big plan. The mountainous part of the Talysh is characterized by numerous crossing (as to the tectonic structures) erosive ridges extending for many kilometres like narrow crest-watersheds.

The quaternary deposits with loams developed in the watershed and slopes, and pebbles, sand and loams folding terraces of the river valleys also occur in mountains.

The Talysh and National Park particularly is characterized by a rather various bunch of top-soils, such as mountain-forest brown leached soils, mountain-forest brown and podzolic soils, mountain-forest yellow-green strongly and slightly podzolic soils; mountain-grey-brown soils, etc.

The mountainous-forest brown and brown soils are spread in the zones from 700 to 1800 m and have been formed in the climate with an average annual temperature of 6-10 °C. They are characterized by significant leach and some features of podzolity appear in them. The last type of soil is widely spread in the submountane and in lower belts of mountains areas with humid, semi-subtropical climate.

Mountainous-forest yellow-green soils are formed due to weathering of various slates, tuff-sandstones and others.

In short: various forms of yellow soils (Ferrasols) are characteristic soil types for the tree communities in the National Park. In the foothills, yellow brown soils and mountain brown forest soils (Cambisols) have also formed in some places. Locally you can find extensive areas of humus carbonate soils (Rendzinas), as well as alluvial and gley soils.

1.4.2 Climate

The mountain chain of the Talysh builds a natural barrier for the incursion of northern and north-eastern air masses. The chain favours the condensation of water steam, coming up from the Caspian Sea.

The climate is evenly warm-temperate with mean annual temperatures between 12-15 °C in Hirkanian part of the Park (up to 600 m a.s.l.). The Hirkanian climate is characterised with a summer dry phase and a peak of precipitation in autumn. Here average air temperature is of -2 to 3 °C in January. Average temperature of the warmest month is 24-26°C. Average annual precipitation is barely exceeding 1500 mm.

In mountainous part mean annual air temperature is varied between 6-12 °C. In summer this indicator reaches 20°C, in winter it slightly more than 0°C. Maximal temperature in the region could get to +40°C, minimal – minus 20°C.

1.4.3 Hydrology

In the national park's territory rivers – flowing into the Caspian Sea or losing themselves at the swamped territory of the low-lying part – are abundant.

The mountainous rivers of the Talysh are crossing the folded structures and flow in deep narrow valleys. The rivers of Astarachay, Istisuchay, Tanqaru, Vesharu, Lenkeranchay, Vilyachay, Bolqarchay, Qeoktepe and others with numerous tributaries belong to these rivers. The highest amount of water in the rivers is met during autumn, winter and spring.

The river of Astarachay is one of the biggest water arteries of Talysh. Its estuaries are located in Iran; its length is 38 km, the reservoir square is 242 km². The rivers of Istisuchay, Navashtaru, Kalan with their estuaries on the north-eastern slope of the Talysh Ridge (near mount Shadan-Kalasi) are its tributaries.

The river of Tanqaru flowing in the north-eastern direction has its origin in the watershed of the Talysh Ridge near the village Laji. Its length is 48 km; the reservoir square is 223 km², numerous tributaries flow into the river along its length.

The rivers of Sim, Diqo, Palikesh having received their names from the villages of the same name, are the longest of them. In its upper part the riverbed is slightly meandering and has small waterfalls. The middle part of the riverbed is characterized by gradualness.

1.4.4 Vegetation

National Park's area belongs to the Hirkanian Floristic Province. According to the Global Ecoregions of WWF, it is referred to here as the Caspian Hirkanian mixed forests eco-region.

On the basis of the subdivisions of the Caucasus region the National Park is located in an area being acknowledged by all authors as autonomic, which includes the Lenkoran coastal plain and the Talysh Mountains.

The Park's area essentially extends from the colline up to the subalpine belt, thus comprising the forests up to about 1800 m a.s.l.

Phytogeographically area belongs to the Hirkanian Province comprising the south Caspian coastal plain and the adjacent seaward mountains in Azerbaijan (Talysh) and Iran (Alborz). This area is a refuge of arcto-tertiary vegetation and, as a center of Tertiary relicts. The number of relicts and endemics per area is unique in Europe and West Eurasia, respectively. As compared with all floristic provinces of Europe and Caucasus, tree species abundance of the forests in the Hirkanian province is the highest at all.

The flora of the national park includes 1296 species (approx. 31% of the species numbers of the vascular plants of Azerbaijan), belonging to 549 genera of 109 families. As many as 121 species were entered into the Red Book of Azerbaijan as rare and/ or threatened species (see Annex 1), 100 species of which only occurring here. As many as 28 species are endemics of the Caucasus, and 29 species endemics of Azerbaijan, the remaining 64 species are regarded as rare, of which there are numerous relicts.

The woody flora that because of its wealth of Tertiary relicts and Hirkanian endemics is so characteristic of the national park comprises 130 species, of which 21 tree species and 12 shrub species are allocated in Azerbaijan to the endemics and/ or relicts (23% of the tree and shrub species occurring in this region).

Various forest vegetation types are encountered in the Park area, they depend on the different altitudinal belts and on the river valleys and ravines. The main types are: (a) Hirkanian lowland-colline mixed broad-leaved forests (south Caspian lowland forest with *Quercus castaneifolia*, *Parrotia persica*, *Zelkova carpinifolia*, *Diospyros lotus*), partly in combination with *Alnus glutinosa* ssp. *barbata*-*Pterocarya pterocarpa* alluvial forests; (b) Hirkanian colline to montane oak (*Quercus castaneifolia*) and hornbeam (*Carpinus betulus*)-oak forests (oak and mixed hornbeam-oak forest of south Caspian mountains, partly with *Parrotia persica*, *Zelkova carpinifolia*, *Diospyros lotus*, *Acer velutinum*, *Gleditsia caspica*); (c) Montane Oriental beech (*Fagus orientalis*) forest with evergreens (*Buxus hyrcana*, *Ilex spinigera*, *Ruscus hyrcanus*, *Danae racemosa*, *Hedera pastuchowii*), alternating with mixed deciduous broad-leaved forests (*Quercus castaneifolia*, *Alnus subcordata*, *Acer velutinum*) and some others. The Hirkanian mixed and oak forests consisting of Tertiary relicts and endemics are particularly characteristic of the National Park area.

1.4.5 Fauna

The area of the Park is part of the Holarctic zoogeographic region and according to faunistic zonation belongs within the Circumboreal zoogeographic sub-region represented by the Caucasus forest district of the forest province and its cluster Hirkan site which is an outlying part located hundreds kilometers away from other sites of this province. Thus, most animal species

have inhabited this area since the ancient times being isolated from the main habitat and are represented by endemic subspecies.

Fauna of vertebrates are represented by 213 species. Of vertebrates 50 species are either threatened with extinction in Azerbaijan and the rest of the world or rare and therefore listed Red Data Book of Azerbaijan and IUCN Red Data Book.

Fauna of mammals of Hirkanian region is the most complete studied one in comparison with other groups of animals. It has been preserved in its complete diversity and numbers 47 species from 6 orders. The only exception is Turanian Tiger that had become extinct in 50s of XX century and is still listed in the Red Data Book of Azerbaijan. Seven species are listed in the Red Data Book of Azerbaijan and 11 species are included in the IUCN Red Data Book.

The rarest species in the HNP is Leopard (*Panthera pardus saxicolor*). According to recent studies several individuals of Leopard inhabit the area of National Park. Leopard that usually prefers arid landscapes (Iranian-Afghan highlands with open dry woodlands and scrublands) inhabits here humid broadleaved forests. HNP is one of the last forest habitats of leopard in the Caucasus and Middle East. Mountain Hirkan Forests are the very important habitat and migration route of leopards beyond which it is completely eradicated by poachers.

Totally 13 carnivore species presently inhabit the area. Red Fox (*Vulpes vulpes*), Golden Jackal (*Canis aureus*), Gray Wolf (*Canis lupus*), Eurasian Badger (*Meles meles*), Weasel (*Mustella nivalis*), Wild Cat (*Felis sylvestris*), Jungle Cat (*Felis chaus*) are typical and widely spread. The largest predator Brown Bear (*Ursus arctos*) is also common in Hirkan Forests. European Otter (*Lutra lutra*) and Lynx (*Lynx lynx*) are included in the IUCN Red List.

Ichthyofauna numbers 16 species. Two of them are listed in the Red Data Book of Azerbaijan.

Amphibians are presented by 9 species of which 5 are listed in the Red Data Book. Among them *Triturus cristatus* is listed in the Red Data Book as endangered in Azerbaijan.

Herpetofauna of Hirkan Forests is represented by 22 species of which two - Mediterranean tortoise (*Testudo graeca*) and Aeskulapian snake (*Elaphe longissima*) are listed in the Red Data Book of Azerbaijan.

Ornithofauna is represented by 118 species from 11 orders. Of them about half are nesting, 15 species are listed in the Red Data Book of Azerbaijan and IUCN Red List. There are a considerable number of species here that enjoy endemic or restricted habitat area as well as those the distribution of which is limited to one biotope: Albours nuthatch (*Sitta europea rubiginosa*) and *Tichodroma muraria*. Typical inhabitants of the area are also rare widely endangered species: Black stork (*Ciconia nigra*), Golden Eagle (*Aquila chrysaetos*), Levant Sparrowhawk (*Accipiter brevipes*), Northern goshawk (*Accipiter gentilis*) that are listed in the Red Data Book of Azerbaijan. Talysch Caucasian pheasant (*Phasianus colchicus talischensis*) and Caspian Tit

(*Parus lugubris hyrcanus*) are local endemics listed in the Red Data Book of Azerbaijan as rare species the number of which is declining. HNP is the main area of their habitat (see Annex 1).

1.5 Socio-Economic and Cultural Framework

1.5.1 Population

HNP is located within the two districts of Astara and Lenkoran. The total population is 274.248 (January, 1999) or 3.3% of the population of Azerbaijan. Average population density is rather high – 127/km². Table 1 shows some population data.

Table 1 Area and population of Lenkoran and Astara districts

District	Area (km ²)	Settlements number	Population		
			Total	Town	Village
Lenkoran	1539,4	83	189.929	77.080	112.849
Astara	616,6	93	84.319	18.480	65.839

The current trend in the region is the immigration of younger people mainly to Russia in search of the jobs.

Inside the HNP's territory 16 small and medium-size villages with total population of 1340 are located (see Table 2). The biggest one – Zungulesh (105 houses with 410 inhabitants) is located at the Park's eastern border. Medium size village is also Ag korpu (Cipiepard). Other villages are smaller (up to 21 houses and 90 inhabitants). 13 of 16 villages comprises less than 10 houses (see also Part 2, chapter 4)

Table 2 Settlement, inhabitants and livestock within the Hirkan National Park

No	Settlements	Houses	Inhabitants	Livestock
1	Zungulesh	105	410	1420
2	Bandeser	21	79	310
3	Dilmadi	5	27	80
4	Siov	7	32	110
5	Piekenerud	7	42	60
6	Chaiagyzy	3	11	40
7	Godon	2	10	73
8	Duria (Shuvi)	3	16	78

№	Settlements	Houses	Inhabitants	Livestock
9	Ag korpu (Cipiepard)	85	498	1200
10	Sekiashen (Shuvi)	3	13	83
11	Venebijar	1	8	7
12	Gimeteli	3	16	99
13	Nivishterud	2	14	73
14	Chukesh	15	89	147
15	Byxiebalet	1	9	20
16	Upper and Lower Gyrun	10	70	72
	Total:	273	1340	3872

1.5.2 Land Use

The main economy of the region traditionally has been agriculture (under favorable climatic and soil conditions cultivation of tea and some sorts of citrus: mandarin, orange, etc.) and tourism oriented to the Soviet market. Since Azerbaijan's independence the tourism industry has dropped to an all time low, dramatically affecting the local economy. The once well developed tea and citrus production in the condition of open market competition has been also collapsed and now it depends only on the national demand and does not guarantee significant income source for local population.

Most of the rural population in the region, including inhabitants living inside the Park's area, currently depends on subsistence agriculture and animal husbandry. They have about 4,000 livestock (mainly cattle and goats) (Table 2).

In addition, there are 126 small agricultural plots, mainly vegetable gardens and hay meadows that are used by the local population (Annex 2). This remains of a local character and does not cause any significant harm to the integrity of the forest ecosystems. The plots of lands are located up to 1450 m a.s.l. In the lower belts, the local populations live in relatively sizable villages situated near the park's borders. Here some of families cultivate rice. Totally there are 15,09 ha of agricultural lands within the Park boundaries or 0,07% of the total Park area (Table 3).

The same could be applied to the forest resources used by the inhabitants inside the National Park. They collect minor forest resources (blackberry, medlar, walnut, etc.) in small quantities. Villagers mainly collect fallen branches for firewood. Cutting is rare. However, there are some areas in the National Park from which the local population was supplied with firewood; there were incidents of illegal cutting as well.

Table 3 Agricultural lands within the Park boundaries (see also Annex 2)

Type of agricultural lands	Area (ha)
Vegetable gardens (potatoes, truck crops)	5,28
Hay meadows	2,98
Hay meadows in combination with truck crops	5,63
Rice plantations	1,2
Total	15,09

1.5.3 Historical features

Mastering of the Talysh mountains zone commenced in upper Paleolith (50-40 thousands of years ago). Several cave stands of upper Paleolith age have been registered there. The stand near the village Buseir is distinguished among them, where archeologists have found numerous stone instruments of upper Paleolith age. Forms and functional variety of these instruments perfect for stone instruments of those times testify high level of development of the people of stone industry populating the cave.

The foothill site of the Talysh Mountains including the area adjoining Hirkan forests is one of the earliest agriculture centers in the South Caucasus. Some husbandry farming settlements of Neolithe and early Bronze Age (5-4 thousand BC) have been registered there in the site of Misharachay, Velvelechay and other river valleys.

Most presumably with transition from the appropriating economy to the producing one many inhabitants of the site migrated from the Talysh mountains and its foothills to river valleys and other water basins to develop fertile lands of mountain and river valleys where consequently first large agricultural settlements that have multi meter cultural layers rich in remainders of material culture of that period emerged. Archeological facts attained from these settlements: ceramic products fragments, carbonized residuals of grains verify that they had high for those times husbandry culture.

In II millennium BC this area was in the sphere of migrating flow of local Caucasian ethnos and newly new come Persian tribes who through settling down in the Talysh mountains site and mutually influencing each other in the course of time created a steady ethnic group that were ancestors of the contemporary Talyshes that still live in that region.

On the second half of II millennium BC and in the I century AD a colorful and distinctive Talysh-Mugan archeological culture of late bronze and early iron ages was generated in Talysh zone and on the territory of Mugan steppe which is located to the north of the Talysh mountains. This culture basically studied on the basis of funeral monuments that were buried in stone boxes and dolmens is distinguished by high level of ceramic and bronze metallurgy development. Bronze blades and swords with grips of various original configurations, bronze adornments, ceramic products of original forms and zoomorphic vessels and many other things are the basic elements of Talysh-

Mugan archeological culture the remainders of which have been recorded in Hirkan forests massive site.

Beginning from the II second millennium AD up to present time the Talysh mountains zone including Hirkan forests have experienced the influence of human economic activity. Barrows, ancient and middle-ages burial grounds and settlements have been found within the Hirkan national park, which testifies human's active influence upon nature complexes and its modification resulting from human activity.

In past recent centuries (XIX-XX) in connection with Russian-Iranian wars, consolidation of frontiers, growth of population in foothill and highland zones including Hirkan forests massive site, enhancement of husbandry and cattle farming human's influence on nature complex has multiply increased. Forest massive sites have diminished; precious kinds of trees have uncontrollably been cut down. In other words much damage was done to ecosystem which nature had formed throughout thousands of years. All this urges the protection problem of the unique Hirkan forests zone.

There are number of interesting cultural sites inside the Park's area, listed in Annex 3.

PART TWO:

VISION, POLICIES AND ZONING

2.1 Vision Statement

The vision statement presents the long-term view for the national park and its support (buffer) zone. A vision statement is a critical prerequisite for the preparation of a meaningful management plan, since it provides the conceptual framework for strategies to be adopted to meet the long-term goals and objectives. It is essential that all strategies and activities proposed for the HNP are cross-checked with the vision statement to make sure that they comply with the overall goals and objectives. The vision statement which has been prepared in close cooperation with key stakeholders reads as follows:

By the year 2015 the Hirkan National Park will be known as an outstanding wilderness area which is successfully protected through cooperative management between support zone communities and the protected area management team. The protected area has enhanced the economic environment in the planning region that includes the HNP and its designated support zone and has contributed to rising living standards through an innovative job creation program based on sustainable land use development and environmentally friendly industry. The tourism sector has been well established, centered on the numerous natural and cultural/historic attractions in the region. The planning region has become a model for progressive land use planning and sustainable development in Azerbaijan.

2.2 Goals and Objectives

The overriding objective is to maintain the current wilderness character of the HNP and to manage it as a globally important conservation area within the framework of minimum management intervention whilst ensuring the maintenance and natural evolution of ecosystem structure and function.

Based on the vision statement, following major goals and objectives are identified:

Goal 1: Sustainable protection of the Park's biodiversity and ecological integrity.

This will be achieved through:

- zoning the park into different use areas;

- the design and implementation of meaningful management programs detailed in this officially approved management plan;
- the implementation of the management plan by a well trained and equipped management team in close cooperation with the support zone communities;
- a clear definition and delimitation of the park boundaries;
- continuing support to and cooperation with support zone communities in order to achieve a harmonic and environmentally compatible support zone development.

Goal 2: Commitment by the Government (all levels), support zone communities and park users to the harmonic development and protection of the HNP according to this management plan.

This will be achieved through:

- convincing the Azerbaijan Government on the district and local level about the importance of the HNP for the development process of the region and the country at large;
- proving to the support (buffer) zone communities that the HNP provides direct and indirect benefits to them.

Goal 3: The economic development of the region and the surrounding zone is enhanced through the existence of the HNP.

This will be achieved through:

- assisting support (buffer) zone communities in their economic advancement compatible with the park's conservation objectives;
- equitable flow of benefits through equity sharing in tourism development and operations, human resource development and capacity building, improved natural resource management, protection of high quality drinking water etc.;
- promoting international donor support for the benefit of regional development.

Goal 4: Convert the HNP and its support zone into a well known tourist destination without threatening its ecological integrity.

This will be achieved through:

- the elaboration of a well designed, targeted, marketed and implemented responsible visitor program that makes full use of the cultural, educational and recreational opportunities offered through the Park as an outstanding wilderness area and the support (buffer) zone;
- the development of a visitor infrastructure inside and outside the HNP that complies with the overall conservation objectives of the Park but also meets international standards;
- the assistance to support (buffer) zone communities in the establishment of tourism facilities and operations and assistance in providing corresponding training.

Goal 5: Ensure the financial sustainability of the HNP.

This will be achieved through:

- the elaboration and implementation of a well designed business plan that makes full use of revenue generating opportunities by the Park, Government commitment and the establishment of an endowment fund that will assist in covering potential shortfalls of the park's operational budget.

Goal 6: The HNP serve as a model for Azerbaijan's protected area system.

This will be achieved through:

- hands-on training of personnel from other protected areas in the country;
- participation of Park personnel in the elaboration of management plans for other protected areas to be based on the HNP experience;
- managing and developing the HNP in the interest of the people of Azerbaijan, both with respect to Biodiversity Conservation and with respect to making a contribution to the sustainable socio-economic development of the region and the country.

2.3 Zoning of the Hirkan National Park

Zoning is a management tool that divides the park into different use areas (zones) where different types and scale of development are allowed and where the levels of resource use and conservation inputs that may be required vary. Zones are determined by landscapes and ecosystem features, the Park's vision and objectives, as well as its socio-economic environment and other external factors. The zoning concept should be flexible, to reflect the requirements for an adaptive form of management.

Different landscapes (and ecosystems) may lend themselves to different land uses and each landscape varies in its capacity to fulfill and accept the demand for a particular activity. Land uses may also be mutually incompatible: some effectively reducing the quality of experience associated with others. This friction must be managed. As the impacts of activities are considered in the zoning phase of planning, the intention is to minimize their potential and likely environmental impacts during this phase.

Zone boundaries may be determined by biophysical characteristics, by administrative requirements or even by external factors. Depending on the nature and purpose of the zone, the most suitable boundaries should be selected to meet the objectives of creating that zone. In this context it is emphasized that zone boundaries may be changed as required in accordance to existed legislation.

The HNP is divided into zones to guide tourism development, traditional grazing and fuel wood collection, and other park use. The Park administration recognizes that most park operations are

“zone-specific”, but extend across the protected area. There are zones for which actions are specifically prescribed, in order to protect important and sensible resources. Zoning provides a geographical basis for prioritizing developments within the park, such as resources may be allocated to the high priority areas, followed by developments within lower priority areas when appropriate. The zones for the HNP were designed accordingly, based on the analysis of conditions of forest ecosystems, existing location of settlements, pasturelands, roads, etc, generalized in GIS (see Map 10, also Annex 4, Map 11). They are adapted to local socio-economic and traditional cultural needs and conditions and truly recognize the wilderness character of this park.

According to IUCN guidelines, a national park does not permit extractive resource use. Logging and mining are therefore not permitted. The four zone categories chosen for the HNP according to legislation of Azerbaijan are the: (a) “zone with legal regime of special protection” (Core Zone), (b) “zone with regulating regime of the farming activity” (Managed Nature Zone); (c) “tourism and recreation zone” (Visitor Zone); and (d) “zone serving to tourists and the others” (Visitor Service Zone; could be considered as sub-zone of Visitor zone) (Map 4).

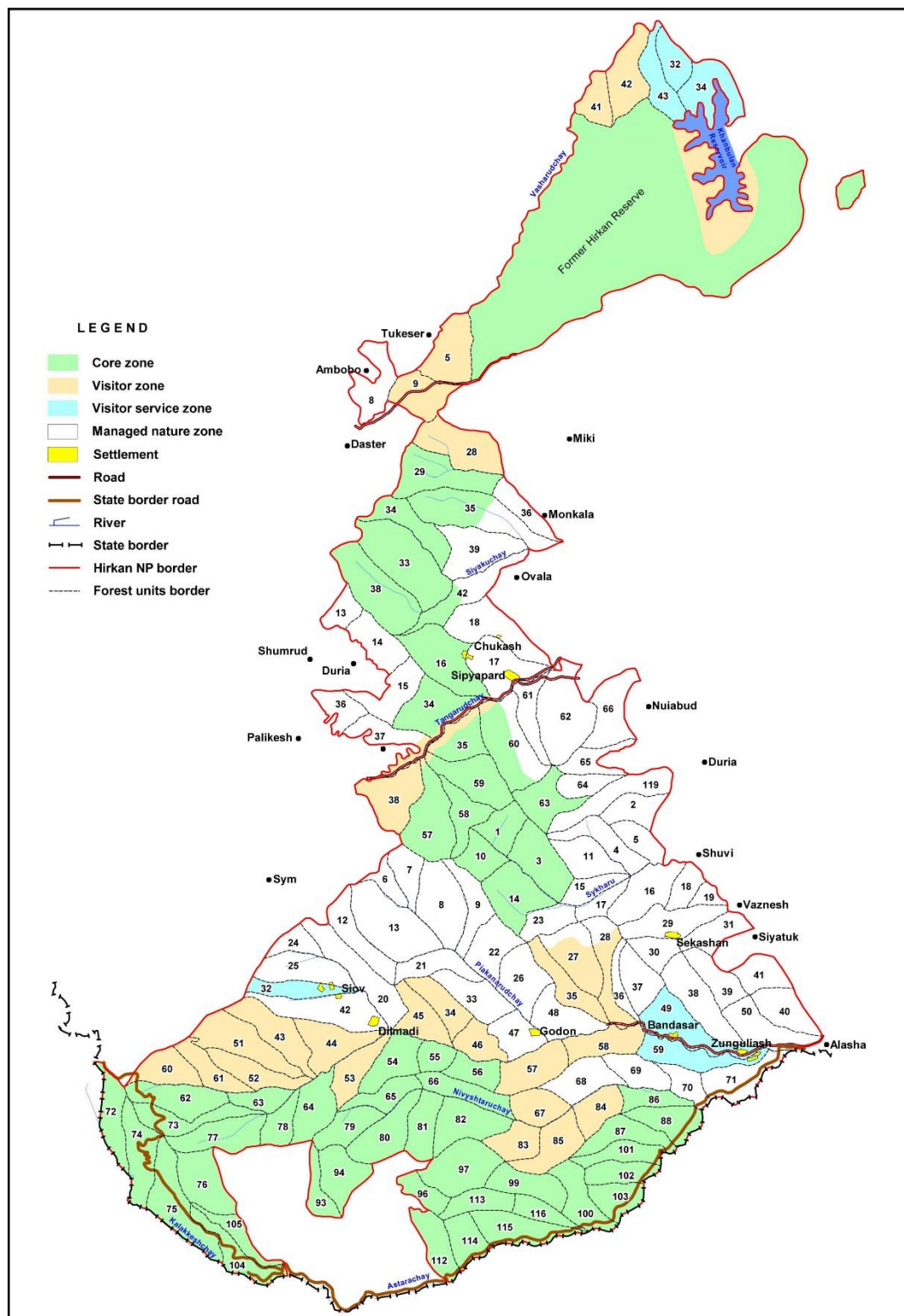
According to the first zoning scheme, being included in the given document, the Core zone, which could be also named as Strict protection zone, where the protection regime corresponds to the IUCN Category I, covers 9,697 hectares (45% of the total Park area); the Visitor zone, whose management instructions correspond to the IUCN Category II encompasses 3,748 hectares (17,5% of the total Park area). The total area of these two zones therefore covers 62,5% of the total area of the Park (Table 4, Annex 5).

Taking into account the actual conditions of the populated areas within the National Park, land use, as well as the conditions of forest ecosystems, it is not realistic to expand areas more under strict protection at the early stage of the National Park development. It is also planned to gradually increase the area of the Core zone (Table 4, Annex 6) before 2015 as well as to provide corresponding changes in the Visitors zone (Table 4, Annex 7). In keeping with the plan by 2010 the Core zone area will cover 54,5% of the total park territory (incorporation of the southern section of Hirkan Sanctuary into Core zone of HNR is planned by 2010) and 59% - by 2015, correspondingly the Visitors Zone will initially grow up to 21% and by 2015 will somewhat decrease and will amount to 19%. The area of Managed Nature Zone will therefore significantly decrease (see Table 4, Annexes 6, 7, 8 – Map 12, 9 – Map 13).

By 2010 the total area of the Core and Visitors zones will cover 75,5% of the total Park area and 78% - by 2015.

It is assumed that the principles of controlling the dynamics of the household infrastructure and land use within the Park area (Paragraph 4) will be observed and the relevant strategy will be elaborated in due course and successfully implemented by the state organizations in cooperation with donor communities.

Map 4 Zoning of Hirkan National Park



Namely, the urgent task is to work with local population for raising awareness regarding importance of grazing regulation, the meaning and purpose of different management zones: mostly there is enough territory in corresponding zones for translocation of grazing from Core and most part of Visitor Zones; at the same time local population should control movement of their livestock. Grazing should be restricted in Core Zone. It is necessary to gradually alleviate the grazing load on the Visitor Zone; first of all grazing should be gradually trans-located from corresponding units of the protection sectors №2,3,9,11 and 12 with the perspective of their inclusion into the Core Zone (Maps 4 and 7, Annexes 6, 8).

Table 4 **Planned development of zoning of Hirkan National Park**

Zone	Current area (ha) / % from total area	By 2010 (ha) / % from total area	By 2015 (ha) / % from total area
Core	9,637 / 45%	12,453 / 54,5%	13,459 / 59%
Visitor	3,748 / 17,5%	4,764 / 21%	4,380 / 19%
Managed Nature Zone	7,325 / 34%	4,883 / 21,5%	4,261 / 19,0%
Visitor Service Zone	725 / 3,5%	725 / 3%	725 / 3%
Total	21,435	22,825	22,825

2.3.1 Core Zone (“Zone with legal regime of special protection”)

Rationale and Objectives

The core zone(s) of a national park protects ecologically sensitive ecosystems or parts thereof which preferably should not have been modified by man. Core zones have to include representative samples of ecosystems typical for the park. Overall objectives for this zone are the protection and maintenance of biological diversity and natural landscapes, scientific research, environmental monitoring and environmental education.

Policies and Management Guidelines

- The core zone(s) should be exempt from active management.
- The use of this zone is confined to law enforcement activities, strictly controlled research, and educational activities.
- Research activities are only permitted under special permits.
- No permanent research facilities should be established in this zone.
- Research should respect the ecological integrity of the core zone.
- Live capture of animals will be allowed under exceptional circumstances and with special approval by the Ministry of Ecology and Natural Resources of Azerbaijan.

- Copies of research results (raw and processed data) must be provided to the HNP research unit on completion of the study.

Brief Description

The core area designated for HNP covers a total of more than 9,637 hectares which constitutes almost half of the HNP's area (45% of total area of the Park). The area meets all stipulated requirements. It is composed of ecosystems typical for the park area and has not been subject to any extractive use. The Core zone covers the most important habitats for conservation of leopard and its main prey species (roe deer, wild boar) in Talysh Mountains. Essential part of Talysh Mountain wildlife corridor is covered by Core zone as well.

Table 5 lists the units forming the Core Zone.

Table 5 Core Zone units

Protection section	Astara District			Former Hirkan Reserve
	Askhanakeran Forestry	Tangerud Forestry	Shuvi Forestry	
I				Main part of the reserve
II				
III	29, 33, 34, part of 35, 38, part of 42			
IV		16, 34, 35		
V		57, 58, 59, part of 60		
VI		63		
VII			1, 3, 10, 14	
VIII				
IX			54, 55, 56, 65, 66, 81, 82	
X			62, 63, 64, 72, 73, 74, 75, 76, 77, 78, 79, 80, 93, 94, 96, 97, 104, 105, 112, 114	
XI			86, 87, 88, 99, 100, 101, 102, 103, 113, 115, 116	
XII				
XIII				
XIV				

XV				
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2.3.2 Visitor Zone (“Tourism and recreation zone”)

Rationale and Objectives

The visitor zone is established for the benefit of tourists and nature conservation. This zone should be free of conflicts; preferably little modified through man-made activities and should include samples of the most representative ecosystems in the park to provide added educational opportunities. Since this zone is established for the benefit of park visitors it should include sites of special interest and special attraction, ranging from the wide spectrum of different landscapes, view-scapes and scenic features, to special features such as historic cultural sites and sites of recognized recreational value. This is the second most protected Zone after the Core Zone.

Policies and Management Guidelines

- Visitor infrastructure should be practical, unobtrusive, rustic (in order to comply with the wilderness experience) and easy to control.
- Ecologically sensitive areas within this zone should be closed to the public.
- Visitor access should be confined to marked trails and other infrastructure designated to the visitors.
- Visitors have to comply with the rules of conduct and the park rules which are specified in the visitor information package provided to each park visitor.
- Tour guides and operators have to comply with the rules and regulations spelled out in the special contract agreements with the park.
- Special norms apply to the use of horses (the norms are specified in the agreements with the horse operators).
- All visitor activities are subject to monitoring.

Brief Description

The designated visitor zone in the HNP covers approximately 3,748 ha or 17,5% of Park's total area. It is composed of ecosystems typical for the park area and has not been subject to main cutting and other intensive use. The Visitor zone covers the units, which, on the one hand, can be attractive for visitors (nature trails are designed accordingly) and on the other hand can play important role for integrity of wildlife corridor inside the Park.

Table 6 lists the units forming the Visitor zone.

Table 6 **Visitor Zone units**

Protection section	Astara District			Lenkoran District	Former Hirkan Reserve
	Askhanakeran Forestry	Tangerud Forestry	Shuvi Forestry	Seifidor Forestry	
I				41, 42	Stripe around Khanbulan reservoir
II	5, 9				
III	28				
IV		Part of 34, part of 35, part of 37			
V		38			
VI					
VII					
VIII			Part of 27, part of 28, 34, 35, 45, 46		
IX			43, 44, 51, 52, 53, 54, 60, 61, 67, 83		
X					
XI			84, 85		
XII			57, 58		
XIII					
XIV					
XV					

2.3.3 Visitor Service Zone (“Zone serving to tourists and the others; could be considered as sub-zone of Visitor zone”)

Rationale and Objectives

The visitor service zone is established for the benefit of tourists and creation of additional job places for local population. This zone should be established close with park entrances and should not cover ecologically sensitive areas; at the same time the zone should include sites of recognized recreational value.

Policies and Management Guidelines

- Visitor infrastructure (such as small hotels, bungalows, info boots, cafés, etc.) should be rustic (in order to comply with the natural environment).

- Visitors have to comply with the rules of conduct and the park rules which are specified in the visitor information package provided to each park visitor.
- Local population is recommended to be employed for running all infrastructure in this zone.

Brief Description

The designated zone in the HNP covers the smallest part – 725 hectares or 3,5% of Park's total area. Two sections of the zone are located close to the Park's entrances. Village Siov is situated within the third section of the Zone in mountainous area (see Map 4).

Table 7 lists the units forming the Visitor Service zone.

Table 7 Visitor Service Zone units

Protection section	Astara District			Lenkoran District
	Askhanakeran Forestry	Tangerud Forestry	Shuvi Forestry	Seifidor Forestry
I				32, 34,43
II				
III				
IV				
V				
VI				
VII				
VIII			32	
IX				
X				
XI				
XII			59	
XIII			49	
XIV				
XV				

2.3.4 Managed Nature Zone (“Zone with regulating regime of the farming activity”)

Rationale and Objectives

This zone is an area of important resource use, cultural, or spiritual significance where the harmonious interaction between nature, non-commercial resource use and cultural or spiritual activities would be encouraged through the continuation of traditional activities, customs and beliefs, where these are in keeping with the objective of biodiversity conservation. The area would continue to contribute to the welfare of the local community through the provision of natural products and services without detriment to its overall long-term natural values and biodiversity. The IUCN stipulations for a national park allow certain traditional low impact use which can be controlled easily. ‘Traditional’ is defined as ‘historic use’ having taken place well before the legal creation of the park. Such use is generally carried out by people who have lived with and depended on these lands sometimes for centuries without visible impacts. Livestock grazing inside the park provides the livelihood to certain families located in the park. Since livestock grazing in the HNP is considered a traditional activity, it was decided to accommodate the continuation of this use under controlled conditions.

The key objectives for this zone are: (a) the sustainable and traditional resource utilization by local communities, (b) re-habilitation of degraded lands; (c) management of the grazing in accordance with a grazing management plan elaborated for this purpose; (d) cultural and spiritual practices, (e) scientific research, (f) preservation of species and genetic diversity, (g) maintenance of environmental services and (h) to permit controlled tourism for a cultural experience with traditional ways of life.

Policies and Management Guidelines

- The key purpose of allowing the continuing but controlled collection of minor forest products in this zone is to assist the poor families during the difficult transition process.
- Permits will be issued by the park to needy applicants from the surrounding zone for the collection of minor products (i.e., firewood, mushrooms, berries and other fruits and nuts, medicinal plants etc.), which specify the rules and regulations applied to the use permit (subject to monitoring).
- Livestock grazing is permitted under special permit in the designated zone.
- Permits are issued by the park.
- The permits specify the rules, regulations and conditions which apply to a specific permit and permit holder.
- As far as grazing management plan is prepared, grazing will only be permitted in accordance with the management guidelines.
- This traditional use will be phased out as soon as suitable alternatives are found;
- Grazing will be controlled by park rangers.

- Fencing of hay-meadows (glades) may be permissible by the park (if stipulated by the grazing management plan).
- Special restrictions apply to herd size and the total number of livestock, grazing intensity and the corridors used for migration livestock within the zone (subject to monitoring).
- Active erosion control is permitted (subject to monitoring).
- The use of dogs inside the park by the herders should be strictly controlled.
- Any structures put up by herders within the zone are subject to permits.
- The use of artificial fertilizers, pesticides and introduction of agronomic alien grass/ herb or any other plant species is not permitted.
- Low impact logging (sanitary cutting) in specially designated areas will be permitted according to strict rules and regulations specified in the corresponding permits issued by the park to qualified applicants (subject to monitoring).
- Active interventions that enhance the recuperation process of degraded sites are permitted (subject to monitoring).
- Low impact research is permitted.

Brief Description

The Managed Nature Zone occupies the larger area of the national park: it covers an area of more than 7,325 hectares or 34% of Park's total area. The area meets requirements of local population for traditional land-use. It is composed of ecosystems typical for the park area..

Table 8 shows the units forming the Managed Nature Zone.

Table 8 Managed Nature Zone units

Protection section	Astara District		
	Askhanakeran Forestry	Tangerud Forestry	Shuvi Forestry
I			
II	8		
III	Part of 35, 36, 39, part of 42		
IV		13, 14, 15, 17, 18, 36, part of 37	
V		Part of 60, 61, 62	
VI		64, 65, 66	
VII			2, 4, 5, 11, 15, 16, 17, 23, 119
VIII			6, 7, 8, 9, 12, 13, 20, 21, 22, 24, 25, 26, 33, 42, 47, 48
IX			68, 69

X			
XI			70, 71
XII			
XIII			36, 37, 38
XIV			39, 40, 41, 50
XV			18, 19, 29, 30, 31

2.3.5 Summary activity matrix for the different zone categories

The following summary activity matrix (Table 9) lists the range of activities recommended by the Core Planning Team for the HNP. The list of activities is based on identified current and potential uses. New uses may arise in the future and should be guided by the intent reflected in this matrix of activities. Three categories of activities are described: **permitted** (allowed under normal management guidelines and regulations); **restricted** (may be compatible under certain circumstances), and **not permitted** (considered incompatible with the management objectives for the specific zone).

Table 9 Activity matrix proposed for the Hirkan National Park management zones

ACTIVITY LIST	ZONE	PERMITTED	RESTRICTED	NOT PERMITTED	COMMENTS
Traditional grazing	MNZ, VSZ	✓			Can be subject to permit
Firewood collection	MNZ		✓		Subject to permit
Collection of native flowers, bulbs etc.	MNZ		✓		Subject to permit
Collection of minor forest products	MNZ, VSZ	✓			
Bio-prospecting	All		✓		Subject to permit
Commercial resource use	All			✓	
Wildlife habitat enhancement	except CZ		✓		
Fishing	except CZ		✓		Subject to permit
Research	All		✓		Subject to permit
Monitoring	All	✓			
Hunting	All			✓	
Live capture of wildlife	All			✓	
Species introduction	All			✓	

ACTIVITY LIST	ZONE	PERMITTED	RESTRICTED	NOT PERMITTED	COMMENTS
Species re-introduction	All		✓		Subject to feasibility study
Captive breeding	All			✓	
Wildlife enclosures	All			✓	
Non-mechanical recreation	VZ, VSZ, MNZ		✓		Subject to permit
Primitive camping	VZ, VSZ, MNZ		✓		Subject to permit
Serviced camping	VZ, VSZ, MNZ		✓		Subject to permit
Tracking/ hiking	VZ, VSZ, MNZ		✓		Subject to permit
Trail-riding	VZ, VSZ, MNZ		✓		Subject to permit
Vehicle use	MNZ		✓		Subject to permit, permitted for local population
Cultivation	All			✓	Permitted for local/Park population in MNZ and VSZ
Mineral exploration	All			✓	
Helicopter use	All		✓		Emergency Only
Fire management	All		✓		Under special circumstances
Pest management	All		✓		Under special circumstances
Recreational leaseholds	All			✓	
Commercial development	All			✓	
Utility corridors (transmission, pipeline)	All			✓	
Tourism infrastructure development	VSZ, VZ, MNZ		✓		According to infrastructure development plan
Road development	except CZ		✓		Under special circumstances

CZ - Core Zone; VZ - Visitor Zone; VSZ – Visitor Service Zone, MNZ - Managed Nature Zone

2.4 Hirkan State Sanctuary

MoE has prepared the documentation for setting up the Hirkan Sanctuary on the territory adjacent to the National Park with the total area of 2,252 hectares to increase integrity of the Park.

Hirkan State Sanctuary is set up as a cluster in the southern, central and northern bordering parts of Hirkan National Park (Map 5). Hirkan Sanctuary will play an important role in the central part of the National park in its first phase of development, where the park outlines are rather narrow and sensitive in the light of the human impact.

Southern part of the Sanctuary covers almost untouched forest units. These units are scattered by a few non-forested lands (mainly meadows), which in the past were used for state bee-keeping farms. Currently these units/lands are used as pastures by few families (4 households). Therefore in the five years perspective it is planned to include the above mentioned unit of the Sanctuary as well as non-forested lands in the Core Zone of the National Park (providing alternative pastures to the local population beyond the Park area). The total territory of the Sanctuary amounts to 252 hectares, including southern part – 1107 hectares, central part – 446 hectares, northern part – 699 hectares. Lands formerly used for bee-keeping (mainly – meadows) cover 283 hectares. These plots of lands (meadows) are not included in the Sanctuary, but in the five years perspective it is planned to incorporate in the National Park, which is of great importance for maintaining the integrity of natural ecosystems of the southern part of the Park.

Table 10 shows the units forming the Hirkan State sanctuary.

Table 10 **Hirkan Sanctuary units**

Section, Unit №	Astara District		Lenkoran District
	Askhanakeran Forestry, area (ha)	Shuvi Forestry, area (ha)	Seifidor Forestry, area (ha)
<i>Northern section</i>			699
27			75
35			92
39			201
40			195
49			136
<i>Central section</i>			446
23	96		
10	160		
24	190		
<i>Southern Section</i>			1107
90		112	
91		107	
92		83	
95		105	
106		98	
107		51	
108		123	

109		41	
110		104	
111		165	
Total			2252

In the first, five year stage of the functioning of the Sanctuary, it is planned to manage southern and central sections under the regime of Managed Nature Zone, and the northern section – Visitors Zone of the National park, falling under one administration of the Hirkan National Park.

Additional staff (one ranger) for each – northern and southern sections of the Sanctuary will be required. Central part could be controlled by the staff recommended for the National Park (without additional personnel).

There will be no need of additional infrastructure to protect the Sanctuary units/sections.

2.5 Support (Buffer) Zone development

In order to ensure the proper protection of the National Park it is planned to establish a Support (Buffer) Zone.

The rationale for the establishment of a support (buffer) zone of a national park is to secure the support of park neighbors for the sustainable protection of the park. This becomes possible through (a) economic support and assistance to park neighbors in recognition of sacrifices being made in giving up certain user rights for an area converted into a national park, and (b) through involving park neighbors in the planning and park management processes. One of the stipulations for a support zone is that land and resource use have to be compatible with the conservation objectives for the national park and that the development of the support zone should be based on a well designed regional development plan aiming at sustainable economic development for the benefit of support zone communities and biodiversity conservation.

In the first place it is essential to prepare the normative base in order to properly understand the notion “Buffer (Support) Zone”, which is not envisaged according to the valid legislation of Azerbaijan. Therefore, it is necessary to apply recommendations of IUCN and experience gathered in Azerbaijan and other countries in order to maximally adapt the requirements of the support zone management to the needs and conditions of the local population.

It is planned to gradually set up a Support (Buffer) zone around the Hirkan National Park. The establishment of a “buffer” to the south is not possible - the National Park border passes along the state border. The creation of buffer is not necessary for the same reason - violation of the regime here equals to the violation of the border regime, which are strictly controlled by relevant agencies. Setting up of the Sanctuary also facilitates the maintenance of the integrity of the Park in its southern part.

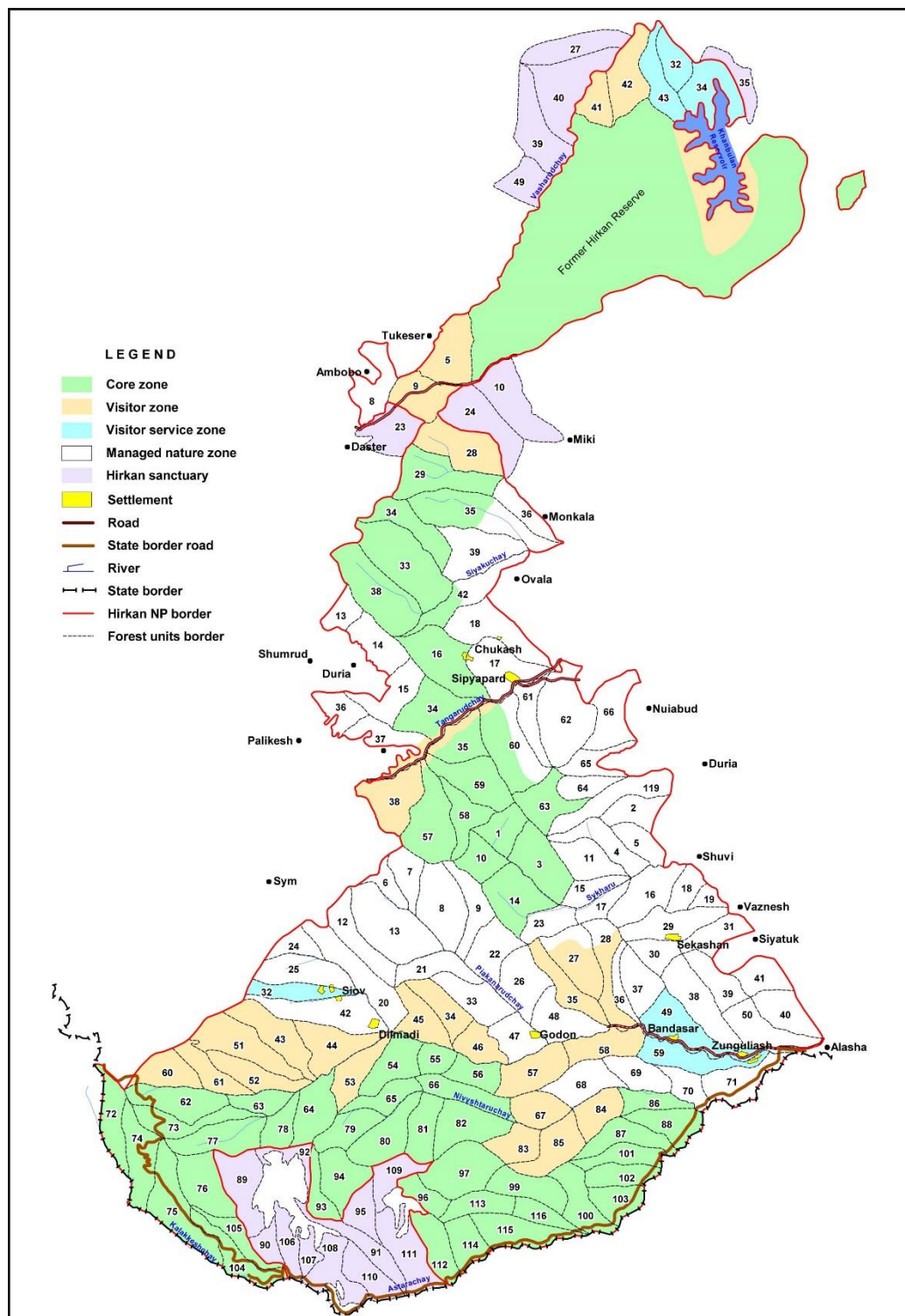
At the first stage it would be appropriate to establish the “buffer” at the point where the borders of the Core Zone (sections of the zone) coincide with the Park borders. In particular, setting up of the “buffer” could be initiated:

- in the northern part of the National Park on the forestry lands of Askhanakeran Forestry, namely on units № 5, 11, 12, 13, 14, 15, 16, 17, 18;
- in the central part - on the units of Askhanakeran Forestry №21, 22; units of Tangerud Forestry № 7,12, 44, 55, 56;
- in the southern part - on the forestry units of Shuvi Forestry № 71, 72, 73, 74, 75 (Map 6).

To ensure the integrity of the Support (Buffer) Zone, apart from the forestry lands, which are managed by the Ministry of Ecology and Natural Resources of Azerbaijan, it is necessary to incorporate lands of State Land Fund, namely of the villages of Kozhi, Velaporgo, Shumrud, Durya, Vovada, Sim and others.

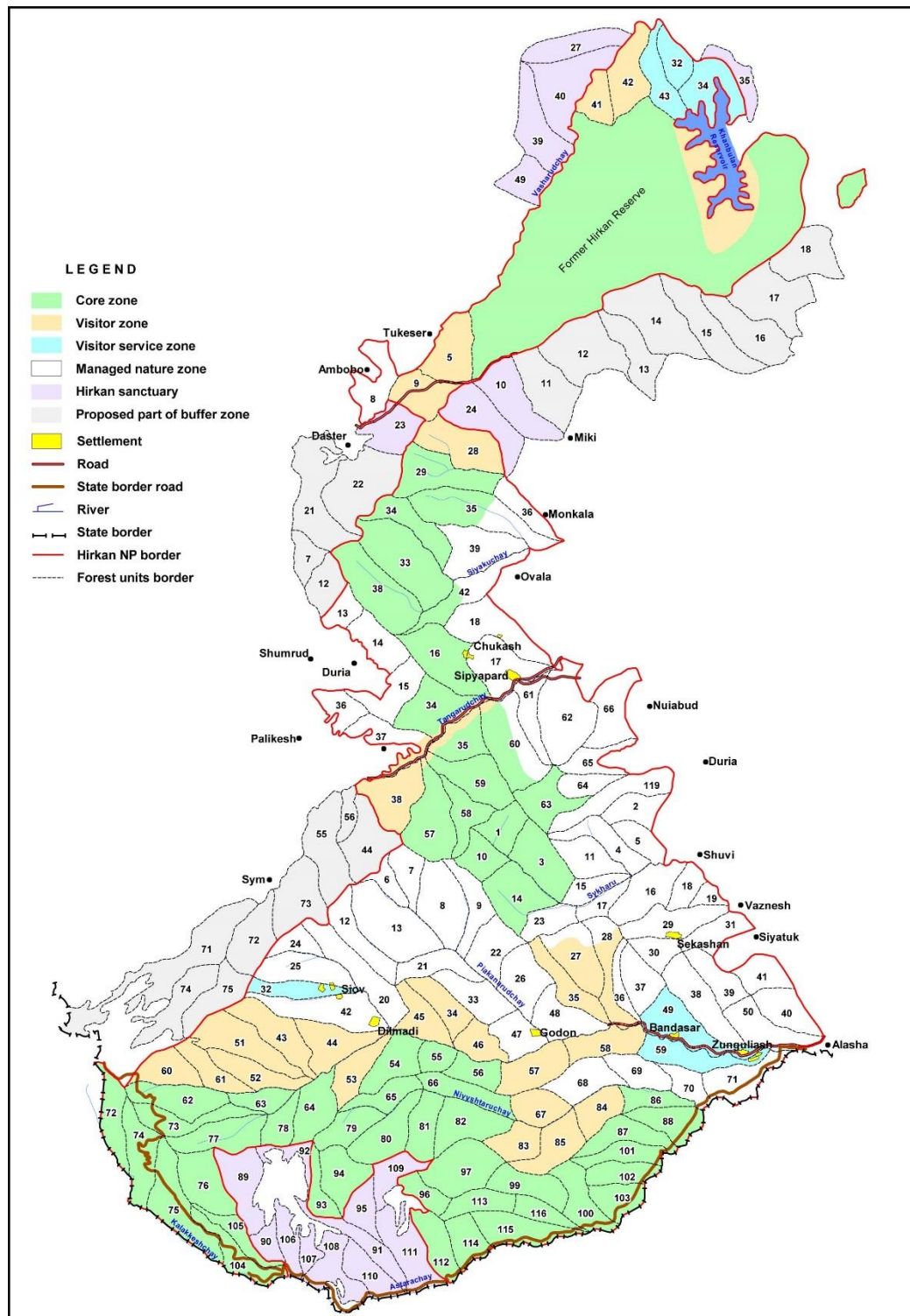
Additional research and preparation of separate/complementary management plan for support zone is required.

Map 5 HNR and Hirkan State Sanctuary



Map 6

HNR, Hirkan State Sanctuary and proposed sections for Buffer Zone



PART THREE:

MANAGEMENT GUIDELINES FOR OPERATIONS

The description of management activities designated to a specific “Management Program” makes the complex operations of protected areas easy to understand and facilitates the job of the senior management staff. Management programs set the comprehensive framework for the long-term management goals and objectives detailed in the vision statement. Management programs are particularly helpful for the preparation of annual work-plans and budgets and for assigning overall and program specific priorities. Because of their proven value to managers, management programs have become one of the most important structural elements of long-term operational plans which form an integral part of a general management plan for the category “National Park” worldwide.

The management programs used for this management plan are:

- **Administration Program**
- **Protection Program**
- **Visitor Program**
- **Research and Monitoring Program**
- **Communications and Awareness Building Program**

Although a management plan is the basis for the long-term planning horizon, a periodic revision is commonly done in five-year intervals. Revisions are necessary in order to periodically adjust the zoning and operational part of the management plan in response to changing realities and framework conditions. Periodic changes may be required in particular with respect to priority settings and strategies that are designed to meet the overall goals and objectives for the HNP. In this light it is proposed to review this plan after five years.

3.1 Administration Program

3.1.1 Organizational Structure

Table 11 shows existed organizational structure of HNP. Currently there are 19 staff positions and 42 available job places, among them:

- 23 (deputy director for protection, 3 field inspectors and 19 rangers) directly deal with protection service;
- 6 - with administration and logistics (chief accountant, cashier and inspector-secretary, supply manager, engineer for labor safety and administrator);
- 2 - with research and monitoring (senior researcher and researcher);
- 1 with visitor program (guide) and

- 7 are support staff (gardener, groom, museum worker, guards (3) and cleaner).

One of the two deputy directors is in charge of research, education and visitor program.

Table 11 **Existed organizational structure and staff of HNP**

№	Staff Position	Number of Staff
	Administration	
1	Director	1
2	Deputy Director for research, environmental education and tourism	1
3	Deputy Director for protection	1
4	Chief Accountant	1
5	Cashier	1
6	Inspector-secretary (Human Resource Manager)	1
	<i>Total Senior Staff</i>	6
	Other Staff	
7	Senior Researcher	1
8	Researcher	1
9	Field Inspectors (Senior Rangers)	3
4	Rangers	19
10	Supply manager	1
11	Engineer for labor safety	1
12	Driver	1
13	Administrator	1
14	Gardener	1
15	Groom	1
16	Museum worker	1
17	Guide	1
18	Guards	3
19	Cleaner	1
	<i>Total other Staff</i>	36

The organizational chart (Figure 1) specifies the number of personnel recommended for the management of the park at its current stage. The HNP is headed by a Park Director and Deputy Director. Both staff positions are linked to one secretary and one driver. The Five major management programs/services (Protection-, Visitor-, Administration- Research and Monitoring- and Communications and Awareness Building- program) are each headed by a Program Chief. All management programs are on the same administrative level. The Program (Service) Chiefs report

to the Park Director. The Chief of the Protection Program is responsible for the ranger corps, composed of four Section/Senior Rangers (Inspectors) and 26 rangers (against 3 and 19 existed). The Chief of the Visitor Program will have one assistant, who will also assume responsibilities delegated from other programs as needed.

The administration program of the HNP covers three sub-programs dealing with the park's organizational structure, personnel requirements, personnel functions and responsibilities, training, infrastructure development and infrastructure maintenance, equipment purchase and accounting and finance.

The Sub-programs Human Resources, Finance and Maintenance report to the Chief of the Administration Program. **Chief of the Administration Program** will have a dual function, since he/she will be the head of one of the three Sub-programs, depending on his/her skills and qualifications. Staff of the Sub-programs and assistants to Chiefs of the Management Programs will be assigned as required.

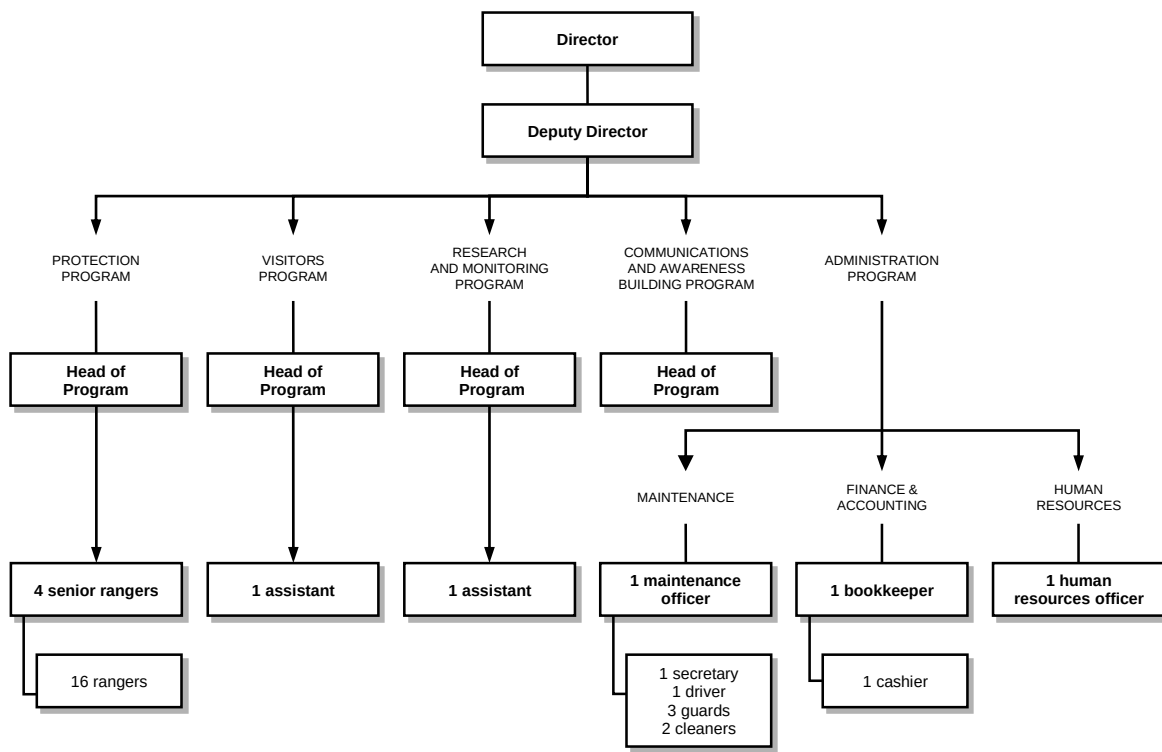
The administrative structure of the HNP follows a common staff line organization which facilitates reporting procedures. All Program Heads operate on the same administrative level and have the same reporting lines. The current organizational structure allows for easy and transparent expansion. Depending on the work volume of a program, additional positions can be added as required, still maintaining clear reporting lines and responsibilities. The total number of permanent staff for the HNP at its current size and design should not exceed 50 persons at any time (plus seasonal labor).

Although the management programs operate relatively independent from each other, cooperation is required in many areas. This applies to the protection program with cross-sectoral responsibilities, as well as to the visitor program and all others as needed. This inter-sectoral dependence requires continuing communication between the different programs and sub-programs. This may only be achieved through regularly scheduled staff meetings.

3.1.2 Staff Functions and Responsibilities

In order to permit program-specific and inter-sectoral management without frictions, it is important to precisely describe staff functions and responsibilities for each senior position. The position titles in the following chapter are chosen arbitrarily. Titles have to conform to service structure standards set by the Azerbaijan Government. Detailed job descriptions and skill requirements have to be elaborated for each position and have to conform to competency standards as provided by the Ministry.

Figure 1 Proposed organizational structure of the Hirkan National Park



Park Director: The principle functions and responsibilities of the Park Director are to officially represent the park on all park related matters; to assume overall responsibility for park staff and management, to prepare and present consolidated annual budgets and work plans for the Ministry and to generally lobby park matters.

According to the regulation of Hirkan National Park (Articles 7.2-7.4):

- The National Park is headed by a director appointed or dismissed by the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan.
- The director is directly responsible for all activities carried out in the National Park.
- The National Park director is responsible for carrying out the following duties:
- Coordinate activities carried out in the National Park; ensure the enforcement of the rules established by the law of the National Park;
- Elaborate plans on protection, scientific research and biotechnical activities, and also ensure the fulfillment of the assigned activities;
- Ensure the timely submission of reports from the various staff of relevant services on scientific research plans and activities during the implementation process;

- Provide the National Park with specialized staff; organize training for the staff according to the established norms of the National Park;
- Present technical progress and financial reports;
- Ensure logistical support to the National Park;
- Participate in legal proceedings pertaining to National Park cases; conduct relevant legal proceedings.
- Coordinate the activities of the National Park Council.
 - Requirements an academic degree, preferably in a resource management related field, sound experience in management of people and administration, skills in dealing with the public and proven leadership qualities and a minimum of eight years professional experience.

Deputy Director²: The functions are in principle the same as specified for the Park Director. The Deputy Director reports to the Park Director.

- Requirements an academic degree in a resource management related field, basic management experience and a minimum of four years professional experience.

Maintenance Officer:

- Requirements an academic degree, preferably in economics and administration, sound experience in the management of people and administration. This candidate should be familiar with Azerbaijan's accounting procedures and legal requirements regarding tax laws etc. The person should have proven leadership qualities and sound experience in financial and budget planning for governmental institutions with a minimum of five years work experience.

Bookkeeper: The Bookkeeper will assume full responsibility for the financial records of the park, recording expenses and income in a professional, commonly accepted manner. The person will work in close cooperation with the Park Directors and the Heads of Management Programs. The person will keep the financial records updated and will prepare the annual financial statements for the accountant and auditors.

- Requirements preferably academic degree or equivalent experience in bookkeeping, accounting and financial management with proven familiarity and background in all aspects of procurement and budgeting of at least 5 years, computer literacy and familiarity with bookkeeping software is a requirement.

Cashier: The Cashier will handle all cash funds for the park. He/she will be responsible for the payroll, payment of contract labor and all other activities requiring the handling of cash money.

² Deputy Director could combine function of Head of Protection Service as currently existing and described in Regulation for HNP.

- Requirements Good references and experience in this area of expertise.

Human Resources Officer:

The Head of this Sub-program will be responsible for the development of a staff code and procedure manual that describes all staff-related matters. The procedure manual will deal with recruitment procedures (job description, advertisement of a position, interviews and selection of suitable candidate), rate scale and allowances/incentives, equity questions, mandatory leave procedures, sick leave and compensation, grievance procedures, maternity leave, insurance matters, and many other aspects. The production of the HNP procedure manual is of urgency. The responsibilities of this position cover all personnel of the HNP. Responsibilities also include recruitment and compensation of seasonal and contractual labour. The Head of this Sub-program is responsible for the preparation of the annual budget for this Sub-program, office operations and the maintenance of proper archives related to human resources of the HNP.

- Requirements academic degree or equivalent experience in a social science subject with proven experience and skills in all aspects of human resource management with a minimum of 6 years related work experience.

Head of Protection Program (Service): The principle functions and responsibilities of this person are: to prepare and oversee the implementation of annual work plans and budgets for the protection program; to assume overall responsibility for all protection related matters; to establish protocols and agreements for co-operation with other enforcement agencies; in close cooperation with the Human Resources Sub-program prepare job descriptions for ranger positions and the hiring of rangers; to assist in the preparation of training programs and the establishment of ranger beats; to coordinate activities with other management programs as needed. The Chief of this program will lead and manage all senior and junior staff under his command. The responsibilities include the establishment of an excellent working relationship with other enforcement agencies. The Chief will assume ultimate responsibility for the processing of violation reports filed by the rangers.

- Requirements sound law enforcement experience in matters related to natural resource management, preferably in context with protected areas; proven skills in public relations, people management and leadership.

Park Ranger: Most rangers currently employed by the HNP have a forestry related background as former employees of the forestry districts which are now integrated into the park area. Special skills that may be required due to the expanded responsibilities of the park rangers, will be acquired through in-service training. Although the key functions and responsibilities of rangers will always be biodiversity protection and law enforcement, rangers will be closely tied into the other Management Programs. It is of critical importance for the rangers to establish a working relationship with the public that is built on trust.

According to the Regulation of Hirkan National Park the guarding of the National Park is carried out by the park guard service, which is subordinate to the park director and the deputy director

responsible for guarding the park, and is appointed and dismissed by the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan (Article 3.1).

According to Article 3.3 the National Park ranger service envisages the following:

- Check all documents of persons violating rules in the national park and its support zone; stop and inspect vehicles and other means of transportations, hunting equipment, forest products and other items; confiscate materials used in violations as well as relevant documentation.
 - Stop the activities of physical and juridical persons that do not correspond to the rules established by the law of the National Park and its support zone.
 - Detain individuals violating the rules established by the law of the National Park, and those committing a crime or other administrative offences and bring the case to the court.
 - Issue acts for established offences within the National Park.
 - Issue recommendations for preventative measures to avoid harmful consequences to the conservation of biodiversity in the National Park area.
- Requirements full literacy, physical fitness, loyalty, knowledge of the legal framework related to Azerbaijan's protected areas, and preferably some previous working knowledge in law enforcement. Fresh recruits will receive all their training in-service.

Head of Visitor Program (Service): The principle functions and responsibilities are: to assume overall responsibility for this program; to produce, in close cooperation with the Chief of the Research and Monitoring Program information materials such as brochures, fact sheets, the park's newspaper etc. for the benefit of park visitors; to enhance the visitor infrastructure and visitor programs; support in set the fee structure for park visitors and operators and in design a practical booking and fee collection system; to provide liaison services to tour operators and tourism related infrastructure and services in the surrounding zone of the HNP; to assist in the establishment of a tourism association in the region, the elaboration of a regional tourism development plan and the marketing of tourism opportunities offered by the HNP; to prepare and implement program specific annual work-plans and budgets; to assist in the in-service training of rangers entrusted with tasks related to the tourism program.

- Requirements academic degree and experience in business administration, preferably from the tourism sector; proven communication and public relation skills, writing skills, computer literacy and knowledge of the English language with a minimum of 5 years related work experience.

Head of Research and Monitoring Program (Service): The principle functions and responsibilities are: to assume overall responsibility for the program; design practical research and monitoring program according to real needs; prepare ToR for contracts and supervise activities; to supervise the implementation of the traditional use program covering grazing management and the collection of minor forest products; to assist in the assessment of pre-

qualifications of applicants for collection and park user permits; store and process baseline data resulting from environmental monitoring; provide suitable materials resulting from the program to other programs as needed; actively pursue cooperation opportunities with research institutions in Azerbaijan and abroad and elaborate Letters of Understanding and/or Cooperation for research contracts accordingly.

- Requirements academic degree in a natural resource related field, experience in the management of grazing management and wildlife. Computer skills are a required prerequisite as well as at least four years work experience in a related area.

Head of Communications and Awareness Building Program (Service): This position will fulfill a vital liaison function between the park and the surrounding zone. In close co-operation with the district authorities, key stakeholders and the private sector, the Program Chief will assist in the development and implementation of projects associated with the park. The Program Chief will design and implement a communications and awareness raising program that will benefit the park and the surrounding zone communities; the Program Chief will develop a close working relationship with local NGOs and will facilitate negotiations regarding development projects impacting on the park. The Program Chief will assist in the training of rangers and will be responsible for the elaboration of annual work-plans and budgets for the Program.

- Requirements academic background in communications and/or resource related field; good writing skills and computer literacy; proven capability in dealing with people and the public with a minimum work experience of five years.

3.1.3 Training Requirements and Schedules

For the first three years of the implementation phase of this management plan training will concentrate on 2 weeks courses/year for basic ranger training including all rangers. It is planned to invite local and international specialists.

Special on-the-job training will be performed by selected local specialists and is planned for a 3 weeks period per year for all rangers. Special training will include the compilation and recording of biological and ecological baseline data, identification of flora and fauna, environmental monitoring, developing public relation skills, basic computer skills, operation of GPS and other technical equipment, monitoring of grazing lands etc.

The training of Heads of Programs will be achieved through close collaboration with corresponding international organizations in the field. In addition, training abroad will be initiated for two senior staff for one week period each per year. There also will be an international exchange program for hands-on training in parks and protected areas comparable to Hirkan. For this program 1 week visits in selected areas in Europe for three senior staff per year have been earmarked.

3.1.4 Infrastructure Development

Infrastructure development for park's administration covers the Administrative Building (Map 8). The existing building currently hosts the former Nature Reserve headquarters located in village Burjali, Lenkoran district, close to district centre. The very centrally and strategically located building borders the national park. It has sufficient space to accommodate the park senior staff. The property is sufficiently large to accommodate required garages, carports and storage areas. 5 offices used by headquarters administrative staff and conference room was recently renovated and furnished by MoE. Information centre has been also established and equipped within the Administrative building. Additional technical equipment is required.

An UPS power supply system should be installed for emergency. A mobile radio base station safeguards continuous communication with the ranger stations and rangers on duty inside the park.

3.2 Protection Program

3.2.1 Guiding principles and Objectives

This program is critical for the sustainable protection of the ecological integrity of the national park. Available infrastructure and equipment are practically non-existent for this program. None of the park boundaries are demarcated which makes control and enforcement difficult. This applies in particular to areas with a high concentration of people in the neighboring villages, encroaching on the park. There are several road access points which currently are not controlled. It is quite evident that a major expansion in terms of staff, infrastructure and equipment is needed in order to comply with the minimum requirements for sustainable protection.

The current enforcement staff is insufficiently trained for the multifaceted tasks they are expected to implement in the future. Training will therefore be a critical component of the protection program.

In due consideration of Azerbaijan's current economic situation, the proposed infrastructure for the protection program is confined to a minimum. There is little sense in developing an elaborate infrastructure which later cannot be sustained due to lack of operational funds. For optimum savings and most efficient use of limited funds and staff available, an attempt is made to combine as much infrastructure measures for the different programs as feasible. This applies in particular to the protection and public use programs.

Since proper communication is of special importance for control and enforcement, each station need to be equipped with a mobile radio. Additional mobile radios are required for control inside the park. Due to the difficult terrain and poor accessibility of the park horses will be the primary mode of transport inside the park. For boundary patrol motorbikes are to be used. A total of seven rustic shelters will be constructed inside the park in order to accommodate rangers while on overnight patrols; the shelters are of special importance in winter when patrols may only be conducted on foot

due to unfavorable snow conditions. The use of the shelters is confined to rangers on control duty; some of the shelters are shared with park visitors on overnight expeditions.

HNP is a true wilderness area, mostly suited for ecotourism. It therefore seems prudent to confine public use activities to hiking and trekking. Little opportunities are offered for vehicle based activities inside the park. Most of the roads inside the park will therefore be closed to vehicle use by the public (except local population). Vehicle use by park personnel inside the park will be confined to an absolute minimum. Costs for road maintenance are prohibitively high in difficult terrain such as found in the HNP. In this light an elaborate road maintenance program cannot be justified.

Although the primary function of the rangers are security patrols with the objective of detecting and following up on any incursions into the park and illicit activities, rangers play a key role in representing the park to the public. Rangers are highly visible, can easily be recognized by their uniform, and therefore need to develop an excellent working relationship and communication with the people of the surrounding zone. The rangers and their families are fully integrated into community life which provides an opportunity to develop a trusting relationship. Rangers will also actively participate in community outreach and the Environmental Education and Public Awareness activities. Rangers will play a critical role in dealing with special park users and license holders. Their behavior has therefore to be beyond reproach.

Rangers will also take part in the park's environmental monitoring program and the gathering of ecological baseline data. Access control will be another critical function. Because of the importance of access control, it requires a direct management input through senior personnel. Staff manning the entrance gates must have a sound working knowledge of the park, should be highly efficient and professional with a high degree of loyalty and integrity. Rangers are the "showpiece" of the park and the image of the rangers is conveyed to all visitors by the individuals manning the park gates at any one time.

The objectives of this program are:

- The effective protection of the ecological integrity of the HNP against the encroachment of people and their illicit activities, encroachment of livestock and the control of fire and diseases that threaten the integrity of the park.
- The sustainable protection of the HNP will benefit biodiversity conservation, park users and park neighbors.
- Sustainable protection will be achieved through the services of a well trained, equipped and highly motivated ranger corps in close cooperation with surrounding zone communities.
- The implementation of a sound community outreach program will be a guiding principle for pro-active law enforcement.

3.2.2 Organization of the Park's Protection Regime

Currently, while the organization of the park's protection infrastructure is not yet completed, the park's territory is divided into 15 management units, which are protected by 19 rangers and 3 inspectors (Map 7). Existed protection units are described below.

I. The area of the former nature reserve (2904 ha) and also 662 ha of forest areas of Lenkoran Forestry District allocated to the park is guarded by 7 rangers. In order to ensure the protection of this unit, it is necessary to construct a shelter in Piabolil and on the ridge of the mountain Uliasy. Weekend tourists visiting the shore of the reservoir should be supervised in order to avoid violations of the protection regime in the core zone, which is situated in immediate proximity to the border.

II. This unit encompasses the northern slope of the Khondakhyband range and covers 3 Askhanakeran forest management sub-units with a total area of 449 ha. This is the park's most threatened unit in terms of human impact from the population living in Dastor, Anbobo, Velaporgo and Tukeser. The unit is a main link of the wildlife corridor and covers a relatively narrow stretch of the park. Therefore, special attention should be paid to the protection regime here. The unit could be guarded by rangers living in the above-noted villages, making it unnecessary to construct shelters.

III. The Chukash unit (2200 ha) is comprised of forest management sub-units of the Askhanakeran forest (28, 29, 33, 34, 35, 36, 38, 39, 42). The unit includes relatively well preserved forests and is the main link of the wildlife corridor. This unit should be included in the core zone of the park as an important area for the migration of wildlife. It is necessary to construct a ranger station here.

IV. The Akhkerpi unit (1585 ha) covers sub-units of the Tangerud forest management unit (13, 14, 15, 16, 17, 18, 34, 35, 36, 37), situated on the left bank of the river Tangedur. This unit is an exceptionally important link for wildlife migration and it is necessary to construct a ranger station near the village Akhkerpi (Sipiapard) to ensure the conservation of migrating animals. A road links large populated areas to the west of the park with the center. Another no less important threat is human impact from the population of the village Akhkerpi. All activities having a negative impact on the environment should be strictly regulated.

V. The Tangerud unit (1231 ha) includes sub-units of the Tangerud forest management unit (38, 57, 58, 59, 60, 61, 62), which are situated on the right bank of the river Tangerud. The unit should be controlled from the station in the village Akkherpi. More significant units with relatively well-preserved forests should be included in the core zone.

VI. The Garun unit (450 ha) mainly encompasses sub-units of the Tangerud forest management units at risk from human impact (63, 64, 65, 66). The unit should be controlled to avoid intensive human impact from the neighboring villages Duria and Noyabud. The protection process should be overseen from the station in the village Akkherpi.

VII. The Duria unit (1499 ha) includes sub-units of the Shuvin forest management unit (1, 2, 3, 4, 5, 10, 11, 14, 16, 17, 23). Relatively well-preserved units (1, 3, 10, 14) situated on the slopes of the Sioker range should be included in the core zone, since this range is part of the migration route for wildlife from the area bordering Iran to the territory of the former nature reserve and the northern forests over the Dabavnoband, Khondakhyband and Uliasu ranges. Other forest units should be protected from the destructive impact of the largest bordering village, Shuvi. It is necessary to construct a ranger shelter and the road to this unit should be closed off at the village Shuvi.

VIII. The Piakenarud unit (2319 ha) encompasses sub-units of the Shuvin forest management unit (6, 7, 8, 12, 14, 20, 21, 22, 24, 25, 26, 27, 28, 33, 34, 35, 37, 45, 46, 47, 48). This unit faces mild human impact threats. Protection should be managed from both the ranger shelter in the village Piakenadur and between the villages Siov and Sym. The latter shelter is more important in terms of blocking the road to poachers from the villages Sym and Palikesh.

IX. The Istisuchai unit (2807 ha) includes sub-units of the Shuvin forest management unit (43, 51, 52, 53, 54, 55, 59, 60, 61, 65, 66, 67, 68, 69, 81, 82, 83). The units at risk from human impact are close to the villages Godon, Dilmadi and Siov. The unit should be included in the tourist zone of the park.

X. The Unuz unit (2467 ha) encompasses the more-or-less virgin forests of the Shuvin forest management unit (62, 63, 64, 72, 73, 74, 75, 76, 77, 78, 79, 80, 93, 94, 96, 97, 104, 105, 112, 114). The only threat is caused by poaching and grazing from the village Unuz, which could be averted by constructing a ranger shelter and by establishing a permanent protection regime. This unit should be included in the core zone.

XI. The Nyvishtadur unit (1521 ha) encompasses virgin forests in the area bordering Iran (70, 71, 84, 85, 87, 88, 99, 100, 101, 102, 103, 113, 115, 116). This unit should be strictly protected and part of it included in the core zone and in the tourist zone. Protection should be organized from the ranger shelter near the village Nyvyshtadur. The forest road should be closed off at the village Zungulash.

XII. The Chayagzy unit (447 ha) includes units 57, 58 and 59. The unit experiences moderate human impact. The area is ideal in terms of promoting tourism. Here a cordon should be established and the protection of the whole valley of the river Istisuchai organized.

XIII. The Bandasar unit (532 ha) is under threat from heavy human impact. The unit is suitable for promoting tourism infrastructure. Here the forest road leading deep into the forest should be closed off.

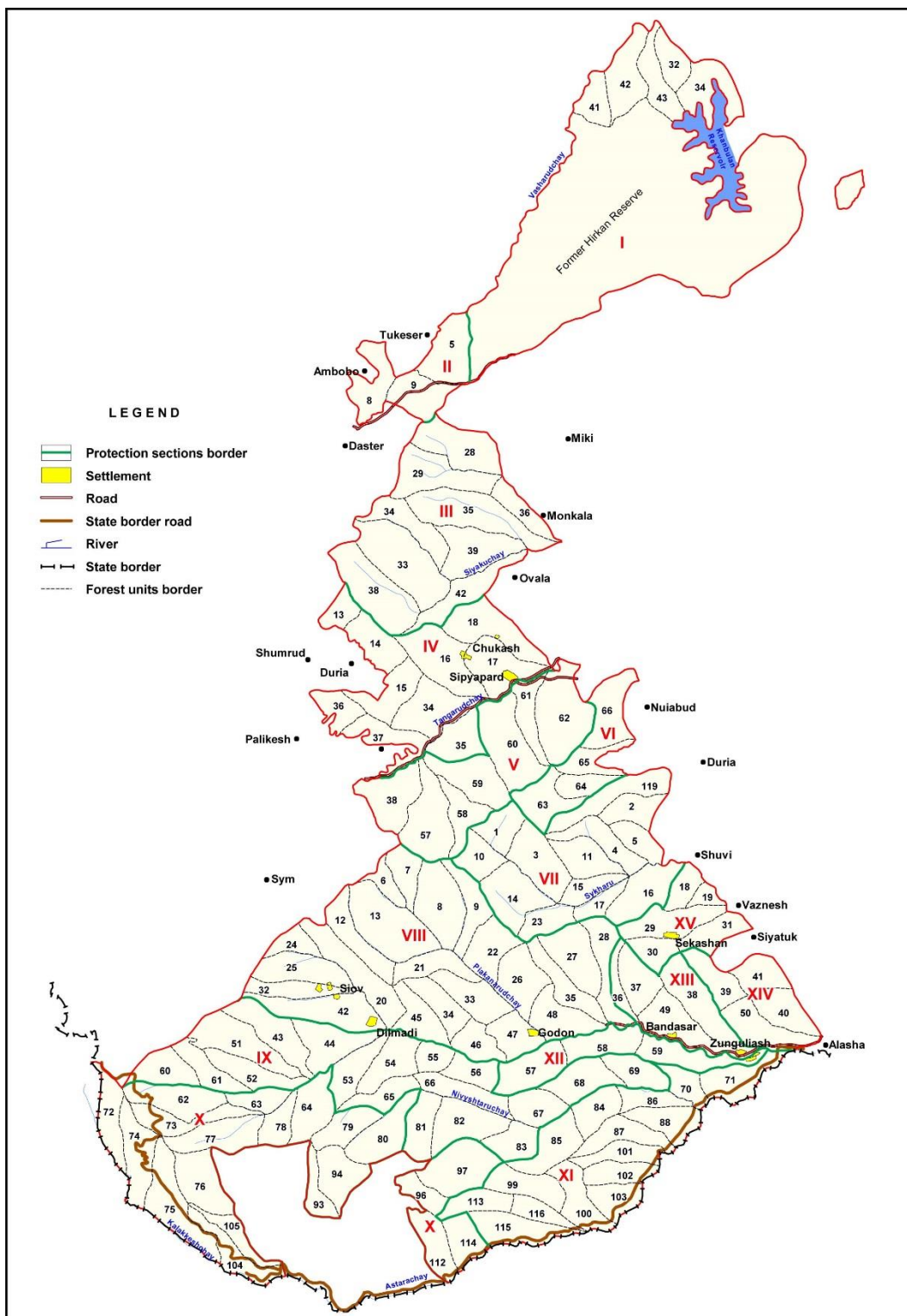
XIV. The Zungulash unit (437 ha) is a badly degraded unit of the park (39, 40, 41, 50). It is necessary to conduct reforestation in order to restore areas that have been clear cut.

XV. The Vaznesh unit (415 ha), because of its proximity to populated areas (Shuvi, Vaznesh, Syatuk), is comprised of sub-units that are badly degraded (18, 19, 29, 30 31). It would be unfeasible to save the nature here without taking urgent rehabilitative measures.

3.2.3 Boundary Demarcation

The demarcation of the national park boundaries is urgently needed to avoid growing land tenure conflicts and to facilitate control and enforcement. The demarcation will be confined to the establishment of survey posts and signs to be placed in strategic locations along the park boundaries. The demarcation process will be supported through local gazettement. The 143 (GIS Info) km boundary demarcation of the HNP will be completed during one year period. In the sections practically free of boundary conflicts due to isolation and inaccessibility the density of park signs and survey posts will be considerably less than in the other sections, reducing the demarcation costs substantially. The demarcation work will be done mostly by park rangers with assistance from hired help from neighboring communities.

Map 7 Protection Sections of HNP



3.2.4 Infrastructure Development

Ranger Stations

The two proposed ranger stations will be located at Chayagzy and Agkerpi (see Map 8). These strategic locations control access to the park. All stations will be manned by four rangers. The ranger stations will be basic but functional with 100m² of floor space. The ranger stations are not living quarters for the rangers, who will be integrated with their families into support zone communities. The stations will provide only basic living space for two rangers (with two bedrooms, kitchen, small living room and bathroom) while on active duty. A small generator will be used to supply power.

Ranger Shelters

The seven proposed rustic ranger shelters should be located in Piabolil (521.3m); at the eastern edge of Ulas ridge (825.5m); at the Khondakhyband ridge (1059m); in the vicinity of the Chukash village; at the southeast edge of Sioker ridge (582.7m); on the ridge between the villages Siov and Sym (952.0m); on the mountain above the Unuz village (1172.3m); in the vicinity of the Nuvushtarud village (500.3m). The single room shelters will be equipped with rudimentary furniture and a stove. There will be an outhouse and an outside water source.

Road Closures and Access Controls

Two village roads intersect the Park territory to its northern and central parts, linking populated areas to the west of the park with the district centers and the highway Astara-Baku; therefore, it is not possible to prohibit movement.

The first of the roads, which to the north-east goes along the border of the former Hirkan Nature Reserve (incorporated in the national park), crosses the park at 3,4 km, namely units 5 and 9, protection section II, between the Uliasy and Khodakhyband ranges, in the direction of the village of Askhanakeran and other villages, located to the west from the northern part of the Park. Technical condition of roads is poor and it is not meant for heavy traffic. The road is used by local population. Currently the existence of the village road does not significantly affect the movement of wildlife. The park rangers should strictly control this segment of the Park in order to ensure that the Park regime, particularly in its visitor zone, is not breached. The smallest, special protection section II (units 5, 8, 9) will be therefore established.

At a longer length (4,5 km) the road passing along the river Tangerudchai crosses the Park in its central part. At the beginning forked road intersects narrow part of unit 18 of the protection section IV and also unit 62 of the protection section VI. Joining in the village of Ag korpu (Syapiapard) and crossing unit 17, the road intersects units 34 and 37 (protection section IV) and goes beyond the Park area falling to the villages of Vovada, Sym etc. Technically the road is in a poor condition and is not intended for heavy traffic. The road is used by local population. Currently the existence of the village road does not significantly affect the movement of wildlife. One of the main functions

of the rangers of the protection section 4 is to control nature use along the road, which passes along the Park's visitor zone. The road is intended for hiking and horse riding trails for visitors.

One small forest road lies on the populated area Shuvi along the valley of the river Sykharu. This road should be strictly controlled and blocked with road-closures for avoiding illegal cutting precedents.

Two roads are located in the southern part of the Park.

The first of the roads, a little forked at the beginning goes up a bit beyond the village of Bandasar, where the road converts into the trail. The length of the road is about 6 km. It is mostly a gravel road and mainly lays along the Visitor Service Zone intersecting units 50 (protection section XIV), 36, 37, 38 and 49 (XIII), 59 and 48 (XII) at some point. The road located in the widest part of the Park does not go deep into the Park and does not affect much on the movement of wildlife. This road is used by residents of the populated areas Zungulyash, Istisu and Bandasar, and also by local tourists spending weekends at the hot springs in Istisu. Its further use is envisaged in accordance with the development of the Park's Visitor Service.

The section of the road used for forest cutting extends from the village Bandasar to Chaigazy should be closed off and controlled at the village Bandasar.

In the village Zunguliash the road bisects and extends as poor quality forestry road along the valley of the river Nyvyshtarud. This road is used only by one villager of the populated area Nyvyshtarud (two households). This route should be also closed with roadblocks, and access to the park should be only granted to the abovementioned resident of the village Nyvyshtarud.

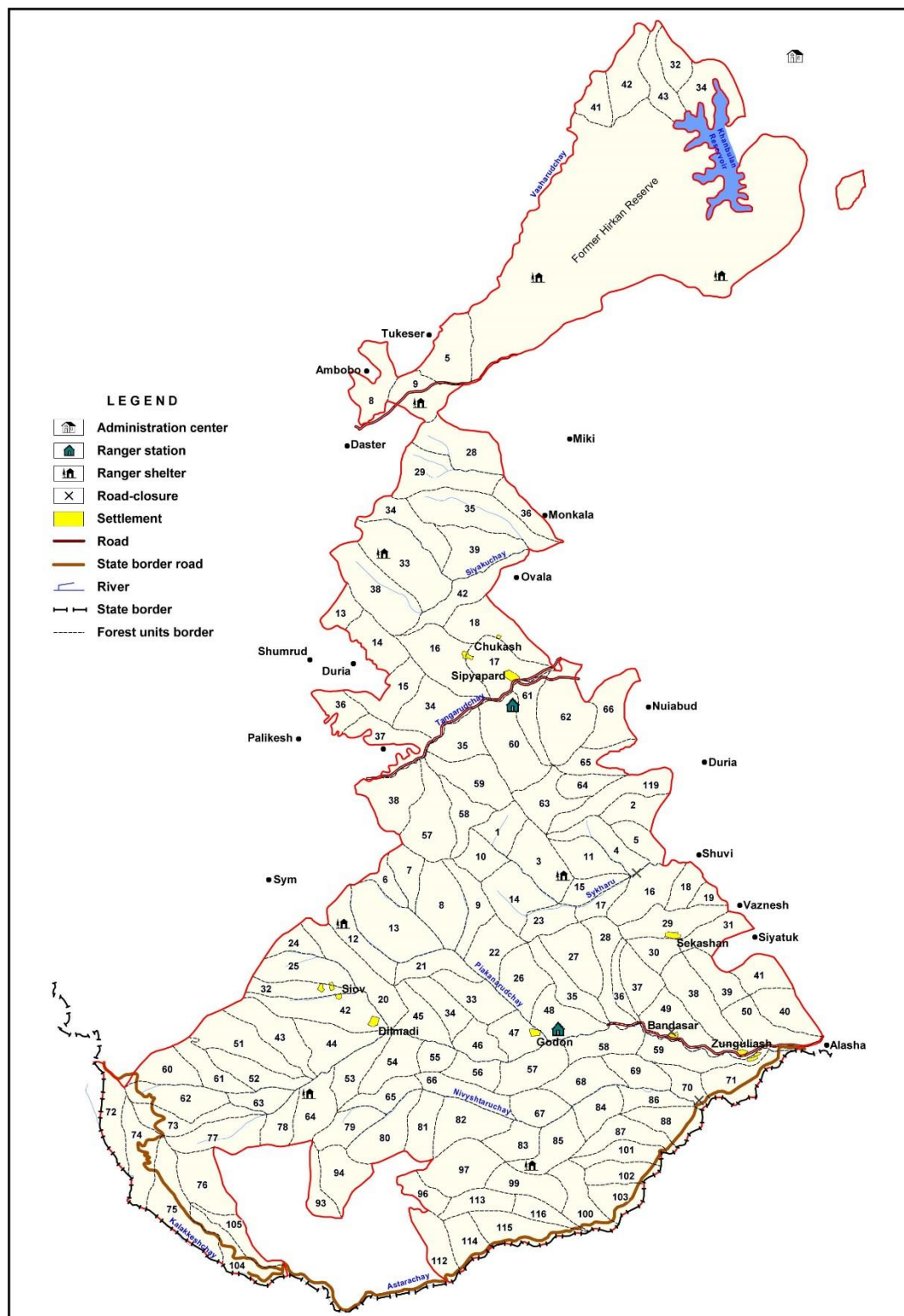
Longer, gravel road (27km) passes along the southern border of the Park/state border. It is used only by the border guards to control the state border. Violation of the Park regime from this part is not envisaged.

As already mentioned above, Hirkan National Park is classified as a typical wilderness park with little suitability for vehicle-based tourism activities. This makes the existing road network inside the park superfluous. All controlling activities can be implemented mainly on foot and/or by horse. Except for the rustic ranger shelters and tourist shelters, no structures are planned for the park's Core, Visitor and Managed Nature Zones, as well as for Siov section of Visitor Service Zone; consequently, no road service will be required in the future. The roads of the park should therefore not be maintained by Park personnel after completion of the planned construction and 'clean-up' activities.

Some roads may be incorporated into the Visitor/public use program but only to be accessed by foot or horses. All secondary road access to the park will be permanently closed and the secondary roads left to be reclaimed by natural processes. Active intervention into the natural road 'reclamation' process will only be justified under special circumstances (i.e. to prevent erosion, etc.). Map 8 shows planned infrastructure for protection and administration programs.

Map 8

Infrastructures for Protection and Administration Programs



Fire Management

Forest fires are not important disturbance factors for the National Park ecosystems, which apparently are linked with the humid climate conditions, ensuring humidity on the greater part of the forest ecosystems of Talysh mountains. During the last 10 years one case of the forest fire has been recorded, which has affected 2 hectares of the forest. Thus it is not necessary to elaborate any special measures regarding the forest fire management in the Hirkan National Park. The management of the forest fire will be carried out in accordance with corresponding general state regulations and instructions (Fire Safety Rules in the Forests of Azerbaijan, №UTQ-05/2003 from 08.05 2003; and Rules for Prevention and Liquidation of Ecological Emergency Cases, № 252/2 from 23.12. 2003) existing in relevant state organizations.

3.3 Visitor Program

3.3.1 Guiding principles and Objectives

There are expectations that HNP will become an important tourist destination in the country. However, as a wilderness park with difficult access it will attract mostly visitors who have to be physically fit to properly use the infrastructure inside the park. In an attempt to accommodate the demands of a broader spectrum of visitors, shorter and easier trail circuits are provided in strategic locations with easy access from population centers. Some of the trails will be self-guided to make proper use of the opportunity for environmental education.

The infrastructure measures are kept to a minimum since visitor demand, potential visitation rates and visitor numbers are difficult to predict at this point in time. It seems prudent to start out modestly and expand the program in step with an increasing demand. Visitor numbers are not being expected to exceed levels of carrying capacity of the park in the foreseeable future.

The proposed infrastructure development for the visitor program is illustrated in Map 9.

The planned infrastructure appears sufficient in design and capacity to cater expected visitor demand. It is adjusted to the park's estimated carrying capacity in catering to visitors without negatively affecting the park's ecological integrity.

The planned infrastructure inside the park concentrates on eight tourist trails and five tourist shelters situated in strategic locations. The Park has three major entrances that offer basic tourism facilities.

Main guiding principles are:

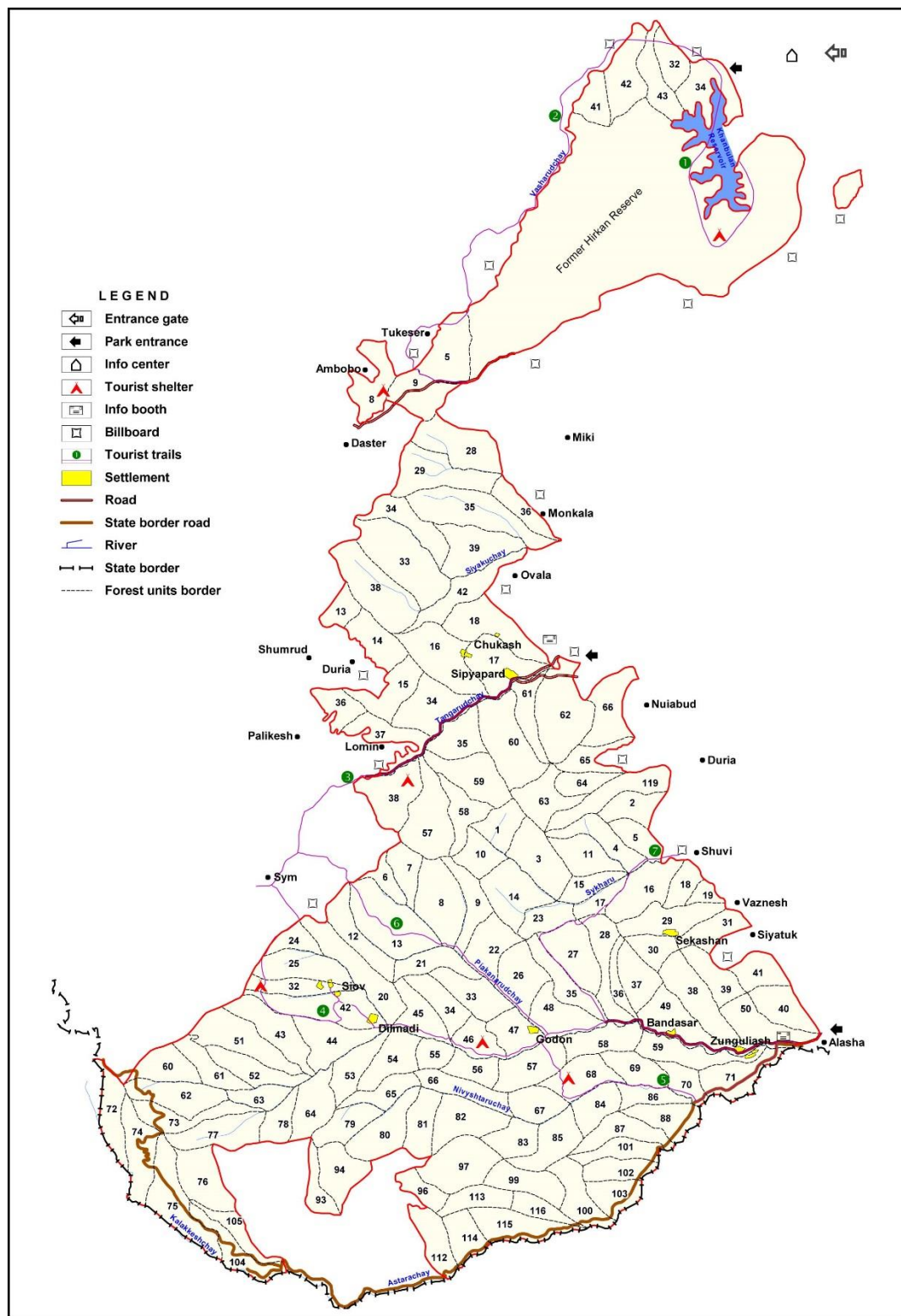
- The HNP should become known as a prime “wilderness” area;
- the park should provide visitors with a wide range of recreational and educational opportunities without adversely affecting the ecological integrity of its ecosystems;

- visitor safety;
- tourism development in the park will be market-driven and involve the private sector;
- activities will be based on the natural strengths and attributes of the HNP (wilderness character);
- tourism development will concentrate on the surrounding zone in order to maximize benefits to support zone communities;
- socio-economic benefits will be maximized by complementary developments and activities inside and outside the park that address a wide spectrum of interest and income groups.

The objectives of this program are:

- To provide nature and culture based tourism and recreational opportunities within the park without negatively affecting the wilderness character of the HNP;
- to provide visitor services inside the park of outstanding quality and compatible with international standards while observing the guiding principle of a wilderness experience;
- to actively pursue private sector involvement in the Visitor Program.
- to promote and facilitate Community Based Tourism initiatives in and around the park;
- to contribute to socio-economic development and sustainable job creation in the surrounding zone of the HNP through the visitor program;
- to generate revenues that can directly contribute to the maintenance and running costs of the park;
- to encourage tourism education, training, awareness and capacity building programs;
- to promote knowledge about the historical and cultural aspects of the people as well as the natural environment;
- to establish a monitoring and evaluation system aimed at ensuring the sustainability of tourism operations and maintaining the condition of visitor services and facilities within the park.

Map 9 Infrastructure for Visitor Program



3.3.2 Infrastructure Development

Park entrances and nature trails

The main gate of the park is located at the Park Administration Building. There is the Map of the National Park area at the gate of the main entrance, showing the borders and main habitats of the Park.

The direct entrances of HNP should be located in strategic places for tourism development (Map 9). Three places are proposed:

- Additional entrance gate of the park could be arranged in the extreme northern border of the national park near the reservoir;
- Third Entrance gate can be organized at the park entrance to the east of the village Ag korpu;
- Fourth entrance gate can be arranged at the southern border of the park right after the village Alasha.

Nature trails

1. The first route begins at the northern entrance gate of the bank of the reservoir, where one can swim across to its west bank and get acquainted with typical Hircan vegetation. Early in the morning one can also see spotted deer coming to their watering place. Traces of jackals, raccoons, cats, wild boar, etc could be easily noticed on the sand of the bank. On the way back one may skirt water reservoir or swim across the river.

2. This trail also starts at the northern entrance gate and goes up along the river Varsharuchai. It is interesting because the vegetation changes alongside with the change of the altitude above sea level. The trail also stirs up interest to observe how the micro-climate of the river valley differs from the other parts of the National Park. Typical inhabitants of the river and several species of fish – trout could be seen in the river. Presence of tourists may serve as living barrier between the population living in the north to the Park.

3. This trail begins at the central entrance gate, to the north of the village of Akhkerpi and stretches along the valley of the river Tangerud. Further on the trail reaches up the village of Sym, where there are numerous archeological monuments. A more attractive way back to the central gate is along the valley Istisuchai.

4. This is the most interesting trail in the Park. The trail starts at the southern entrance gate passing Istisuchai valley through picturesque landscapes, almost untouched forests with relict and

endemic plants, waterfalls, archeological monuments and goes up to the village of Syov. After a night stay at the local household one can go still higher reaching the highest Park Mountain – Shindin (1816 m), which commands a perfect view of typical leopard habitats in the park and also the territory of Iran. It is possible to come back to the central entrance gate along the Novoshturudchai valley (trail 5) or Tangerudchai (previous trail).

5. The trail starts at the same location but further it passes through Novoshturudchai valley. The trail is interesting because the river could be crossed over 70-80 times; also one can encounter archeological monuments and key representatives of the Hircan flora along the river. The way back could be taken along the same trail or one can pick up the trail along the Istysuchai valley and continue the previous trail.

6. The trail starts at the southern entrance gate of Park but it goes up to the village of Chayagzy to the north along the Piakenarudchaia valley. The trail could be continued along Tangerudchai valley (Trail 3).

7. The trail starts in the village of Shuvi and along the valley of river Duria it goes up to almost untouched forest massive. From here it is possible to continue the way along the valleys of Istisuchai or Tangerudchai.

Tourist shelters

Shelters should be situated in at least five sites:

1. On the southern bank of the reservoir, where tourists can stay overnight, crossing over the reservoir.
2. On the right bank of Tangerudchai along the road to the village Sym.
3. On the left bank of Istisuchai, near the waterfall; here tourists not taking the long way to the village Siov can stay overnight.
4. Near the peak of the mountain Shindan (the highest point of the park), from where the whole park and vast scenes of nearby Iran can be viewed.
5. In the valley of the river Novushtadur.

Information center

Currently one room of the Park Administrative Building is allocated for the information center. However it is planned to start construction of the separate center in village Hirkan (formerly Avrora) on the place of former Reserve Laboratory.

Information booths

One of the information booths can be positioned at the entrance gate of the village Alasha (in the extreme southern part of the park) and near the gate of the reservoir. From this information booth three tourist trails spread out (No 4, 5, 6). The information booth can provide visitors with the brief information about this picturesque part of the Park – Valley of Istisuchai in the beginning of their tour.

Another information booth can be placed at the entrance gates located on the East side of village Akhkerpi at the beginning of trail No 3.

Other facilities for tourists will be distributed in the northern part of the park on the bank of reservoir, at the southern gate of the park in traditional resting spots, “Hot springs,” and in the village Siov (see Map 6).

3.4 Research and Monitoring program

3.4.1 Guiding principles and Objectives

This program specifies pertinent research and environmental monitoring as related to the management of the planning region. It specifies the implementing agencies and co-operative agreements. Through this program baseline information for an effective management of the park and the sustainable conservation of its ecosystems is obtained.

It should be understood that research is not a primary function of national park staff. The research is carried out by universities and institutions to which the park provides assistance and logistic support during the implementation of such work. The principle function of this program is to coordinate and assist the research and monitoring program in the park; to identify the baseline data needed for park management and to set up the contracts with researchers interested in the implementation of identified projects. Research opportunities are considered an asset to the academic world and should be treated as ‘capital in the bank’. The research opportunities made available in a national park are tangible assets provided free of charge in return for the baseline data needed by park’s personnel for management purposes. It is self-understood that research priorities in a national park should be placed on applied research with practical management application.

In contrast, most of the monitoring activities identified as prerequisites for sound management, will be the responsibility of park personnel. Some of the more sophisticated monitoring projects may be implemented in co-operation with research institutes (see Annex 10 – Leopard conservation plan). The monitoring program will be assisted by all park management projects, but in particular through specially trained park rangers. The most important monitoring activities will focus on the managed nature zone and the visitor program.

Essential infrastructure needed for the research and monitoring program are confined to two meteorological stations and the establishment of permanent enclosures in the grazing areas. The location of the enclosures will be determined through the proposed grazing management plan to be elaborated by a contracted grazing specialist in collaboration with the grazing land users. Monitoring activities by park personnel will include supervision of livestock activities inside the park.

Other monitoring activities focus on the recuperation of disturbed sites in the park, the ecological status of sites most frequently used in the visitor program and on the maintenance of visitor statistic.

- The HNP should facilitate research opportunities inside the park;
- priority should be given to cost-effective, applied, management-oriented research that contributes to a better understanding of the park's biodiversity, ecological functioning, socio-economic setting, and sustainable resource use (managed nature zone and visitor zones);
- all research and monitoring that is conducted in the park must be ethical in design and implementation and must be conducted according to best practices;
- monitoring should be confined to indicators regarding ecosystem integrity and management efficacy (costly surveys should be avoided). Networking and cooperation should be promoted with local and international Universities, NGOs, other conservation areas as well as with potential funding agencies to obtain assistance, to share research/monitoring results and avoid duplication;
- the intellectual property rights of all works done in the HNP will rest with the park unless otherwise agreed;
- data collection in the absence of an effective database and data management system is futile;
- the data base to be established should be freely accessible to legitimate users.

The objectives of this program are:

- To encourage and facilitate appropriate ecological and socio-economic research and monitoring that is necessary for the effective management of the HNP;
- to properly use research and monitoring results for the benefit of the park's sustainable protection and the benefit of its resources;
- to ensure that all data and information gathered either from a formal research or monitoring program are properly archived and stored in a form that is easily accessible for future use.

The efficacy with which complex biological systems can be managed is, to a large extent, limited by our knowledge of these systems. This knowledge however is in most cases far from complete and yet, management must continue. In most instances, an adaptive management approach is attempted. Here a goal is set, a management decision taken based on the best information available, the results of the management action monitored and the management subsequently

adapted to 'optimize' goal achievement. The foundation of an adaptive management approach is an effective means of storing and recalling data on past conditions and management impacts. Without a well-organized and run information system, knowledge of the structure and dynamics of the HNP will not grow in a structured way, and as a consequence, management of the HNP will not advance as it should.

The primary purpose of the HNP's information system is to securely store all data and information collected in the HNP and its surrounding zone (only data relevant to the protection of the park), in a manner that it can be easily retrieved and made available to facilitate management decisions and to further the understanding of the dynamics of the system.

More specifically, research and monitoring data should be archived for easy access and long-term preservation. This implies the development of a practical method for data access. Furthermore, the analysis of the data collected should be encouraged, in order to convert data into useful information to serve all Management Programs of the HNP.

Under the guidance of the Chief of the Research and Monitoring Program a formalized record of published and unpublished materials on the HNP and its support zone should be established and archived. Accessible past literature is an essential research tool and is relevant to managers who wish to familiarize themselves with a historical overview of the dynamics of the HNP.

Apart from the published and unpublished literature on the HNP, the best and probably the most important data will be collected, stored and maintained by the Chief of this Management Program. These data will form the basis of the quantitative description of the HNP, and the understanding of the dynamics of its major biological components.

The overall objective for the establishment of a database is to develop and maintain a record on appropriate physical, biological and human attributes of the HNP and make this information available in a manner that will further the management of the HNP.

The Chief of the Research and Monitoring Program will formulate and sign MOUs and contracts with researchers and institutions showing interest in conducting research and monitoring in the park. Preference will be given to proposals that fit the overall research and monitoring priorities of the HNP described below. The MOUs and contracts will specify the rules and regulations attached to research and monitoring in the HNP.

The most important rules guiding research and monitoring in the park include:

- Only non-manipulative research will be allowed and only in designated areas according to park regulations;
- any collection of biological samples from the park need prior written permits which may only be issued in exceptional circumstances after verification by Ministry of Ecology and Natural Resources;
- seasonal research restrictions apply.

- Research and Monitoring should not interfere with other management programs, in particular the visitor program;
- Research and Monitoring should not negatively impact on flora and fauna and the park's ecosystems at large in any way or fashion;
- research opportunities are offered by the HNP free of charge but will be subject to supervision and guidance by the Program Chief;
- all data should preferably be geo-referenced (GPS).

The following databases are priority for the management and maintenance of the HNP:

- Climate including rainfall and temperature;
- vegetation monitoring in all disturbed and actively managed areas of the park;
- animal sightings and distribution sightings of 'rare' species and occurrences;
- the distribution and extent of major insect and other pest outbreaks;
- law enforcement or illegal incidence database aimed at tracking the frequency and distribution of human incursions and illicit activities in the HNP;
- all activities in the managed nature and visitors zones with respect to livestock grazing;
- the collection of minor forest products and the issue of licenses and special use permit;
- statistics on visitors (name, age, gender, country of origin, length of stay, visitor satisfaction);
- monitoring of all features in the park that are visited by tourists, in particular preferred sites, such as trails and camping areas in order to prevent environmental deterioration;
- information should be gathered from the surrounding zone on a regular basis regarding the attitude of support zone people towards the park;
- GIS should become an integral part of the HNP database. The spatial database (GIS) requires careful planning and management and each data set needs to be collected and documented to a certain standard. Each GIS coverage must be registered in the metadatabase;
- The GIS data base should include:
 - the HNP boundary and zonation,
 - a digital elevation model,
 - the park's entire infrastructure (roads, buildings, entry gates, trails, shelters, ranger stations etc.),
 - rainfall distribution,
 - occurrence of fires,
 - distribution of major plant communities,

- distribution of rare plant communities,
- and distribution and movement pattern of main mammal and other selected animal species (flagship, charismatic, rare etc.).

The monitoring of the managed nature and visitor zones and all related activities should follow the established guidelines of the range management plan that forms a part of this document.

Under the tutelage of the Program Chief the rangers should receive special in-service training on monitoring activities to be carried out by the ranger corps. This has to be done in close cooperation with the Chief of the Protection Program in order to harmonize activities.

Research priorities will change depending on the status of knowledge as a result from park monitoring and the questions being asked by the park's managers. For this reason, research priorities need to be reviewed regularly. Internal review should be undertaken on an annual basis, while a formal review should be done every three years with the assistance of the Academy of Sciences. All research done in the park needs the official approval of the Park Director. Prior to an agreement being reached between management and a prospective researcher, the researcher must submit and have approved a research proposal. The approval process will be based on the relevance of the research to the HNP's information needs.

The proposed re-introduction of species will be permitted under special circumstances only. Released animals will be monitored in order to assess the re-introduction success. Any re-introduction project should be implemented by a professional biologist and financed through external sources.

No artificial mineral-licks will be established for any reason inside the park boundaries and no supplementary feeding of any wildlife is permitted. No 'exotic' species will be introduced to the park.

Any application for bio-prospecting inside the park will be assessed under guidance of the Research and Monitoring Program Chief and needs official approval by the Park Director. The terms (rules and regulations) for Bio-prospecting in general have to be developed by the Program Chief who also will be responsible to formulate corresponding agreements if a bio-prospecting proposal finds the approval of the HNP. Any bio-prospecting activity needs close monitoring.

Special monitoring is required for endangered leopard population: proposed activities are listed in Annex 10.

3.5 Communications and Awareness Building Program

3.5.1 Guiding Principles and Objectives

The long-term success of the HNP is dependent on developing a constructive, mutually beneficial relationship between the park and local communities. There are certain issues that require

immediate and concerted action to resolve, whilst other issues may arise over time. Suitable structures and mechanisms need to be put in place to deal with all these issues and to facilitate the desired working relationship.

Communications and Awareness Building and visitor programs are closely linked with each other. Together with the research and monitoring program they produce the information materials for park visitors and the environmental education in the support zone (See also Annex 10 – Leopard conservation plan). Major information materials produced annually or periodically are park brochures, a park newspaper, fact sheets on park ecosystems or flora and fauna, posters, calendars and, on occasion, stickers, pins etc.

It is very important for the promotion of the park and its general image that park personnel takes part in special public events in the surrounding zone. The park should be represented at all major events in order to firmly establish its place in the region.

The objectives of this program are:

- Prepare billboards for a permanent exhibition scheme to be used in public events taking place in the support zone and in which the park should be represented to show its presence and to promote its image (principle target group: communities and people);
- to prepare presentations (power point, slide-shows, videos) on park related issues to be used in seminars with local authorities (principle target group: municipalities, district authorities, community representatives);
- to prepare lectures on environmental and natural history issues that are of interest to school children to be used for formal education at schools of the support zone; organize and implement other activities for school children which fit the educational curricula (principle target group: teachers and school children);
- to invite school classes to the park for hands-on experience in (principle target group: teachers and school-children);
- to organize visits by University students interested in protected area matters (principle target group: University students);
- to organize meetings and joint environmental action programs together with local NGOs (principle target groups: local environmental NGOs);
- to organize on a regular basis press conferences and prepare jointly with journalists materials on the park issues for television and local newspapers (principle target groups: media representatives, and the general public);
- to organize VIP visits to the park with focus on potential donors and major decision makers from Government and the Private Sector (principle target groups: major decision makers and potential donors);
- jointly with other park management programs prepare information materials, and suitable park related souvenirs such as t-shirts, caps, buttons, stickers, posters, calendars etc. for

the visitor program and to be sold at park kiosks and contract shops in the surrounding zone (principle target groups: park visitors and general public);

- jointly with other park programs produce a bi-annual park newsletter (principle target groups: friends of the HNP and the general public);
- jointly with other park programs prepare once/year an open house in Park Headquarters (Principle target group: general public);
- to assist the Head of the Visitor Program jointly with the Head of the Research and Monitoring Program in the illustration and lay-out of the self-guided nature trails.

4 Guiding principles for housing and land use within the Park boundaries

4.1 Housing

The territory of the Hirkan National Park has been populated since ancient times, which is attested by numerous cultural-historic monuments as mentioned in annex 3. It could be assumed that the settlements have not been large and the population lived in harmony with nature. It is proved by the condition of the forests in the greater part of the park, among them old groves, almost untouched by man. Survival of a representative of the fauna such as a leopard is also one of the indirect proofs of the above mentioned fact.

It is noteworthy that the population of the villages in Talysh Mountains, located near the state border, including the greater part of the population living on the territory of the recently established HNR, moved to the central part of Azerbaijan in the 40s of the last century. The part of vacated forestlands, under favorable climatic conditions and with high natural restoration capacity, soon became naturally reforested and was allocated to the State Forest Fund of Azerbaijan. Part of the migrated population started to return gradually to their former dwellings, but due to the fact that Azerbaijan law does not envisage allocation of plots from the State Forest Fund and their further tenure, the certain lands have not been allotted officially to part of population who currently live within the Park's boundary.

Currently on the National Park area there are 273 houses with 1340 people. Of 126 dwellings (46% of the total number of houses) with 489 people (36% of the total population living on the Park territory) are located in two adjacent villages of Zunguliash and Bandeser. The villages are situated on the south-east border of the Park within the units №49, 38 belonging to the protection section XIII and №50 – section XIV (Map 7). Another large village on the Park area is Ag korpu (Cipyapard) with 85 houses (31% of the total number of houses) and 498 people (37%). The above mentioned three villages therefore account for the 77% houses and 73% of the population. Other villages are rather small with a few houses and accordingly small population which does not cause any major problems to the successful implementation of the protection programme in keeping with the management plan. The same applies to the land use. The above mentioned three villages keep 2930 of cattle, goats and sheep i.e. 75% of the total livestock. In the light of observing the

protection regime, of the three villages special attention should be paid to the village of Ag korpu (Cipyapard) which is located in the immediate proximity to the migration corridor of the fauna representatives (Units №16, 17 – protection section IV) (Maps 4, 7). Further expansion of the village may pose a threat to disintegration of the National Park. In general outline the same refers to all villages which are situated within the borders of the National Park.

Taking into consideration the above mentioned and also the requirements of the international criteria for the National Park, as well as global importance of the Hirkan forests, the main medium-term goal is to set up preconditions for gradual partial depopulation of the National Park (and correspondingly reduction of the number of livestock and agricultural lands). At the same time, it should be taken into consideration that people of small villages really live in harmony with Talysh Mountain environment. These examples of traditional livelihood have great historical-cultural and nature conservation value in itself.

Resorting to only administrative measures will never yield desirable results and may entail conflicts between the interests of the local population and nature conservation purposes. In order to come up with a proper decision regarding the issue special strategy needs to be elaborated in short-term by relevant governmental organizations, which will include issues concerning regulation of land tenure for people living inside the Park boundaries, compensation measures and possibilities for job creation outside the Park area. It would be expedient to involve donor communities, active in the environment protection of the Caucasus, in elaboration and further implementation of the strategy.

Prior to the elaboration of the strategy main construction works within the Park boundaries (houses or any other major construction activities) can be the subjects of special permits issued by Park administration and approved by MoE.

During the demarcation process it is recommended to look into the possibility of separating villages of Zunguliash and Bandesar from the main part of the National Park. The same concerns the areas used by the above villages (unit №59 – protection section XII, parts of the units 36, 37, 38 and 49 in the whole – protection sector XIII and unit №50 – protection sector XIV).

4.2 Guidelines for grazing management

Land use on the Park area is basically restricted only to grazing in the forests and glades, hay-making and vegetable gardens (only in the lower zone of the large villages; small areas are used for growing rice and there are some citrus orchards near the houses) (Part 1, Subchapter 1.5.2, Annex 2). 126 agricultural plots cover around 15 hectares, i.e 0,07% of the total area of the National Park, which currently do not cause any major damage to the Park integrity, however it is necessary to control its further expansion. The main problem is grazing in the forest.

Taking into account the fact that on the one hand, the grazing (overgrazing) is the main threat posing to the stability of forest communities within the park area and animal husbandry being the

primary source of local population income on the other, the main strategic direction is to gradually decrease the number of livestock by setting up alternative sources of the local population's income, which is linked with the overall socio-economic development of the country and can be solved within the framework of above mentioned strategy for housing and land-use.

At the first stage the main objective of the National Park is to regulate the grazing system and to limit the increase of the livestock.

According to the data of the National Park currently about 4000 heads of livestock owned by 16 villages graze on the National Park territory (Tables 2, 12). Of them about 3000 heads of livestock belong to the three villages of Zunguliash, Bandeser and Ag korpu (Cipiepard). Table 13 includes information on spatial distribution of grazing areas used by villages within the Park territory. Apart from the villages mentioned in the table, bordering units of the Park are also used for livestock owned by the population living along the Park border, in particular villages of Alasha, Shuvi, Duria, Siyatuk, Vaznesh, Ovala, Mankala, Sim, Lomin, Daster, Ambobo, etc. There are no reliable data on the number of livestock grazing on the Park area from the above villages. Further use of the Park for grazing by the villages located outside the Park is not recommended. The alternative areas should be searched outside the Park territory, among them in the Support Zone too. Therefore the indicator is not taken into account while setting up the proposed regulated structure of grazing system within the National Park area.

Today the grazing is concentrated on about 8165 hectares, i.e. 38% of the Park area (Table 13, Map 10). Of the above area 615 hectares belong to the Core Zone, 2201 hectares – to the Visitors Zone and 4892 hectares – to the Managed Nature and Visitor Service Zones. The system of grazing is uncontrolled and unregulated – livestock can freely graze over the Park area being unattended by shepherds. Unattended livestock often fall victim to predators, among them to the leopard, triggering off human-wildlife conflict where sometimes the predator may also lose.

From this perspective it is of primary importance to regulate grazing system – villages should allocate shepherds to permanently look after the livestock.

One of the general conditions is to conduct the monitoring over the growth of the number of livestock. This issue is most important for large villages such as Zangulesh, Bandasar and Ag Korpu, since the pastures located on the above villages are distinguished by the high density of livestock (overgrazing).

The strategic direction for spatial regulation of grazing on the Park area is to urgently reduce the load of grazing in the Core Zone and to gradually free the Visitors zone from grazing. The grazing should strictly take place in the Managed Nature Zone. Grazing could also be allowed in the Visitor Service Zone. Such approach is defined by several circumstances: (a) ecosystems in the Core Zone should be preserved at natural conditions; (b) nature in the Visitors Zone should be also preserved in pristine condition which facilitates the wildlife conservation in the Park adding more attraction for the visitors to admire; (c) setting up alternative sources for local population is not foreseen in the nearest future and accordingly the reduction of livestock is not anticipated;

therefore the Managed Nature Zone should be allocated the function to meet the demands of the local population; (d) it is envisaged to develop tourism infrastructure in the Visitors Service Zone (see Visitors programme). The latter will be served by the local population, meaning that the livestock owned by local population will use the territory of the zone for grazing. Visitors may also find the traditional cattle breeding interesting.

Table 13 shows that distribution of grazing territories will not create problems in reallocating grazing areas in the units №12, 20,14, 25, 32 of the protection section VIII, with total area of 617 hectares, where it is planned to fit in the livestock of villages of Dilmadi and Siov (190 heads of livestock). The average index of density (0,22 heads/hectare) will be still lower than optimal one (about 0,5 cows per 1 hectare; 1,5 sheep or goat per 1 hectare). The similar situation will take place in the villages of Chaigyzy and Godon. Within the permissible density the livestock from the villages of Gimeteli and Nivisherud will graze. In the first five years of the functioning of the National Park the problems should not occur concerning the grazing of the villages of Piekenerud, Duria (Shuvi), Sekiashen (Shuvi), Bykhiebalel, Upper and Lower Gyrin. Therefore, the livestock could be gradually moved from 11 villages of total 16 villages to the units of Managed Nature Zone (and partially to the Visitor Service Zone) without breaking rational norms of grazing.

The issue of reallocating grazing areas in large villages seems to be more problematic. In particular, even now the overgrazing in the units used by the villages of Zunguliash and Bendersar (village Venebijar does not make great difference in the overall picture) is taking place, namely in the units №70, 71 (protection section XI), 59 (XII), 36, 37, 38, 49 (XIII), 39, 50 (XIV), 27, 28, 35 (VII), 58 (XII). If the 434 hectares in the Visitors Zone is urgently freed from cattle grazing (part of unit 27, part of 28, 35 (VIII), 58 (XII)), potential overgrazing could amount to almost 100%, i.e. the remaining units of the Managed Nature Zone used by the villages mentioned above should fit in twice as many cattle than recommended by the rational norms. Therefore it is desirable to additionally allocate units № 30 (section XV), 39, 40, 41 (section XIV) (367 ha) to the above villages for grazing and postpone translocation of livestock from Visitor Zone units used by these villages before alternatives are found outside Park's area.

Ag korpu (Cipiepard) and Chukesh requires additional allocation of Units № 64, 65, 66 (section VI) (308 ha), but in this case the livestock from units of Core Zone should be trans-located anyway.

Table 14 provides recommendations on the regulation of grazing in a short-term perspective. It will require corrections after the completion of 5-year phase of the Park development in keeping with the actual condition, which will be outlined by 2010 and 2015.

Prior to the elaboration of the strategy:

- further increase of livestock will be controlled, especially in Zunguliash, Bendersar, and Ag korpu;
- grazing of livestock belonging to the population living beyond the National Park borders will be gradually prohibited;

- grazing in the Core zone will be prohibited;
- grazing in the visitors zone will be minimized and gradually prohibited.

Table 12 **Number of livestock and optimal grazing area**

№	Settlements	Cattle	Optimal grazing area for cattle (ha)	Goats and sheep	Optimal grazing area for goats and sheep (ha)	Total requested grazing area (ha)
1	Zunguliash and Bandeser + Venebijar	937	1874	800	533	2407
2	Dilmadi and Siov	100	200	90	60	260
3	Piekenerud	10	20	50	33	53
4	Chaiagyzy and Godon	63	126	50	33	159
5	Duria (Shuvi)	48	96	30	20	116
6	Ag korpu (Cipiepard) and Chukesh	517	1034	830	553	1587
7	Sekiashen (Shuvi)	33	66	50	33	99
8	Gimeteli and Nivishterud	103	106	69	46	152
9	Bykhiebalel	12	24	8	5	29
10	Upper and Lower Gyrn	30	60	42	28	88
	Total:	1853	3606	2019	1344	4950

Table 13 Current and potential spatial structure of grazing within Hirkan National Park

No	Settlements	Livestock (number)	Unit (№) used for grazing (Protection Section)	Management Zone	Area (ha)	Actual average livestock density (number per 1 ha)	Potential ³ livestock density for MZ and VSZ zones (number per 1 ha)
	Zungulesh and Bandeser + Venebjar	1737	70, 71 (XI), 59 (XII), 36,37, 38, 49 (XIII), 39, 50 (XIV),	MNZ, VSZ	207 (XI), 154 (XII), 533 (XIII), 271 (XIV) = 1165	1,09	1,49
			Part of 27, part of 28, 35 (VIII), 58 (XII)	VZ	317 (VIII), 117 (XII) = 434	1,09	0
	Dilmadi and Siov	190	12, 20, 24, 25, 32, 42 (VIII)	MNZ, VSZ	839 (VIII)	0,12	0,22
			45 (VIII), 43, 44, 51, 53 (IX)	VZ	117 (VIII), 647 (IX) = 764	0,12	0
	Piekenerud	60	21,22, 26 (VIII)	MNZ	355 (VIII)	0,17	0,17
	Chaiagyzy and Godon	113	33, 47, 48 (VIII)	MNZ	373 (VIII)	0,18	0,30
			56 (IX)	CZ	80 (IX)	0,18	0
			34, 46 (VIII)	VZ	183 (VIII)	0,18	0
	Duria (Shuvi)	78	4, 11, 15, 16, 17(VII)	MNZ	520 (VII)	0,15	0,15
	Ag korpu (Cipiepard) and Chukesh	1347	Part of 42 (III), 17, 18 (IV), part of 60, 61, 62 (V)	MNZ	67 (III), 368 (IV), 469 (V) = 904	0,89	1,49

³ If livestock is trans-located from Core and Visitor Zones to Managed Nature (and Visitor Service) Zone

№	Settlements	Livestock (number)	Unit (№) used for grazing (Protection Section)	Management Zone	Area (ha)	Actual average livestock density (number per 1 ha)	Potential ³ livestock density for MZ and VSZ zones (number per 1 ha)
			Part of 42 (III) 16, 34, 35 (IV), part of 60 (V)	CZ	67 (III), 409 (IV), 126 (V) = 602	0,89	0
	Sekiashen (Shuvi)	83	18, 29, 30, 31 (XV)	MNZ	385 (XV)	0,21	0,21
	Gimeteli and Nivishterud	172	68, 69 (IX)	MNZ	233 (IX)	0,20	0,73
			67, 83 (IX), 84, 85 (XI), 57 (XII)	VZ	209 (IX), 243 (XI), 176 (XII) = 628	0,20	0
	Bykhiebalel	20	39 (III)	MNZ	161 (III)	0,12	0,12
	Upper and Lower Gyrin	72	65, 66 (VI)	MNZ	246 (VI)	0,30	0,30
	Total:	3872			8165 (MZ & VSZ – 5181; CZ – 682; VZ – 2302)		

Table 14 Recommendations for grazing management within Hirkan National Park (in brackets № of protection section is indicated)

№	Settlements	Livestock	Units (№) which can be used for grazing	Units where grazing is not recommended	Management Zone	Area (ha) (Protection	Recommendation
1	Zunguliash and Bandeser + Venebijar	1737	70, 71 (XI), 59 (XII), 36,37, 38, 49 (XIII), 39, 50 (XIV),		MZ, VSZ	207 (XI), 154 (XII), 533 (XIII), 271 (XIV) = 1165	The villages are located in the Visitor Service Zone; as far as sources for alternative livelihood will be available, reducing of livestock number is proposed; livestock in Visitor Zone units (see below) can be gradually moved in newly allocated alternative pastures outside Park's borders, additionally Units № 30 (section XV), 39, 40, 41 (section XIV), can be used for grazing; practice of uncontrolled grazing (without herder) should be eliminated; herders should be instructed by Senior protection staff of NP about permitted grazing area.
				Part of 27, part of 28, 35 (VIII), 58 (XII)	VZ	317 (VIII), 117 (XII) = 434	Grazing should be gradually translocated
2	Dilmadi and Siov	190	12, 20, 24, 25, 32 (VIII)		MZ, VSZ	617 (VIII)	The grazing of whole livestock of Dilami and Siov can be concentrated in these units. As far as these units will be transferred into Visitor zone by 2010, increasing livestock number

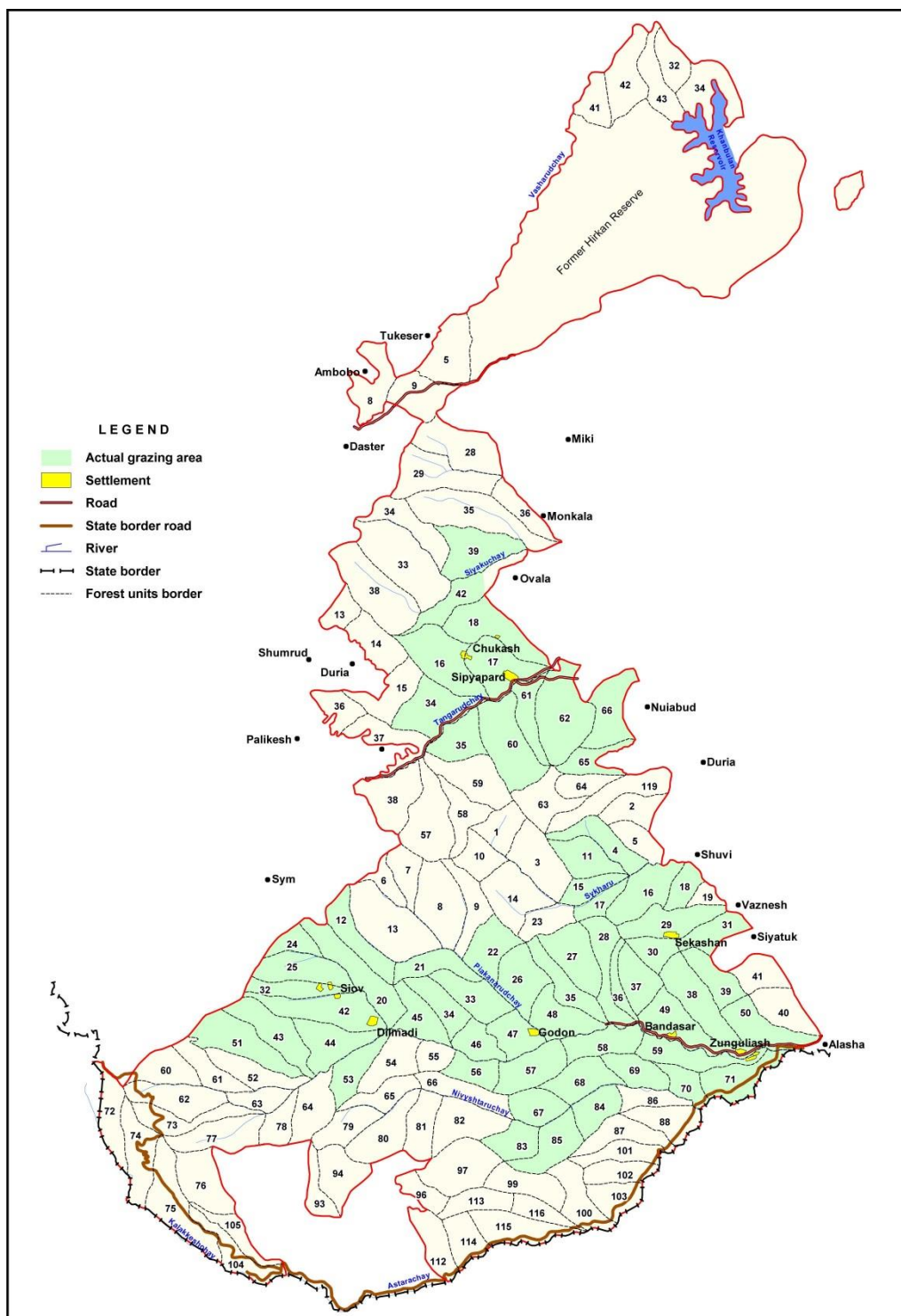
No	Settlements	Livestock	Units (№) which can be used for grazing	Units where grazing is not recommended	Management Zone	Area (ha) (Protection	Recommendation
							can be limited; alternative units for grazing should be allocated outside of Park boundaries in the support zone; practice of uncontrolled grazing (without herder) should be eliminated; herders should be instructed by Senior protection staff of NP about permitted grazing area.
				45 (VIII), 43, 44, 51, 53 (IX)	VZ	117 (VIII), 647 (IX) = 764	Grazing should be restricted gradually
3	Piekenerud	60	21,22, 26 (VIII)		MZ	355 (VIII)	As far as these units will be transferred into Visitor zone by 2010, increasing livestock number should be limited and controlled. Practice of uncontrolled grazing (without herder) should be eliminated.
4	Chaiagyzy and Godon	113	33, 47, 48 (VIII)		MZ	373 (VIII)	Livestock from Core (and gradually from Visitor) Zones units can be moved in Managed Nature Zone Units; practice of uncontrolled grazing (without herder) should be eliminated; herders should be instructed by Senior protection staff of NP about permitted grazing area.
				56 (IX)	CZ	80 (IX)	Grazing should be restricted
				34, 46 (VIII), 57 (XII)	VZ	183 (VIII), 176 (XII) = 359	Grazing should be restricted gradually

№	Settlements	Livestock	Units (№) which can be used for grazing	Units where grazing is not recommended	Management Zone	Area (ha) (Protection)	Recommendation
5	Duria (Shuvi)	78	4, 11, 15, 16, 17(VII)		MZ	520 (VII)	Increasing livestock number should be limited and controlled. Practice of uncontrolled grazing (without herder) should be eliminated.
6	Ag korpu (Sipiepard) and Chukesh	(1200+147) 1347	17, 18 (IV), part of 60, 61, 62 (V)		MZ	368 (IV), 469 (V) = 837	Livestock from Core Zone units should be moved in Managed Nature Zone Units, additionally Units № 64, 65, 66 (section VI), can be used for grazing; alternative units in the support zone can be used as well; practice of uncontrolled grazing (without herder) should be eliminated; herders should be instructed by Senior protection staff of NP about permitted grazing area.
				16, 34, 35 (IV), part of 60 (V)	CZ	409 (IV), 126 (V) = 535	Grazing should be restricted
7	Sekiashen (Shuvi)	83	18, 29, 30, 31 (XV)		MZ	385 (XV)	Increasing livestock number should be limited and controlled. Practice of uncontrolled grazing (without herder) should be eliminated.
8	Gimeteli and Nivishterud	172	68, 69 (IX)		MZ	233 (IX)	Livestock from Visitor Zone units should be moved in Managed nature Zone units gradually and partly. As far as these villages do not have alternatives for changing grazing units by 2010, when transformation

№	Settlements	Livestock	Units (№) which can be used for grazing	Units where grazing is not recommended	Management Zone	Area (ha) (Protection)	Recommendation
							of this part of Managed Nature Zone into Visitor Zone is planned, limited grazing in corresponding units of Visitor Zone should be permitted; practice of uncontrolled grazing (without herder) should be eliminated; herders should be instructed by Senior protection staff of NP about permitted grazing area.
				67 (IX), 84, 85 (XI), 57, 58 (XII)	VZ	108 (IX), 243 (XI), 293 (XII) = 644	Grazing can be trans-located.
9	Bykhiebalel	20	39 (III)		MZ	161 (III)	Increasing livestock number should be limited and controlled. Practice of uncontrolled grazing (without herder) should be eliminated.
10	Upper and Lower Gyrun	72	65, 66 (VI)		MZ	246 (VI)	Increasing livestock number should be limited and controlled. Practice of uncontrolled grazing (without herder) should be eliminated.

Map 10

Current structure of grazing within the HNP's boundaries⁴



⁴ Grazing by livestock of settlements located outside the Park is not considered.

PART FOUR:

INVESTMENTS AND OPERATIONAL COSTS FOR HIRKAN NATIONAL PARK

4.1 Investment in the Hirkan National Park

The cost for the proposed investment measures are calculated by management program. Costs for the construction of buildings are calculated based on locally assessed current construction costs. Pricing of materials and equipment is based on current market prices in Baku. The results are presented in Table 15. The total investment costs for Hirkan National Park are approximately US\$ 0,7 Mio. of which 47% are dedicated to the visitor program, followed by 22 and 20% for the administration and protection programs and 11% for the remaining programs of communication and awareness raising, and research and monitoring (Additionally see Annex 10).

Table 15 Investment costs for HNR (in US\$)

	COST CATEGORY	BUDGET				CALENDAR		
		Unit	Quantity	Unit price	Total	2006	2007	2008
1	ADMINISTRATION PROGRAMME				154,400	59,550	66,850	28,000
1.1	Training of park personnel				85,000	29,000	28,000	28,000
	elaborate training programme	day	5	200	1,000	1,000		
	in-service training of park rangers	course	3	8,000	24,000	8,000	8,000	8,000
	on-the-job training of park rangers	course	3	7,000	21,000	7,000	7,000	7,000
	in-service training of park management	course	3	5,000	15,000	5,000	5,000	5,000
	training trips abroad for park management	trip	3	8,000	24,000	8,000	8,000	8,000
	training trips abroad for park senior staff	trip	3	5,000	15,000	5,000	5,000	5,000
1.2	Infrastructure development				10,000	0	10,000	
	site development	lump sum	1	10,000	10,000		10,000	
1.3	Furniture				10,500		10,500	
	offices	lump sum	9	1,000	9,000		9,000	
	reception area	lump sum	1	1,000	1,000		1,000	
	storage room and archive	lump sum	1	500	500		500	
1.4	Equipment				48,900	30,550	18,350	
	computers	item	4	750	3,000		3,000	
	photocopier (A3)	item	1	1,500	1,500		1,500	
	faxmachine	item	1	400	400		400	
	telephone and computer network	item	1	5,000	5,000		5,000	
	uninterrupted power supply (UPS)	lump sum	1	4,000	4,000		4,000	
	flipcharts	item	2	150	300		300	
	pinboards	item	2	200	400		400	

	Multimedia projector	item	1	1,500	1,500		1,500	
	screen	item	1	500	500		500	
	TV-set	item	1	500	500		500	
	videorecorder	item	1	250	250		250	
	basic tools (mechanic, gardening, etc.)	lump sum	1	1,000	1,000		1,000	
	uniforms	set	15	200	3,000	3,000		
	standard equipment	set	3	700	2,100	2,100		
	cellular phones	item	3	150	450	450		
	vehicle (4 x 4 jeep)	item	1	10,000	10,000	10,000		
	pick-up (4 x 4)	item	1	15,000	15,000	15,000		
2	PROTECTION PROGRAMME				142,360	82,700	50,160	0
2.1	boundary demarcation				17,160	0	17,160	
	boundary demarcation	km	143	120	17,160		17,160	
2.2	Infrastructure development				65,600	48,100	17,500	0
	construct ranger stations	building	2	15,000	30,000	30,000		
	construct ranger shelters	building	7	5,000	35,000	17,500	17,500	
	arrange road closures and access controls	barrier	3	200	600	600	0	
2.3	Furniture				13,000		3,500	
	ranger stations	lump sum	2	3,000	6,000	6,000		
	ranger shelters	lump sum	7	1,000	7,000	3,500	3,500	
2.4	Equipment				46,600	34,600	12,000	
	uniforms	set	20	200	4,000	4,000		
	standard equipment	lump sum	20	1,000	20,000	20,000		
	horses and saddles	item	16	350	5,600	5,600		
	basic VHF trancivers	item	3	800	2,400		2,400	
	mobile VHF trancivers	item	14	400	5,600		5,600	
	electric power generators	item	2	500	1,000		1,000	
	vehicles (4x4)	item						
	motorbikes	item	2	2,500	5,000	5,000		
	basic tools	lump sum	2	1,500	3,000		3,000	
3	VISITORS PROGRAMME				331,400	28,000	204,000	99,400
3.1	Infrastructure development				207,000	14,000	184,000	9,000
	park entrances	entrance	2	7,000	14,000	14,000		
	arrangement of trails	km	60	300	18,000		9,000	9,000
	visitor centre	centre	1	100,000	100,000		100,000	
	construct tourist shelters	building	5	15,000	75,000		75,000	
	info boots	building	2	2,000	4,000		4,000	
3.2	Furniture				50,000			50,000
	visitor center	lump sum	1	25,000	25,000			25,000
	tourist shelters	lump sum	5	5,000	25,000			25,000
3.3	Equipment				34,400	4,000	10,000	20,400
	uniforms	set	2	500	1,000	1,000		
	standard equipment	lump sum	2	1,500	3,000	3,000		
	cellular phone	item	2	200	400			400
	audio-visual, etc.	lump sum	1	15,000	15,000			15,000
	UPS system	lump sum	1	5,000	5,000			5,000
	vehicles (4x4)	item	1	10,000	10,000		10,000	

3.4	Information materials				30,000		10,000	20,000
	arrange display hall in visitor center	lump sum	1	20,000	20,000			20,000
	publish colour brochure	brochure	1	10,000	10,000		10,000	
3.5	Promote tourism development				10,000	10,000		
	design and implement tourism development and marketing plan	lump sum	1	10,000	10,000	10,000		
4	RESEARCH AND MONITORING PROGRAMME				19,000	5,000	14,000	
4.1	Creation of database				3,000	2,000	1,000	
	prepare digital map layers	lump sum	1	2,000	2,000	2,000		
	acquire and document data in GIS format	lump sum	1	1,000	1,000		1,000	
4.2	Equipment				16,000	3,000	13,000	
	uniforms	set	2	500	1,000	1,000		
	standard equipment	lump sum	2	1,000	2,000	2,000		
	cellular phone	item	2	200	400		400	
	global positioning system (GPS)	item	2	500	1,000		1,000	
	binoculars	item	2	300	600		600	
	digital video/photo camera	item	1	1,000	1,000		1,000	
	vehicles (4x4)	item	1	10,000	10,000		10,000	
5	COMMUNICATIONS AND AWARENESS BUILDING PROGRAM				55,900	9,900	33,100	12,900
5.1	Media coverage				8,700	1,900	2,900	3,900
	TV spots	spot	6	500	3,000	1,000	1,000	1,000
	articles in newspapers	article	9	300	2,700	900	900	900
	press-trips	trip	3	1,000	3,000		1,000	2,000
5.2	Advertising materials				20,000	3,000	11,500	5,500
	web page	lump sum	1	1,500	1,500		1,500	
	colour calendars	calendar	3	3,000	9,000	3,000	3,000	3,000
	stickers, badges, pens, T-shirts, etc.	lump sum	1	5,000	5,000		2,500	2,500
	information billboards	board	3	1,500	4,500		4,500	
5.3	Public relations				15,500	3,500	8,500	3,500
	printing materials for local population		3	500	1,500	500	500	500
	orientation meetings in rural areas	meeting	10	500	5,000		5,000	
	Arranging VIP visits	lump sum	1	9,000	9,000	3,000	3,000	3,000
5.4	Equipment				11,700	1,500	10,200	
	uniforms	set	1	500	500	500		
	standard equipment	lump sum	1	1,000	1,000	1,000		
	cellular phone	item	1	200	200		200	
	vehicles (4x4)	item	1	10,000	10,000		10,000	
	TOTAL				703,060	185,150	368,110	140,300

4.2 Operational costs

The annual operational costs for the NP are calculated for a 3 year period. The proposed infrastructure development will be completed within three years. In the fifth year the operational costs are expected to stabilize. The results are presented in table 3.

Table 16 Investment costs for HNR (in US\$)

	COST CATEGORY	ANNUAL BUDGET				CALENDAR		
		Unit	Quantity	Unit price	Total	2006	2007	2008
1	STAFF COSTS				137,740	45,913	45,913	45,913
1.1	Administration program				41,400	13,800	13,800	13,800
	1 director	month	36	210	7,560	2,520	2,520	2,520
	1 deputy director	month	36	170	6,120	2,040	2,040	2,040
	1 bookkeeper	month	36	150	5,400	1,800	1,800	1,800
	1 maintenance officer	month	36	100	3,600	1,200	1,200	1,200
	1 human resource officer	month	36	100	3,600	1,200	1,200	1,200
	1 cashier	month	36	60	2,160	720	720	720
	1 secretary	month	36	60	2,160	720	720	720
	1 driver	month	36	50	1,800	600	600	600
	3 guards	month	108	50	5,400	1,800	1,800	1,800
	2 cleaners	month	72	50	3,600	1,200	1,200	1,200
1.2	Protection program				70,780	23,593	23,593	23,593
	1 head of protection program	month	36	160	5,760	1,920	1,920	1,920
	4 senior rangers	month	144	90	12,960	4,320	4,320	4,320
	16 rangers	month	576	60	34,560	11,520	11,520	11,520
	Field allowances (US\$ 5 x 5 days x 36 months x 20 rangers)	day	3500	5.0	17,500	5,833	5,833	5,833
1.3	Visitor program				10,440	3,480	3,480	3,480
	1 head of visitor program	month	36	160	5,760	1,920	1,920	1,920
	1 assistant	month	36	130	4,680	1,560	1,560	1,560
1.4	Research and monitoring program				9,360	3,120	3,120	3,120
	1 head of research and monitoring program	month	36	160	5,760	1,920	1,920	1,920
	1 assistant	month	36	100	3,600	1,200	1,200	1,200
1.5	Communications and awareness building program				5,760	1,920	1,920	1,920
	1 head of communications and awareness building program	month	36	160	5,760	1,920	1,920	1,920
2	TRAVEL COSTS				43,740	16,200	28,598	33,542
2.1	Administration program				18,960	6,320	6,320	6,320
	1 director	day	90	15	1,350	450	450	450
	1 deputy director	day	60	15	900	300	300	300
	1 bookkeeper	day	30	15	450	150	150	150
	1 maintenance officer	day	30	15	450	150	150	150
	1 driver	day	90	15	1,350	450	450	450
	local transportation	person	5	300	1,500	500	500	500
	fuel for 2 vehicles	month	72	180	12,960	4,320	4,320	4,320

2.2	Protection program				11,775	8,905	16,263	21,207
	1head of protection program	day	45	15	675	225	225	225
	local transportation	person	1	300	300	100	100	100
	fuel for 1 vehicle	month	36	200	7,200	2,400	2,400	2,400
	fuel for 2 motorbikes	month	72	50	3,600	1,200	1,200	1,200
2.3	Visitor program				4,575	325	2,125	2,125
	1 head of visitors program	day	45	15	675	225	225	225
	local transportation	person	1	300	300	100	100	100
	fuel for 1 vehicle	month	24	150	3,600		1,800	1,800
2.4	Research and monitoring program				3,855	325	1,765	1,765
	1head of research and monitoring program	day	45	15	675	225	225	225
	local transportation	person	1	300	300	100	100	100
	fuel for 1 vehicle	month	24	120	2,880		1,440	1,440
2.5	Communications and awareness building program				4,575	325	2,125	2,125
	1 head of communications and awareness building program	day	45	15	675	225	225	225
	local transportation	person	1	300	300	100	100	100
	fuel for 1 vehicle	month	24	150	3,600		1,800	1,800
3	MAINTENANCE COSTS				39,970	7,890	13,568	18,512
3.1	Administration program				12,600	3,720	4,440	4,440
	administration building	item	1	9,000	9,000	3,000	3,000	3,000
	equipment and furniture	lump sum	1	2,400	2,400	480	960	960
	vehicles	unit	2	600	1,200	240	480	480
3.2	Protection program				13,750	3,390	5,180	5,180
	ranger stations	building	2	1,200	2,400	480	960	960
	ranger shelters	building	7	600	4,200	840	1,680	1,680
	road closures and access controls	barrier	3	60	180	36	72	72
	equipment and furniture	lump sum	1	1,000	1,000	200	400	400
	horses	horse	16	300	4,800	1,600	1,600	1,600
	vehicles	unit	1	750	750	150	300	300
	motorbikes	unit	2	210	420	84	168	168
3.3	Visitor program				9,720	300	2,388	7,032
	park entrances	entrance	3	500	1,500	300	600	600
	Vizitor center	center	1	3,000	3,000			3,000
	tourist shelters	building	5	450	2,250		900	1,350
	nature trails	km	60	5	300		120	180
	billboards and signs	sign	3	90	270		108	162
	equipment and furniture	lunp sum	1	1,500	1,500		300	1,200
	vehicles	unit	1	900	900		360	540
3.4	Research and monitoring program				1,950	240	780	930
	equipment and furniture	lunp sum	1	1,200	1,200	240	480	480
	vehicles	unit	1	750	750		300	450
3.5	Communications and awareness building program				1,950	240	780	930
	equipment and furniture	lunp sum	1	1,200	1,200	240	480	480
	vehicles	unit	1	750	750		300	450
4	MISCELLANEOUS COSTS				35,150	27,150	27,400	27,400
4.1	Administration program				18,000	6,000	6,000	6,000

	office running costs	month	1	18,000	18,000	6,000	6,000	6,000
4.2	Visitor program				1,850	8,550	8,800	8,800
	upgrading and maintenance of web site	page	1	500	500		250	250
	training of tour guides	guide	3	450	1,350	450	450	450
4.3	Research and monitoring program				1,800	8,100	8,100	8,100
	monitoring activities	lump sum	1	1,800	1,800	600	600	600
4.4	Communications and awareness building program				13,500	4,500	4,500	4,500
	production of promoting materials	lump sum	1	9,000	9,000	3,000	3,000	3,000
	meetings and special events	lump sum	1	4,500	4,500	1,500	1,500	1,500
	TOTAL				256,600	97,153	115,479	125,367

ANNEXES

Annex 1 Species included in Red Book of Azerbaijan and IUCN Red List

Trees and shrubs included in Red Book of Azerbaijan

	Species	Hirkan relict	Relict	Endemic to Hirkan	Endemic to Caucasus
1	<i>Albizia julibrissin</i>		x		
2	<i>Alnus subcordata</i>	x			x
3	<i>Buxus hyrcana</i>	x		x	
4	<i>Castanea sativa</i>		x		
5	<i>Danae racemosa</i>	x			x
6	<i>Diospyros lotus</i>		x		x
7	<i>Euonymus velutina</i>	x		x	
8	<i>Ficus hyrcana</i>	x		x	
9	<i>Frangula grandiflora</i>	x		x	
10	<i>Gleditsia caspia</i>	x		x	
11	<i>Hedera pastuchowii</i>	x			x
12	<i>Ilex hyrcana</i>	x		x	
13	<i>Laurocerasus officinalis</i>		x		x
14	<i>Parrotia persica</i>	x			x
15	<i>Pterocarya pterocarpa</i>		x		x
16	<i>Punica granatum</i>		x		
17	<i>Pyrus boissierana</i>	x		x	
18	<i>Pyrus hyrcana</i>	x		x	
19	<i>Quercus castaneifolia</i>	x			x
20	<i>Ruscus hyrcanus</i>	x			x
21	<i>Taxus baccata</i>		x		
22	<i>Vitis sylvestris</i>		x		
23	<i>Zelcova carpinifolia</i>		x		x

Vertebrates included in Red Book of Azerbaijan and IUCN Red List

	Species	National Red Book	IUCN Red List
	Fishes		
1	<i>Salmo fario</i> (<i>S. trutta fario</i>)	x	LC
2	<i>Abramis sapa</i>	x	Not included
	Amphibians		
3	<i>Triturus vulgaris</i>	x	LC
4	<i>T. cristatus</i>	x	LC
5	<i>Pelobates syriacus</i>	x	LC
6	<i>Pelodytes caucasicus</i>	x	LC
7	<i>Bufo verrucosissimus</i>	x	LC
	Reptiles		
8	<i>Testudo graeca</i>	x	VU A1cd
9	<i>Elaphe longissima</i>	x	Not included
	Birds		
10	<i>Ciconia nigra</i>	x	LC
11	<i>Pandion haliaetus</i>	x	LC
12	<i>Haliaeetus albicilla</i>	x	NT
13	<i>Accipiter gentiles</i>	x	LC
14	<i>Accipiter badius</i>	x	LC

	Species	National Red Book	IUCN Red List
15	<i>Aquila clanga</i>		VU C1
16	<i>Aquila heliaca</i>	x	VU C1
17	<i>Aquila chrysaetos</i>	x	LC
18	<i>Gypaetus barbatus</i>	x	LC
19	<i>Aegypius monachus</i>		NT
20	<i>Circus gallicus</i>	x	LC
21	<i>Falco cherrug</i>	x	EN A2bcd+3bcd
22	<i>Falco peregrinus</i>	x	LC
23	<i>Phasianus colchicus talishensis</i>	x	LC
24	<i>Parus lugubris</i>	x	LC
	Mammals		
25	<i>Panthera pardus saxicolor</i>	x	EN C2a
26	<i>Lynx lynx</i>	x	NT
27	<i>Lutra lutra</i>		NT

Insects included in Red Book of Azerbaijan

	Species	National Red Book	Endemic
1	<i>Pararge adrastoides</i>	x	x
2	<i>Bombus daghestanicus</i>	x	
3	<i>Parandra caspia</i>	x	
4	<i>Carabus clypeatus talyschensis</i>	x	x
5	<i>Purpuricenus talyschensis</i>	x	x
6	<i>Hemicicera fritillum</i>	x	
7	<i>Manduca atropos</i>	x	
8	<i>Brahmaea christophi</i>	x	
9	<i>Danaus chrysippus</i>	x	
10	<i>Hippotion celerio</i>	x	
11	<i>Argynnis alexandra</i>	x	
12	<i>Daphnis nerii</i>	x	

Annex 2 List of agricultural plots within the HNP borders

№	Land users	Area (ha), location and forest unit	Coordinates	Purpose of Use
1.	AKHADOV, Mokhubatt	0,20 ha village Dilmady 44	359 m a.s.l. E: 38° 27,201 N: 48° 40,010	Potatoes and truck crops
2.	ORUDJOV, Namik	0,10 ha village Dilmady 44	316 m a.s.l. E: 38° 27,048 N: 48° 40,510	Potatoes and truck crops
3.	AKHADOV, Khatamali	0,20 ha village Dilmady 52	1158 m a.s.l. E: 38° 27,006 N: 48° 37,829	Potatoes and truck crops
4.	AKHADOV, Sovgat	0,20 ha village Dilmady 44	1135 m a.s.l. E: 38° 27, 550 N: 48° 38,458	Potatoes and truck crops
5.	GASANOV, Sovgatolla	0, 06 ha Village Syov 32	594 m a.s.l. E: 38° 26,627 N: 48° 45,422	Potatoes and truck crops
6.	ALIEV, Subatulla	0, 06 ha Village Syov 32	634m a.s.l. E: 38° 27,247 N: 48° 43,214	Potatoes and truck crops
7.	RAKHMANOV, Alimamed	0, 06 ha Village Syov 32	574m a.s.l. E: 38° 27,677 N: 48° 39,454	Potatoes and truck crops
8.	RAKHMANOV, Rabil	0,20 ha Village Syov 61	1434m a.s.l. E: 38° 27,247 N: 48° 36,814	Hay meadows
9.	RAKHMANOV, Fatali	0,10 ha Village Chaigyzy 42	134m a.s.l. E: 38° 27,247 N: 48° 43,214	Potatoes and truck crops
10.	RAKHMANOV, Guseinaly	0,10 ha Village Chaigyzy 42	141m a.s.l. E: 38° 27,147 N: 48° 43,255	Potatoes and truck crops
11.	ALIEV, Firudin	0,10 ha Village Chaigyzy 42	136m a.s.l. E: 38° 27,249 N: 48° 43,234	Potatoes and truck crops
12.	TAGIROV, Mamadzade	0,20 ha Village Godon 47	364m a.s.l. E: 38° 27,347 N: 48° 42,441	Hay meadows
13.	AKHADOV, Khangusein	0,20 ha Village Godon 47	349m a.s.l. E: 38° 27,321 N: 48° 42,414	Hay meadows
14.	IMAMALIEV, Khikmat	0,20 ha Village Piikanadur 13	243m a.s.l. E: 38° 28,917 N: 48° 41,337	Potatoes and truck crops
15.	PASHAEV, Rakhim	0,10 ha Village Piikanadur 13	324m a.s.l. E: 38° 28,991 N: 48° 41,362	Potatoes and truck crops

№	Land users	Area (ha), location and forest unit	Coordinates	Purpose of Use
16.	BABAEV, Shirinaly	0,10 ha Village Piikanadur 13	331m a.s.l. E: 38° 28,838 N: 48° 41,655	Potatoes and truck crops
17.	GADJIEV, Begi	0,10 ha Village Piikanadur 13	210m a.s.l. E: 38° 28,201 N: 48° 42,002	Potatoes and truck crops
18.	GAMBAROV, Surkhai	0,10 ha Village Piikanadur 13	215m a.s.l. E: 38° 28,213 N: 48° 42,029	Potatoes and truck crops
19.	IMAMALYEV, Gadji	0,15 ha Village Piikanadur 13	359m a.s.l. E: 38° 28,842 N: 48° 41,385	Potatoes and truck crops
20.	AKHADOV, Eynaly	0,17 ha Village Bandasar, 40	34m a.s.l. E: 38° 27,247 N: 48° 45,701	Potatoes and truck crops
21.	AKHADOV, Shagusein	0,10 ha Village Bandasar, 40	31m a.s.l. E: 38° 27,126 N: 48° 45,691	Potatoes and truck crops
22.	AKHADOV, Mydi	0,17 ha Village Bandasar, 40	35m a.s.l. E: 38° 27,699 N: 48° 45,695	Potatoes and truck crops
23.	ALIEV, Nariman	0,20 ha Village Bandasar, 40	26m a.s.l. E: 38° 27,299 N: 48° 45,915	Potatoes and truck crops
24.	ALIEV, Gabil	0,17 ha Village Bandasar, 40	27m a.s.l. E: 38° 27,469 N: 48° 45,499	Potatoes and truck crops
25.	ORUDJOV, Amiraslan	0,20 ha Village Bandasar, 40	29m a.s.l. E: 38° 27,453 N: 48° 45,587	Potatoes and truck crops
26.	EIVAZOV, Amil	0,10 ha Village Bandasar, 40	32m a.s.l. E: 38° 27,270 N: 48° 45,217	Potatoes and truck crops
27.	EIVAZOV, Adil	0,10 ha Village Bandasar, 40	28m a.s.l. E: 38° 27,174 N: 48° 45,356	Potatoes and truck crops
28.	SHIRIEV, Kamil	0,10 ha Village Bandasar, 40	33m a.s.l. E: 38° 27,728 N: 48° 45,359	Potatoes and truck crops
29.	KHAMIDOV, Igid	0,10 ha Village Shuvi 16	45m a.s.l. E: 38° 29,594 N: 48° 45,200	Potatoes and truck crops
30.	GUMSHUD, Bakhtiyar	0,10 ha Village Shuvi 16	49m a.s.l. E: 38° 29,579 N: 48° 45,331	Potatoes and truck crops
31.	BUNYADOV, Shirali	0,10 ha Village Shuvi	41m a.s.l. E: 38° 29,569	Potatoes and truck crops

№	Land users	Area (ha), location and forest unit	Coordinates	Purpose of Use
		16	N: 48° 45,458	
32.	BUNYADOV, Bayali	0,10 ha Village Shuvi 16	56m a.s.l. E: 38° 29,674 N: 48° 45,454	Potatoes and truck crops
33.	MAKHMUDOV, Rustam	0,15 ha Village Shuvi 17	67m a.s.l. E: 38° 29,656 N: 48° 45,266	Hay meadows
34.	MAMMEDOV, Bakhadin	0,10 ha Village Syatuk 34	33m a.s.l. E: 38° 28,732 N: 48° 46,422	Hay meadows
35.	ALIEV, Rakhman	0,10 ha Village Syatuk 34	31m a.s.l. E: 38° 28,960 N: 48° 46,464	Hay meadows
36.	NABIEV Shakir	0,10 ha Village Syatuk 34	30m a.s.l. E: 38° 28,795 N: 48° 46,301	Hay meadows
37.	ABASOV, Alifulya	0,10 ha Village Syatuk 34	29m a.s.l. E: 38° 28,738 N: 48° 46,289	Hay meadows
38.	DADAEV, Shadula	0,30 ha Village Syatuk 34	39m a.s.l. E: 38° 28,792 N: 48° 46,250	Hay meadows
39.	ALIEV, Shadula	0,20 ha Village Syatuk 34	42m a.s.l. E: 38° 28,838 N: 48° 46,189	Hay meadows
40.	DADASHOV, Ilgam	0,20 ha Village Syatuk 34	29m a.s.l. E: 38° 28,738 N: 48° 46,489	Hay meadows
41.	TASALIEV, Geidar	0,20 ha Village Zunguliash кв 59	14m a.s.l. E: 38° 27,090 N: 48° 46,620	Rice cultivation
42.	TASALIEV, Vali	0,10 ra Village Zunguliash 59	15m a.s.l. E: 38° 27,254 N: 48° 46,690	Rice cultivation
43.	RUSTAMOV, Radjabali	0,36 ha Village Vanabidjar 70	92m a.s.l. E: 38° 26,637 N: 48° 45,366	Hay meadows
44.	IBRAGIMOV, Sagib	0,06 ha Village Vanabidjar 70	90m a.s.l. E: 38° 26,563 N: 48° 45,259	Hay meadows
45.	NOVRUZOV, Agakhan	0,12 ha Village Vanabidjar 70 кв 70	94m a.s.l. E: 38° 26,693 N: 48° 45,299	Hay meadows
46.	NOVRUZOV, Sadykh	0,09 ha	89m a.s.l. E: 38° 26,437	Hay meadows

№	Land users	Area (ha), location and forest unit	Coordinates	Purpose of Use
		Village Vanabidjar 70	N: 48° 45,296	
47.	BAKHSHEV, Khanlar	0,10 ha Village Zunguliash 59	18m a.s.l. E: 38° 26,998 N: 48° 46,138	Rice cultivation
48.	BAIRAMOV, Khanysh	0,10 ha Village Zunguliash кв 59	19m a.s.l. E: 38° 26,892 N: 48° 46,146	Rice cultivation
49.	ALIEV, Gazanfar	0,10 ha Village Zunguliash 59	16m a.s.l. E: 38° 27,007 N: 48° 47,056	Rice cultivation
50.	ALIEV, Aydyn	0,20 ha Village Zunguliash 59	17m a.s.l. E: 38° 27,109 N: 48° 47,114	Rice cultivation
51.	BAKHSHEV, Bashir	0,10 ha Village Zunguliash 59	17m a.s.l. E: 38° 37,021 N: 48° 46,129	Rice cultivation
52.	ALIEV, Inati	0,10 ha Village Zunguliash 59	14m a.s.l. E: 38° 27,151 N: 48° 46,156	Rice cultivation
53.	BAKHSHEV, Bakhtiar	0,10 ha Village Zunguliash 59	18m a.s.l. E: 38° 27,001 N: 48° 46,120	Rice cultivation
54.	BAKHSHEV, Agayar	0,10 ha Village Zunguliash 59	14m a.s.l. E: 38° 26,958 N: 48° 46,104	Rice cultivation
55.	AZIZOV, Tarif	0,50 ha Village Chukash 42	530m a.s.l. E: 38° 32,837 N: 48° 41,766	Hay meadows and truck crops
56.	AZIZOV, Gamidula	0,30 ha Village Chukash 42	528m a.s.l. E: 38° 32,827 N: 48° 41,746	Hay meadows and truck crops
57.	AZIZOV, Kheibar	0,30 ha Village Chukash 42	225m a.s.l. E: 38° 32,820 N: 48° 41,796	Hay meadows and truck crops
58.	AZIZOV, Suratulla	0,30 ha Village Chukash 42	522m a.s.l. E: 38° 32,821 N: 48° 41,767	Hay meadows and truck crops

№	Land users	Area (ha), location and forest unit	Coordinates	Purpose of Use
59.	AZIZOV, Zanor	0,25 ha Village Chukash 42	720m a.s.l. E: 38° 32,818 N: 48° 41,821	Hay meadows and truck crops
60.	AZIZOV, Rafail	0,25 ha Village Chukash 42	521m a.s.l. E: 38° 32,799 N: 48° 41,818	Hay meadows and truck crops
61.	AZIZOV, Izat	0,25 ha Village Chukash 42	518m a.s.l. E: 38° 32,785 N: 48° 41,826	Hay meadows and truck crops
62.	AZIZOVA, Gyzgait	0,28 ha Village Chukash 42	515m a.s.l. E: 38° 32,765 N: 48° 41,823	Hay meadows and truck crops
63.	AZIZOVA, Shagima	0,25 ha Village Chukash 42	512m a.s.l. E: 38° 32,747 N: 48° 41,835	Hay meadows and truck crops
64.	AZIZOVA, Rasul	0,30 ha Village Chukash 42	511m a.s.l. E: 38° 32,737 N: 48° 41,840	Hay meadows and truck crops
65.	AZIZOV, Tofig	0,20 ha Village Chukash 42	510m a.s.l. E: 38° 32,744 N: 48° 41,829	Hay meadows and truck crops
66.	AZIZOV, Ajhdar	0,25 ha Village Chukash 42	510m a.s.l. E: 38° 32,718 N: 48° 41,851	Hay meadows and truck crops
67.	AZIZOV, Abulfat	0,25 ha Village Chukash 42	508m a.s.l. E: 38° 32,709 N: 48° 41,856	Hay meadows and truck crops
68.	AZIZOV, Samad	0,30 ha Village Chukash 42	507m a.s.l. E: 38° 32,700 N: 48° 41,881	Hay meadows and truck crops
69.	AZIZOV, Makhir	0,25 ha Village Chukash 42	506m a.s.l. E: 38° 32,707 N: 48° 41,895	Hay meadows and truck crops
70.	ZURLFUGAROV, Gymayat	0,20 ha Village Chukash 42	502m a.s.l. E: 38° 32,701 N: 48° 41,869	Hay meadows and truck crops
71.	AGAYEV, Khalyg	0,20 ha Village Chukash 42	501m a.s.l. E: 38° 32,700 N: 48° 41,896	Hay meadows and truck crops
72.	GUSEINOV, Ilsfandiyar	0,30 ha Village Chukash 42	503m a.s.l. E: 38° 32,837 N: 48° 41,066	Hay meadows and truck crops
73.	GADJIEV, Zeinulla	0,40 ha Village Bilasar 5	547m a.s.l. E: 38° 36,650 N: 48° 41,750	Hay meadows and truck crops
74.	KYSHIEV, Zakir	0,20 ha Village Siaband	751m a.s.l. E: 38° 34,663	Hay meadows and truck crops

№	Land users	Area (ha), location and forest unit	Coordinates	Purpose of Use
		33	N: 48° 41,766	
75.	AKHMEDOV, Aydin	0,10 ha Village Bykhiebalel 42	759m a.s.l. E: 38° 33,520 N: 48° 41,310	Hay meadows and truck crops
TOTAL CULTIVATED AREA		15.09 ha		Potatoes, truck crops (vegetable), hay meadows and rice plantations

Annex 3 List of historical-cultural sites within boundaries of HNP

№	Monument	Site	Coordinates	Description of the area
76.	Cliff (Divake) Medieval Archeological	Western part of village Alasha	59 m a.s.l. E: 38° 27,201 N: 48° 47,696	Rocky area; part of it belongs to the medieval times and in the Soviet times defensive constructions were built
77.	Cemetery Guri-nabi Medieval	Village Zunguliash	16 m m a.s.l. E: 38° 27,048 N: 48° 46,612	Tree-tier mould tombstone is placed in the centre of the cemetery; there are many graves around and box-tree grove
78.	Stone Syndukhi	Cemetery	108 m a.s.l. E: 38° 26,866 N: 48° 46,309	Old cemetery with mould stones and box-tree grove
79.	Ancient cemetery Medieval Archeological	Southern part of village Zunguliash	35 m a.s.l. E: 38° 26,900 N: 48° 46,587	Old cemetery with mould stones and box-tree grove
80.	Ancient stone with paintings Medieval	Village Nyvyshtaru	94 m a.s.l. E: 38° 26,627 N: 48° 45,422	Old cemetery with mould stones and box-tree grove
81.	Ancient cemetery Medieval Archeological	Southern-western part of the village Chaigzy	134 m a.s.l. E: 38° 27,247 N: 48° 43,214	Old cemetery with mould stones, graves and box- tree grove
82.	Ancient cemetery Medieval Archeological	Village Piikanadur	243 m a.s.l. E: 38° 28,517 N: 48° 43,137	Tukita cemetery with about 70-80 graves and stones

№	Monument	Site	Coordinates	Description of the area
83.	Ancient cemetery Medieval Archeological	Village Piikanadur, Osmanbanad	624 m a.s.l E: 38° 28,091 N: 48° 41,162	On the top of the mountain in the rocky area warriors – Turks are buried, who were fighting against the enemy
84.	cemetery Medieval Archeological	Village Piikanadur, Piri-arab	431 m a.s.l E: 38° 28,738 N: 48° 41,555	About 4X8m area is covered with large stones; there are five graves inside and many graves around
85.	cemetery Medieval Archeological	Northern part of the village Piikanadur	630 m a.s.l E: 38° 28,801 N: 48° 42,422	One grave with mould stones and many graves with ordinary stones
86.	Ancient cemetery Medieval Archeological	Northern part of the village Piikanadur	195 m a.s.l E: 38° 28,113 N: 48° 42,129	Sheikh Phiruz - sister of Sheikh Arab is buried in this cemetery; all grave stones are ordinary
87.	Stone figure (primitive) Medieval Archeological	Southern-western part of village Piikanadur	371 m a.s.l E: 38° 28,832 N: 48° 41,391	The stone looks like the head of a camel; people in ancient times used to pray on it (Mohammedan prayer)
88.	Medieval Cemetery Archeological	Village Dilmadi, cemetery Sheik-Dilym	311 m a.s.l E: 38° 27,517 N: 48° 40,288	There are many mould stones in the cemetery with different drawings (bow and arrow, sword, shield, also stars and sun, etc.). There is a box-tree grove around
89.	Medieval Stone Syndukhi Archeological	Cemetery Sygachola	549 m a.s.l E: 38° 27,126 N: 48° 39,691	Many ancient stones; one of the stones with the form of chest
90.	Medieval Cemetery y Archeological	South-western part of village Dilmadi	515 m a.s.l E: 38° 27,699 N: 48° 39,956	6-7 ancient grave-stones and graves
91.	Medieval Stone Syndukhi Archeological	South-western part of village Dilmadi	311 m a.s.l E: 38° 27,518 N: 48° 40,288	There are 7 mould tomb-stones with different paintings (bow and arrow, sword and shield and stars and sun); there is a box-tree grove around
92.	Stone with mark Stone age architecture	Village Siov	587 m a.s.l E: 38° 27,769 N: 48° 39,499	Large stone looking like a bull
93.	Ancient cemetery Archeological	Northern part of village Siov	549 m a.s.l E: 38° 27,773 N: 48° 39,587	Ancient cemetery with one mould grave stone; there are many other graves around
94.	Ancient cemetery Medieval	Village Siov, Malookan	632 m a.s.l E: 38° 28,270	In the middle of the forest many mould stones

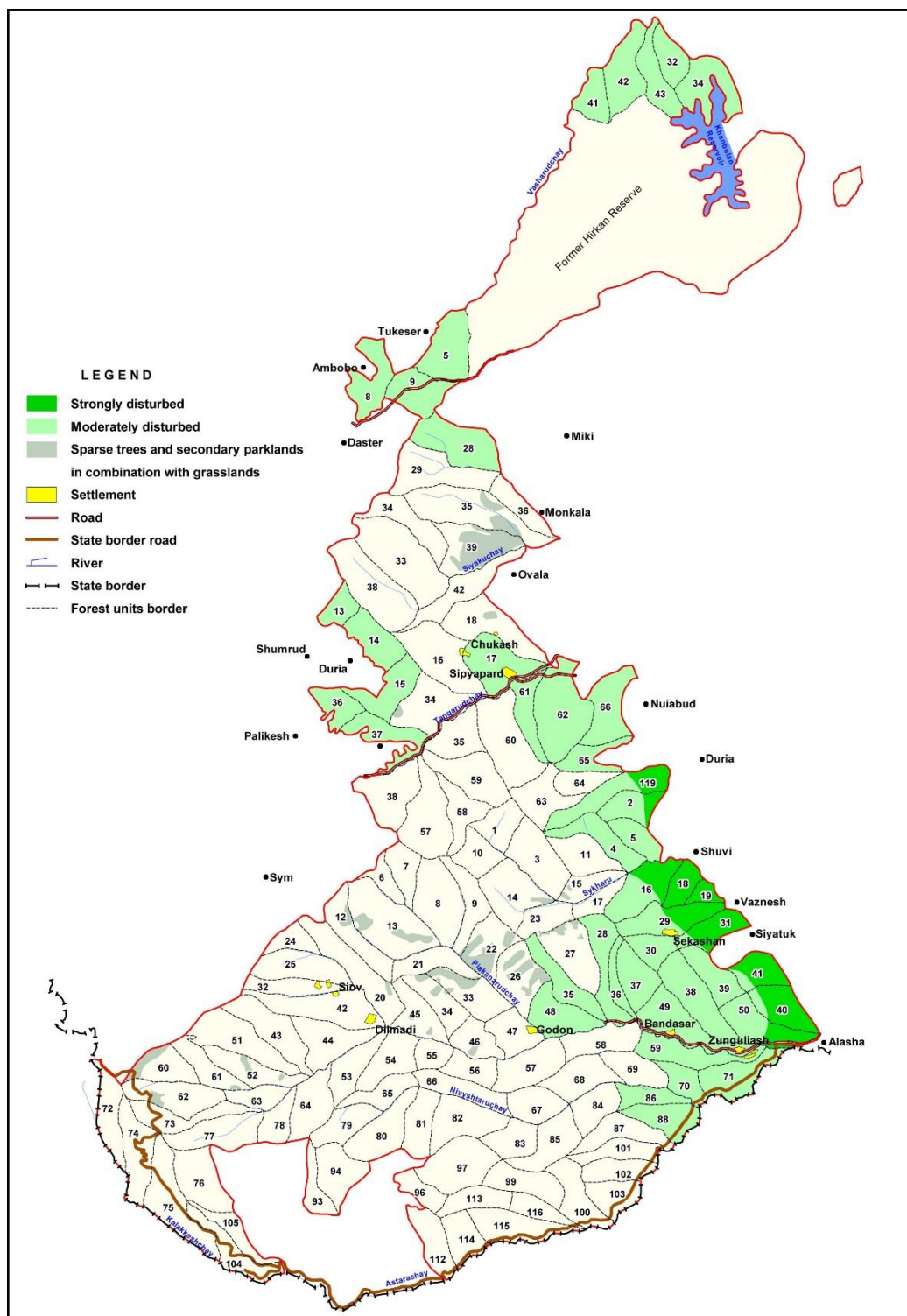
№	Monument	Site	Coordinates	Description of the area
	Archeological		N: 48° 39,217	
95.	"Stone stars", Medieval Archeological	Village Siov, on the way to "Kaviagoni"	838 m a.s.l E: 38° 27,174 N: 48° 38,356	On the slope of the cliff the stairs are curved, that simplifies walking
96.	Ancient cemetery Medieval Archeological	South-western part of village Siov	1193 m a.s.l E: 38° 27,728 N: 48° 38,359	Ancient cemetery looking like tumulus, covered with shrubs
97.	Stone Syndukhi Medieval Archeological	Similar to the cemetery	1153 m a.s.l E: 38° 27,594 N: 48° 38,500	There are 5 mould stones in the cemetery and other graves covered with shrubs
98.	Stone bread-oven Stone Age	Northern part of village Siov, Daganish	1209 m a.s.l E: 38° 27,879 N: 48° 38,331	Stone bread-oven is comprised by three parts; two of them are similar, and the one is smaller
99.	Ancient cemetery Medieval Archeological	Siov Kavdash	1141 m a.s.l E: 38° 27,569 N: 48° 38,458	One perfectly sculptured stone, looking like the upper part of sarcophagus; lower part was broken down in post Soviet times
100	3 cemeteries Medieval Archeological	South-western part of village Siov	576 m a.s.l E: 38° 27,674 N: 48° 39,454	There are 3 mould grave stones in the cemetery; there are many graves around
101	Cemetery Medieval Archeological	Western part of village Nyvishtaru	267 m a.s.l E: 38° 26,556 N: 48° 41,266	Many mould grave stones and box-tree grove
102	Tombstone with a note and inscription Medieval Archeological	Cemetery Nyvishtaru	283 m a.s.l E: 38° 26,532 N: 48° 41,572	There are 3 mould grave stones in the cemetery; one more well-preserved stone with paintings of bow and arrow; there are many other graves around
103	Cemetery Medieval Archeological	Village Armudi	850 m a.s.l E: 38° 25,460 N: 48° 40,864	There is a mould grave stone in the cemetery; many other graves around and box-tree grove; the entire road is covered with impenetrable blackberry bushes
104	Cemetery and tombstone with inscription Medieval Archeological	Near the river Latin	180 m a.s.l E: 38° 26,195 N: 48° 45,501	There are many mould grave stones in the cemetery. Greater part of them have been destroyed by the Soviet service-men

№	Monument	Site	Coordinates	Description of the area
105	Stone house BC architecture	Near the castle Shindan	1480 m a.s.l E: 38° 26,738 N: 48° 36,489	Very impressive construction. Seemingly many people lived in these houses. Currently the house is inhabited by leopards (excrements around)
106	Cemetery Medieval Archeological	Near the castle Shindan	1550 m a.s.l E: 38° 27,250 N: 48° 36,795	Old graves destroyed by Soviet service-men
107	Stone Sunesyg	To the east of castle Shindan	1468 m a.s.l E: 38° 26,683 N: 48° 36,442	Huge, flat stone (about 4X4m), with curved stairs
108	"Great stones"	To the east of castle Shindan	1458 m a.s.l E: 38° 26,950 N: 48° 36,729	Large stones standing over the rocks
109	Cemetery Medieval Archeological	Near "Galachimen"	1400 m a.s.l E: 38° 26,690 N: 48° 36,620	Situated in the cemetery; one grave with mould stones
110	Cemetery Turkem Medieval Archeological	North-eastern part of castle Shindan	975 m a.s.l E: 38° 25,915 N: 48° 36,311	There are many mould stones in the cemetery with different paintings
111	Lair, Memiker, Stone Age Archeological	To the south of castle Shindan	1490 m a.s.l E: 38° 26,890 N: 48° 36,120	Cave; shelter for the primitive man; curved by man
112	Cemetery Buzorgo Medieval Archeological	To the east of castle Shindan	567 m a.s.l E: 38° 27,254 N: 48° 36,890	Valley; there are many broken clay vessel
113	Cemetery Medieval Archeological	To the north of village Chukesh	732 m a.s.l E: 38° 32,837 N: 48° 41,066	Old cemetery; under the nut-tree; there is a grave worshiped by the local population
114	Cemetery Medieval Archeological	To the west of village Miki, Siieband	568 m a.s.l E: 38° 34,448 N: 48° 42,138	Old cemetery with 1,5m diameter trees
115	Cemetery Medieval Archeological	To the west of village miki, mountainous part	289 m a.s.l E: 38° 35,292 N: 48° 43,646	Old cemetery; there are new graves as well and box-tree grove around; oak trees reach 2,0m in diameter
116	Cemetery Medieval Archeological	Village Chukesh	654 m a.s.l E: 38° 32,687 N: 48° 41,585	There are no historic monuments, there are only 6-7 graves
117	2 cemeteries Medieval Archeological	Western part of village Noyabud	179 m a.s.l E: 38° 32,521 N: 48° 44,129	There are old graves and old trees
118	Ancient cemetery Medieval Archeological	Village Ovala	346 m a.s.l E: 38° 33,151 N: 48° 42,556	Box-tree grove covering about 2 ha. There are 10 m high box-trees of about

№	Monument	Site	Coordinates	Description of the area
				20sm diameter; there are 2 grave stones of medieval times
119	Cemetery Medieval Archeological	In the forest of village Vovada	581 m a.s.l E: 38° 31,390 N: 48° 40,120	Old cemetery; covered with forest
120	Barrow archeological	On the way to Shuvi-Siituk	44 m a.s.l E: 38° 28,558 N: 48° 46,924	Tumulus and graves over it, without gravestones
121	Cemetery Medieval Archeological	To the west of village Shuvi in the old forest	247 m a.s.l E: 38° 29,860 N: 48° 44,494	Old cemetery with large stones; oak and other trees up to 1,5 m in diameter
122	Barrow Medieval Archeological	On the way to Shuvi-Veznesh	90 m a.s.l E: 38° 29,023 N: 48° 46,262	Tumulus; oak trees; old and new graves
123	Cemetery Medieval Archeological	To the west of village Veznesh	359 m a.s.l E: 38° 28,953 N: 48° 45,310	Old and new graves
124	Barrow BC archeological	Northern part of village Siituk	15 m a.s.l E: 38° 28,302 N: 48° 47,066	Old graves; box-tree grove
125	Cemetery Medieval Archeological	Western part of village Alasha	24 m a.s.l E: 38° 27,005 N: 48° 48,053	Tumulus; old cemetery; there is 350-400 years old oak tree at the entrance
126	Tomb-stone with the inscription of the sun	In the cemetery, western part of village Alasha	16 m a.s.l E: 38° 27,254 N: 48° 48,116	Tumulus; two graves with inscriptions in old Djigri alphabet

Annex 4

Map 11 Conditions of forest units



Annex 5

Area of Core and Visitor zones

Protection section, unit №	Core zone (ha)	Visitor zone (ha)
<i>Protection Section I</i>	<i>2,607</i>	<i>594</i>
Former Strict Nature Reserve	2,607	

Protection section, unit №	Core zone (ha)	Visitor zone (ha)
Stripe around the Khanbulan reservoir		300
41		143
42		151
Protection Section II		296
5		164
9		132
Protection Section III	1,027	224
28		224
29	166	
33	276	
34	143	
Part of 35	134	
38	241	
Part of 42	67	
Protection Section IV	409	134
16	215	
34	120	45
35	74	39
Part of 37		50
Protection Section V	598	164
38		164
57	209	
58	97	
59	166	
Part of 60	126	
Protection Section VI	142	
63	142	
Protection Section VII	544	
1	98	
3	160	
10	98	
14	188	

Protection section, unit №	Core zone (ha)	Visitor zone (ha)
<i>Protection Section VIII</i>		617
Part of 27		100
Part of 28		100
34 and 46		183
35		117
45		117
<i>Protection Section IX</i>	753	1,183
43		156
44		155
51		201
52		121
53		135
54	133	
55	56	
56	80	
60		111
61		95
65	87	
66	120	
67		108
81	113	
82	164	
83		101
<i>Protection Section X</i>	2,401	
62	193	
63	69	
64	145	
72	140	
73	137	
74	126	
75	210	
76	147	
77	150	
78	78	
79	111	
80	55	
93	63	
94	139	
96	67	

Protection section, unit №	Core zone (ha)	Visitor zone (ha)
97	135	
104	114	
105	90	
112	133	
114	99	
Protection Section XI	1,156	243
84		100
85		143
86	74	
87	136	
88	103	
99	116	
100	127	
101	99	
102	84	
103	101	
113	97	
115	146	
116	73	
Protection Section XII		293
57		176
58		117
Total for Zone	9,637	3,748

Protection section, unit №	Area (ha)	Area (ha)
<i>Will be transferred from planned (for 2010) Visitor Zone</i>	<i>By 2010</i>	<i>By 2015</i>
Protection Section VIII		486
9		118
21		102
22		133
33		133
<i>Will be transferred from existing Visitor Zone</i>		
Protection Section II		296
5		164
9		132
Protection Section III		224
28		224
Protection Section IV	1,183	
43	156	
44	155	
51	201	
52	121	
53	135	
60	111	
61	95	
67	108	
83	101	
Protection Section V	243	
84	100	
85	143	
Southern Section of Sanctuary	1,107	
89	118	
90	112	
91	107	
92	83	
95	105	
106	98	
107	51	
108	123	

Protection section, unit №	Area (ha)	Area (ha)
109	41	
110	104	
111	165	
<i>Former bee-keeping farmlands/pastures</i>	283	
Total	2,816	1,006

Annex 7

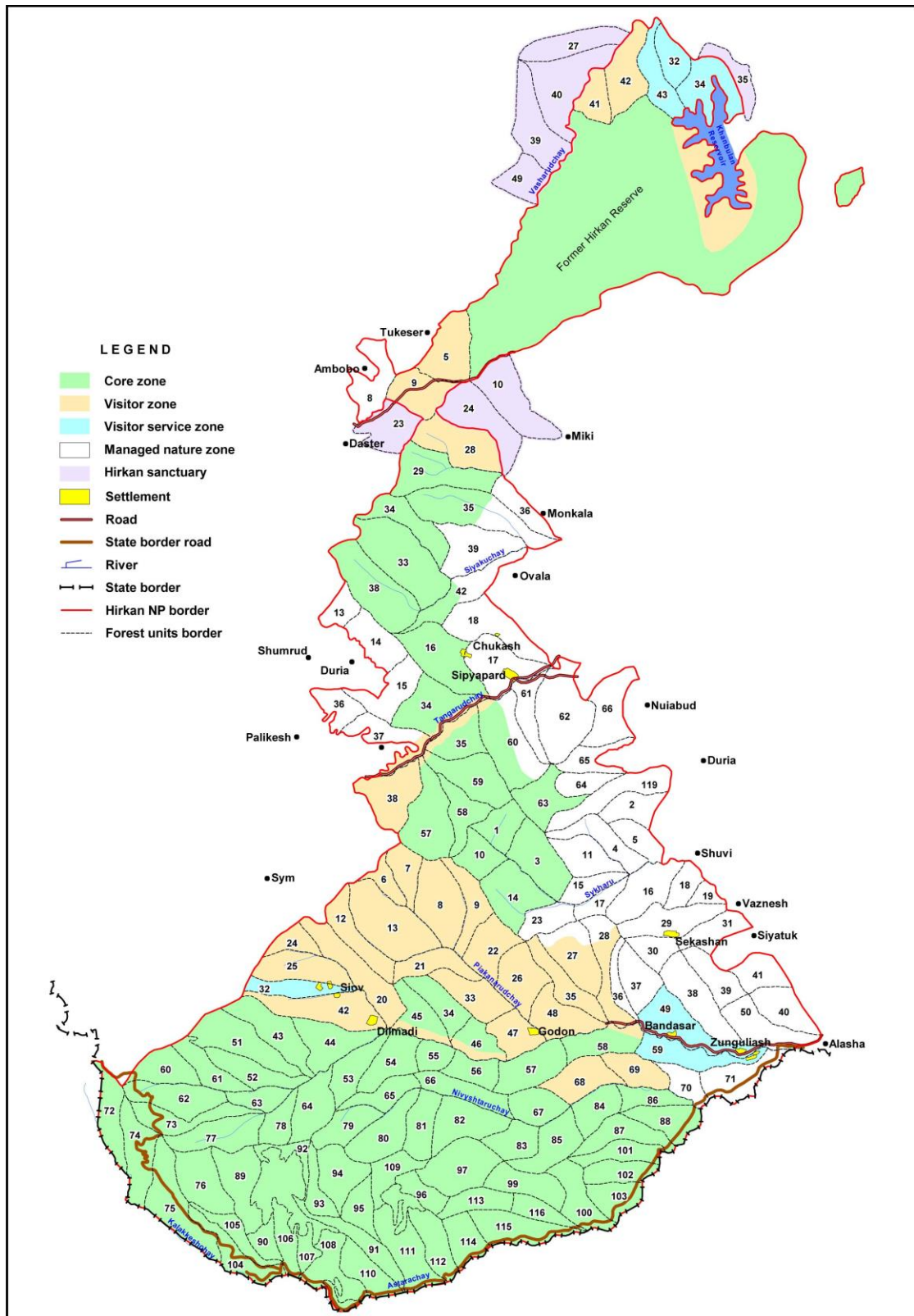
Planned changes of Visitor Zone

Protection section, unit №	Area (ha)	Area (ha)
<i>Will be transferred from Managed Nature Zone</i>	<i>By 2010</i>	<i>By 2015</i>
Protection Section VII		487
Part of 4		50
11		126
15		69
17		79
23		77
Part of 119		80
Protection Section VIII	2,202	75
6	60	
7	77	
8	198	
9	118	
12	137	
13	267	
20	178	
21	102	
22	133	
24	58	
25	159	
26	120	
Part of 27		50
Part of 28		25
33	133	
42	222	
47	134	
48	106	
Protection Section IX	240	
68	132	
69	108	
Protection Section XIII		60
36		60
Total	2,442	622

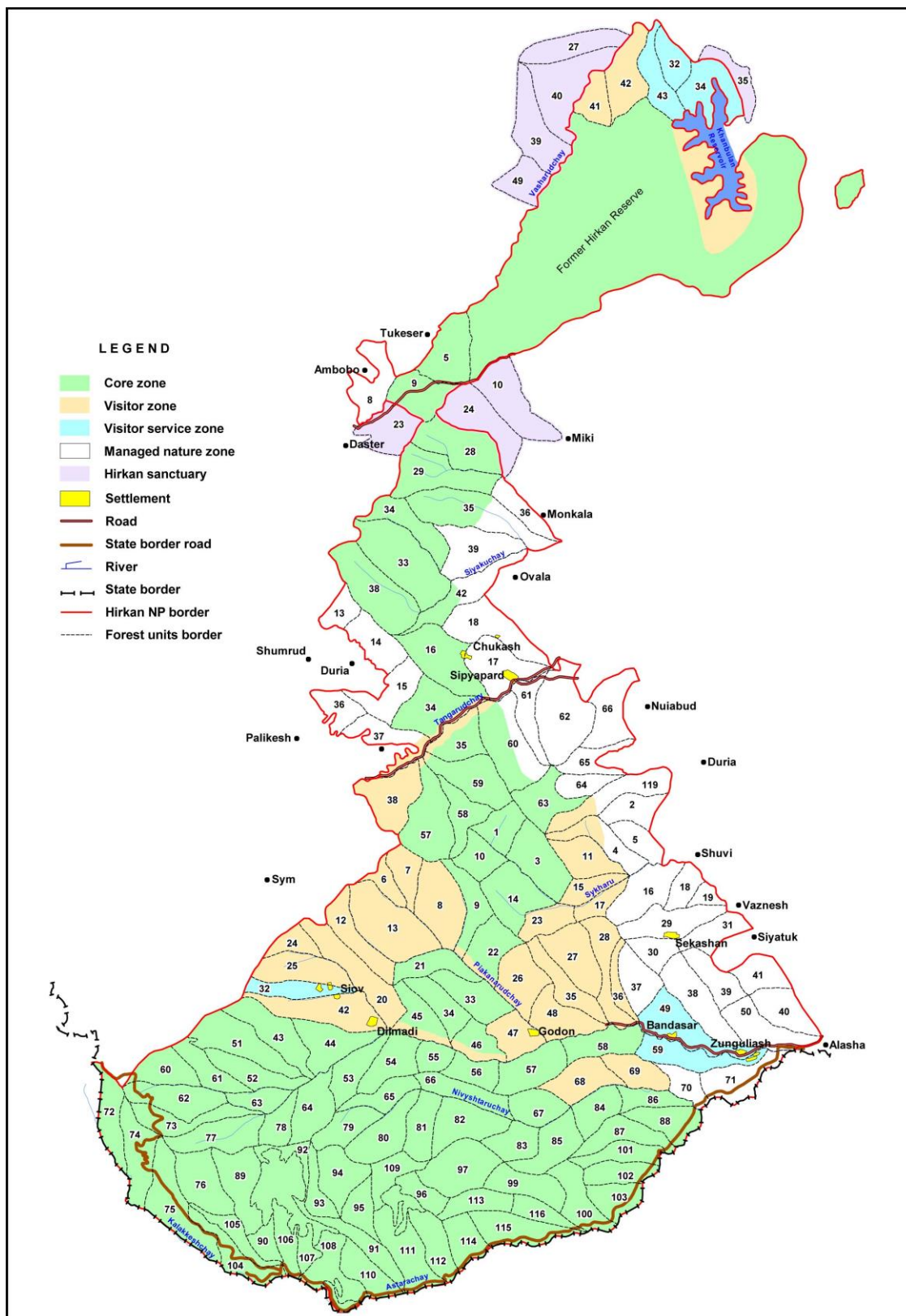
Annex 8

Map 12

Planned zoning by 2010



Map 13 Planned zoning by 2015



PLAN FOR LEOPARD CONSERVATION IN THE HIRKAN NATIONAL PARK

The leopard is the rarest species in the Ecoregion, celebrated in many local poems, fairytales, and songs. Widespread throughout the Caucasus a century ago, the big cat – last sighted in Dagestan and the Greater Caucasus in the 1980s – is now near extinction. Despite growing concern that the leopard has disappeared from the region altogether, recent investigations coordinated by WWF showed that about 40-45 animals still inhabit the Zangezur Range, the Talish Mountains, and northern Iran. A small population survives in the eastern part of the Greater Caucasus Range and in Iori-Mingechaur area, including Akhar-Bakhar range in Azerbaijan. The leopard is listed in the Red Data Books of Rare and Endangered Species (Red Book) of Azerbaijan and other countries of the Ecoregion.

The subspecies (*Panthera pardus saxicolor*) is listed in the IUCN Red List as endangered (EN C2a). National legislation warrants strict punishment for killing a leopard. The main threats to the leopard are poaching and overhunting of ungulates (in Talysh Mountains – mainly wild boar, and roe deer) – the animal's primary food base.

According to recent studies several individuals of leopard inhabit the area of National Park (3-5 individuals for Talysh Mountains). Leopard that usually prefers arid landscapes (Iranian-Afghan highlands with open dry woodlands and scrublands) inhabits here humid broadleaved forests. This HNP is one of the last forest habitats of leopard in the Caucasus and Middle East. Mountain Hirkan Forests are the very important habitat and migration route of leopards beyond which it is completely eradicated by poachers.

Despite of small size of leopard population, after creation of HNR and implementation some urgent measures, it has been stabilized in Talysh Mountain. Here the leopard has become more "visible"; its traces of viability are encountered more frequently, which refers to the increase of the leopard density. Indirect signs proving the leopard increase are considered to be more frequent leopard attacks on domestic animals. In order to make the picture clearer it is necessary to continue and strengthen permanent monitoring, as well as awareness raising measures for local population.

Proposed leopard conservation activities, which can be incorporated in HNR research-monitoring and Communications-Awareness Building programs are listed below.

Measures for conservation of leopard population in the Hirkan National Park

Activity	Season	Duration	Periodicity	Implementer	Training needs	Equipment required	Required budget (US\$)	Budget per year (US\$)		
								2006	2007	2008
Surveillance and monitoring (HNR research-monitoring program)								7,650	8,850	2,000
Survey of leopard population	Dec-Feb	1 week	Annually	National expert (non HNR staff); External expert	-	-	(a) National expert - 350 per year (b) External expert - 2,000 per 3 year	350	-	2,000
Camera-trapping	All seasons	4 months	Every year	National expert, HNR staff	3-day training for 2 rangers	6 Camera-traps	(b) Expert (installing the camera-traps, training) - 300 (c) Special camera-traps produced in Switzerland (according to recommendations of Cat Specialist Group of IUCN) - 4,000	4,300	-	-
Field monitoring of leopard	All seasons	Regularly, once per 2 weeks	Permanently	HNR staff	10-day training for 10 rangers	-	(a) Training course (conducted by national expert) - 1,000	1,000	-	-
Field monitoring of prey species (roe deer, wild boar) and other large carnivores (bear, lynx, wolf)	All seasons	Regularly, once per 2 weeks	Permanently	HNR staff	One-month training for 10 rangers	-	(a) Training course (conducted by national experts) - 2,000	2,000	-	-

Activity	Season	Duration	Periodicity	Implementer	Training needs	Equipment required	Required budget (US\$)	Budget per year (US\$)		
								2006	2007	2008
Creation and running of database (leopard, large mammals)	-	-	Permanently	External expert, National expert, HNP staff	10-day training for 1 staff of research-monitoring program	Computer, Software	(a) Computer - 1,500; (b) Software - 2,000; (c) External expert (data-base specialist) - 5,000 (including installing data-base and training); (d) National expert - 350	-	8,850	
Human-wildlife conflict: damage compensation mechanism for local population (HNR research-monitoring program)								3,500	-	-
Adoption of principles and methodology for damage compensation	-	1 month	Once	MoE staff, National expert	-	-	-	-	-	-
Establish and maintain flock of sheep for compensation	-	1 week	-	HNR staff	-	-	(a) 70 sheep – 3,500	3,500	-	-
Awareness raising of local population (HNR Communications and Awareness Building Program)								10,650	6,900	6,900

Activity	Season	Duration	Periodicity	Implementer	Training needs	Equipment required	Required budget (US\$)	Budget per year (US\$)		
								2006	2007	2008
Publication and distribution in HNR area of poster-calendar	Dec	1 month	Annually	MoE staff, Publishing house	-	-	(a) Publication and distribution – 2,000 annually	2,000	2,000	2,000
Organization of summer camp for local schoolchildren	Jul-Aug	2 weeks (1+1) (30 children per week)	Annually	National expert, HNR staff	-	Tents, sleeping-bags, rucksack, small materials	(a) 10 tents – 1,500; (b) 30 sleeping-bags – 1,500; (c) 30 rucksacks – 750; (d) small materials and maintenance costs – 4,200 annually; (e) National expert – 700 annually	8,650	4,900	4,900
Total								21,800	15,750	8,900