Management Plan of Tajik National Park for 2012-2016

State Agency of Natural Protected Areas of the Committee for Environment Protection under the Government of the Republic of Tajikistan

DUSHANBE – 2012

Approved by

the Chairman of the Committee
for Environment Protection
under the Government of
the Republic of Tajikistan

_____ T.O.Salimov

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order of the Committee for Environment
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Photo on Title Page: Karakul Lake, by H. Jungius

ACRONYMS

GBAO	Gorno-Badakhshan Autonomous Oblast
INGO	International Non-Governmental Organization
IUCN	International Union for Conservation of Nature
NGO	Non-Governmental Organization
NRM	Natural Resource Management
SANPA	State Agency of Natural Protected Areas
TNP	Tajik National Park
TJS	Tajik Somoni (currency)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Program
WWF	Word Wide Fund for Nature

EXECUTIVE SUMMARY

This Management Plan (MP) of Tajik National Park (TNP) is a medium term plan for the period 2012 - 2016.

The park covers a territory of 2,611,674 hectares (Decree of the Government of the Republic of Tajikistan No. 253 of June 11, 2001). It was established with the following objectives:

- Preserve the unique and spectacular landscapes of the Pamirs with its ecological processes and biological diversity
- Protect rare and endangered species of flora and fauna
- Safeguard historical, cultural and natural sites
- Promote tourism and contribute to the development of the region.

The park belongs to the Central Pamir geographical zone, which covers the northern part of the Eastern Pamir. The area is characterised by a system of grandiose east-west running mountain chains, separated from each other by 3,000 m deep valleys. High mountains with peaks covered by enormous glaciers above 7,000 m, high mountain plateaus and locked basin with lakes are the most typical features of the park.

Low rainfall and very low temperatures in winter cause permafrost. High daily and annual temperature fluctuations shape the high mountain environment together with strong insulation and constant winds.

Mountain tops are covered with glaciers or snow. Vanj and Yazgulom mountain ranges reach 5,000 - 6,000 m. The stunning high mountain environment includes the picturesque Sangvor valley, the mountain lakes Karakul, Yashilkul and Sarez, with a very special geological history, the Academy of Sciences and Zaalai mountain ranges with the highest peaks in the Pamirs - peak Somoni (7.495 m) and peak Istiqlol (formerly peak Lenin, 7.134 m.), the huge Fedchenko glacier, which is the longest and one of the biggest glaciers in the world outside the polar region, covering 1,000 sq km, hot mineral springs, a meteorite crater, and one of the biggest caves of Central Asia, at an altitude of 4.100 m. The territory is characterized by large differences of altitudes and heavily dissected terrain and shaped by glaciers during the last glacial period about ending 12 thousand years ago, until today. All forms of glacier morphology are found here.

TNP is characterized by the following main ecosystems:

- Nival, above 4,500 meters occupying about one-third of TNP territory;

- Cold High Mountain Desert, between 3,500 and 4,500 meters above sea level. Occupy more than one-third of TNP territory and include Udvardy's "Cold Winter Desert";
- Alpine meadows located between 3,200 – 4,000 m above sea level, occupying about one-third of TNP territory;
- High mountain wetlands.

The Western Pamir, including the Badakhshan area of the TNP, is renowned for wild relatives of cultivated plants. The Tavildara section of TNP is another important gene-pool; it includes "Walnut-Fruit-Forests".

The park's outstanding feature is an unspoiled high mountain wilderness. Land use is limited to small scale subsistence agriculture, traditional grazing, hay making and collection of firewood in a few small locations along the Park's borders. Excessive cutting of Eurotia and other plants for fuel and animal fodder is a problem in some areas, where villages border the park. This applies also to illegal hunting of ungulates (Ibex and Marco Polo sheep).

Mountaineering is the main form of land-use around the major peaks of the park; major recreational activities are limited to Lake Yashilkul in the south. There is no pressure on the park from other land developments, mining, roads or hydropower (except the use of Lake Yashilkul as semi-natural reservoir). Direct human impact on the area and its main features is therefore extremely small.

The MP is taking this situation into account and defines the following management priorities:

- Conservation and monitoring of biological processes and wildlife populations;
- Monitoring land-use in areas assigned for traditional use;
- Trophy hunting in specially assigned zones (planned);
- Environmental monitoring, e.g. impact of global warming on glaciers;
- Anti-poaching;
- Guiding and directing tourism, including alpinism;
- Education and awareness raising among the local population, decision makers, teachers, school children and visitors.

The park has been divided into different zones. Each zone is well defined and managed for specific objectives:

- *Core Zone:* Conservation of outstanding and special natural, ecological processes and phenomena, without any human interference, except controlled tourism and alpinism. Conservation of biodiversity with particular attention to rare and endangered species, and wild relatives of economically important plants.
- *Traditional Use Zone:* Maintain livelihoods of local people, by retaining traditional grazing rights, hay making and firewood collection, in selected areas. Tourism.
- *Limited Economic Use Zone:* Enhance protection and avert negative human influence on the core area.

  Help maintain the live support system for local people (controlled seasonal grazing and firewood collection).

  Allow well managed and controlled activities which provide revenues for the park, such as fishing, grazing and hunting tourism.

- *Recreation Zone:* Relieve pressure on the wilderness area by providing access and facilities for recreational use to sites of public interest.

The park suffers from an extremely small budget. Low staff numbers and limited equipment are the consequence. Each of the 6 districts has only 4 to 6 rangers, one 4-wheel-drive car, 1-2 binoculars, and uniforms for rangers. Computers are only available in four offices. All offices have mobile telephones for communication. Patrols by rangers are on foot.

It is obvious, that the control of this vast territory can hardly be ensured with these modest resources. The park's budget will need a significant increase to ensure proper protection and management of the park's resources, control of traditional use, anti-poaching, management of tourism, setting up a monitoring program, training of staff and implementation of a broad education and information program. This is of particular importance in view of the park's application for World Heritage status.

The management plan defines how this can be achieved over a period of five years, provided that the park can count on a high level political commitment, the necessary budget increase and new regular income (e.g. from trophy hunting revenues) to take the required steps for upgrading the park's status.

INTRODUCTION

This medium-term Management Plan for the Tajik National Park (TNP) for the years 2012-2016 is developed by officials of the State Agency of Natural Protected Areas (SANPA) of the Committee for Environmental Protection under the Government of the Republic of Tajikistan and the Academy of Sciences of the Republic of Tajikistan. The process was supported by international IUCN experts within the framework of an International Assistance Request under the World Heritage Fund project in support of the World Heritage nomination of TNP. "Instruction on Management Plan Development for Natural Protected Areas of Tajikistan" approved by the Head of State Agency of Natural Preserve Areas dated June 18, 2010 has been used in development of the Plan.

The purpose for developing the TNP Management Plan is to ensure enhancing management and planning in organisation and functioning of TNP according to the Law of the Republic of Tajikistan “On Natural Protected Areas and Objects” and the "Government Program for Development of Natural Protected Areas of the Republic of Tajikistan for 2005-2015". Also, international obligations of the Republic of Tajikistan on conservation of biological diversity and other international documents have been taken into consideration.

The Management Plan will also play an important role in informing the public about TNP activities and help promoting ecological knowledge among the population in the TNP area. This will contribute in developing a positive attitude towards nature conservation.

Existing information and analysis of TNP resources and study of existing problems in current management served as an initial basis for developing the Management Plan, in addition to specially conducted investigations and archive materials.

An important part of the work involved consultations with the local population, regional government bodies and local governments, land owners and users, scientific institutions, and non-governmental environmental organisations. To this end, working meetings were organized with participation of relevant stakeholders, during which basic directions and possibilities for the further development of TNP were discussed and agreed.

A list with the names of members of the working group for preparation of the Management Plan in attached, Annex 1.

CHAPTER 1. BACKGROUND INFORMATION ON TAJIK NATIONAL PARK

1.1 Status and Features of TNP

1.1.1 Overview

NAME OF PROTECTED AREA: Tajik National Park

Governing Body: State Agency of Natural Protected Areas of the Committee for Environmental Protection under the Government of the Republic of Tajikistan.

National Category: National Park.

IUCN Category: II.

Date of Preparation of the Management Plan: August 2011.

Management Plan Period (5 years): 2012 – 2016.

Purpose and Objectives of TNP:

The National Park was established with the objective to:

- Preserve the unique and spectacular landscapes of the Pamirs with its ecological processes and biological diversity;
- Protect rare and endangered species of flora and fauna;
- Safeguard historical, cultural and natural sites;
- Promote tourism and contribute to the development the region.

Location of Main office of TNP: 62, Druzhba Narodov Street, 734025, Dushanbe, Tajikistan, tel.: + (992 37) 222 14 67; fax: + (992 37) 222 07 97, E-mail: tajpark@yahoo.com

Area (in hectares): The total area of TNP is 2,611,674 ha.

The park covers an area of 306,613 ha in Tavildara District, 69,912 ha in Jirgatol District and 2,235,149 ha in GBAO, including the four districts: 1,487,049 ha in Murghab, 128,100 ha in Shugnan, 350,000 ha in Rushan, and 270,000 ha in Vanj.

Date of Establishment: Tajik National Park (TNP) was established by the Decision of the Cabinet of Ministers of the Republic of Tajikistan No. 267, dated 20 July 1992 covering an area of 1.6 million hectares. In 2002, the Government of the Republic of Tajikistan extended the area of TNP to 2,611,674 hectares and approved the statutes of the park (Decree of the Government of the Republic of Tajikistan No. 253 of June 11, 2001).

1.1.2 Description of General Borders of TNP

In the north the border of TNP coincides with the state border of the Republic of Tajikistan with the Republic of Kyrgyzstan until Altyn-Mazar. To the west it follows the mountain range along the left-bank of Muksu river until the peaks of Severtsov and Pulisangin in the Jirgatol district. (Annex 2). In the west the border coincides with the borders of "Sangvor" Natural Reserve (*zakaznik*) which belongs to Tavilidara Forestry Enterprise. From here it runs up to 3059 m up to Pieda, Viskharv, Kurgovad mounting passes until Pshikharv settlement of Vanj district. In the southeast borders follow the valleys of Vanj and Yazgulom rivers whose territory belongs to Vanj Forestry Enterprise and to agricultural enterprises of Vanj district. The southern border of TNP passes the Bartang gorge upwards to Barjadiv village, from here it runs to Patkhor peak in Shugnan district and from there to Yashilkul Lake. Along its eastern border, it runs north of Northern Alichur range, then the border crosses Pshart range and Pshart valley, from there via Akbaytal mountain to the east shore of Karakul Lake, it continues then to Markansu mountain valley and from there to the Kyzyl-Art mountain pass at the state border of Tajikistan with Kyrgyzstan (Annex 2).

1.2 Land Classification of the TNP Territory

According to the Decree of the Government of the Republic of Tajikistan No. 253 dated June 11, 2001, the total area of 2,611,674 ha is allocated to Tajik National Park (Table 1).

Table 1.

Land categories of TNP

Land category	Area, ha	% from total
Pasture	184,525	7.1
Woodlands and shrubs	34,528	1.3
Glaciers	282,755	10.8
Big Lakes (Karakul, Sarez, Yashilkul)	47,960	1.8
Small Lakes	4,700	0.2
Rivers	5,500	0.2
Cold Winter Desert	1,150,000	44.0
Rocks and taluses	900,786	34.5
Dirt roads of importance	920	0.1
Total	**2,611,674**	**100**

1.3 Legal Status and History of Protected Areas

Tajik National Park is a nature reserve of national importance. Its legal status is determined by the following state legislations:

- Law of the Republic of Tajikistan "On Specially Protected Natural Territories", No 329, dated 13.12.1996.
- The Decision of the Government of Tajikistan No267, dated 20.07.1992, "On Establishment of Tajik National Park."
- Order of the State Agency of Natural Protected Areas No47, dated 09.11.2005, "On Location of TNP Protected Zone".
- Control over the activities and law compliance related to the territory of TNP lies on SANPA.

According to the Laws of the Republic Tajikistan “On Natural Protected Areas and Objects”, the criteria of the International Union for the Conservation of Nature (IUCN), advice from United Nations Environment Program (UNEP), specialists of SANPA, advice from scientists from the Academy of Sciences of the Republic Tajikistan, an

IUCN international expert, and representatives of local authorities it was decided to divide the existing 2,611,674 hectares of TNP into the following zones (Annex 3).

- Core Zone: 1,685,411 ha, or about 64.6% of the TNP area.
- Traditional Use Zone: 127,665 ha or 4.9 % of the TNP area. This zone includes grasslands for hay making and high mountain pastures where traditional rights for summer and winter grazing are being maintained for local people. Controlled firewood collection is allowed.
- Limited Economic Use Zone: 740,198 ha or 28.3 % of the TNP area; it is established along and around fragile sites of the core area. Limited development is permitted, as long as this is not detrimental to the values of the Park.
- Recreation Zone: 58,400 ha or 2.2% of the TNP area. This zone allows recreation and tourism as well as placement of supporting facilities.

Forbidden activities: According to the statute of the TNP and the Law of the Republic of Tajikistan "On Protected Areas" any activities contrary to the objectives of TNP, namely: Cutting of forest, ploughing, cattle grazing in the core zone and during summer around lakes and wetlands (breeding period for several bird species), poaching, mining ores, production and use of chemicals and significant changes of the hydrological regime.

Allowed activities: According to the statute of the TNP and the Law of the Republic of Tajikistan "On Specially Protected Natural Areas" Limited economic activity, in specific zones, which does not contradict the objectives of conservation, namely: Limited cattle grazing in compliance with established rules, limited exploitation of natural resources, eco-tourism, conducting scientific and research works, conducting fire prevention and biotechnical activities. In the zone of limited economic use controlled hunting, water storage for hydro-power and fishing are allowed (see below).

Trophy hunting for Ibex and Marco Polo sheep is under consideration for four sites, to the west and to the south of Lake Karakul, north of Lake Yashilkul and in the region of Muzkul *zakaznik* (Ghudara-Aktash).

1.4 Brief Description of the Park's Main Physical Features and Characteristics

General Overview

The park belongs to Central Pamir geographical zone, which covers the northern part of Eastern Pamir. The area is characterised by a system of grandiose east-west running mountain chains, separated from each other by 3,000 m deep valleys. Spectacular snow-wrapped mountains and peaks above 7,000 m covered by enormous glaciers, high mountain plateaus and locked basin with lakes add up to the outstanding diversity of the region.

Low rainfall and very low temperatures in winter cause deep freezing of the soil and high daily and annual temperature fluctuations shape this high mountain environment together with high insolation (solar irradiation), and constant winds.

Mountain tops are covered with glaciers or snow. Vanj and Yazgulom mountain ranges reach 5,000-6,000 m. The snow line is 4700-5000 m above sea level. The National Park covers a stunning high mountain environment including the picturesque Sangvor valley, Karakul, Yashilkul and Sarez mountain lakes, the Academy of Sciences and Zaalai mountain ranges with the highest peaks Somoni (7,495 m) and Lenin (7,134 m), the huge Fedchenko Glacier covering 1000 sq km, hot mineral springs a meteorite crater, and one of the biggest caves of Central Asia, at an altitude of 4,100 m.

Climate

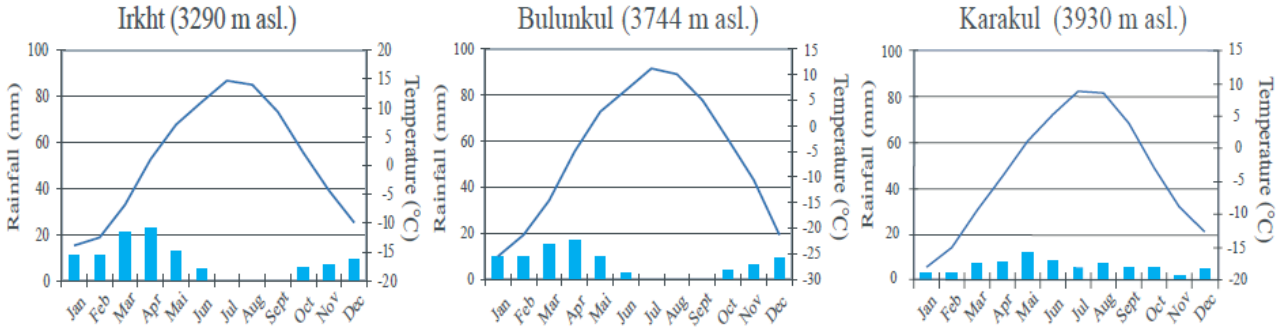
The climate is typical for Central Asia's high mountain regions with cool summers and harsh winters with little snow. The park is characterized by very low temperatures, high insolation, thin air and short summers.

The relief and huge difference in elevations led to the formation of distinctive local types of climate. The park is surrounded by several high mountain ranges, such as the Zaalai range in the north, Kashgar range in the east, the Hindu Kush with its high peaks in the south, and the Kokhi Lal ridge in the west. The inner mountain ranges of the park, such as Academy of Sciences, Zulumart, Muzkul, South Alichur and others are much lower. The park looks therefore like a huge bowl with raised edges. This structure leads to the isolation of the park from the humid air masses coming from the west (Atlantic Ocean via Mediterranean) and the south (Indian Ocean). This isolation, together with other factors is an important reason for the park's aridity in comparison to adjacent territories.

The park is characterized by a sharp continental climate, with large seasonal and daily fluctuations. Lowest temperatures are reported in January at an altitude of 4,000 m with a measured extreme of -63°C (winter 1959, Bulunkul), highest temperatures are reported in July at an altitude of 3,700 m, with +31°C. The annual amplitude reaches 94 degrees. The average temperature for the warmest month, July is 10-13°C; the coldest, January -18 - -25°C.

Precipitation is low. In the Eastern Pamir the mean annual precipitation varies from 63 mm to 117 mm while extreme annual values are from 21 to 159 mm. In the Western Pamir total precipitation is 300 to 500 mm on leeward slopes and increases to 1,200 to 1,800 mm on windward slopes. In the northeastern part of the TNP the annual rainfall is between 1,500 and 1,600 mm. The maximal amount of rainfall may be registered with a mean of 2,234 mm around Fedchenko Glacier on 4,300 m. Precipitation is much lower at the same altitude in the southern mountain ranges.

The distribution of precipitation over seasons is irregular. In the western parts of the Pamirs rainfall mainly occurs in winter and early spring, in the east highest rain falls in spring and summer. In total during autumn and winter precipitation is about 24% of annual rainfall and during the spring and summer 76%. A small amount of precipitation in spring and summer falls as snow. It should be noted that rainfall varies depending on the location of the valleys and wind direction.



Climate diagrams of different meteorological stations located inside or close to the TNP: Irkht (lake Sarez) and Bulunkul represent the conditions in the centre of the TNP. They are located along the segue from the Western to the Eastern Pamir and show a regime typical for the Western Pamir. Karakul, located in the eastern part of the TNP, indicates the typical climatic conditions of the Eastern Pamir. (Haslinger, 2004, based on data from Meteoservice GBAO, 2002).

Seasonal snow cover stays in some places until the end of April and sometimes until the beginning of May. In some places, depending on slope exposure, snow cover persists till 15-25 May. In general, the region is characterized by irregular snow cover. Its

thickness increases with altitude. At altitude of 3,860 m above sea level thickness of snow cover reaches 4-16 cm, while at altitude of 4,760 m it is 1-2 m. Wind and slope exposure have great influence in redistribution of snow cover. At high altitudes, mainly on northern slopes, snow may stay all year round.

The Park is exposed to strong winds that blow almost throughout the year. They reach the greatest strength in wide west to east running valleys, e.g. Markansu valley.

Due to the intense solar radiation, dry climate, low temperatures and limited precipitation the territory is considered as cold high-mountain desert: average annual temperature is below zero, amplitude of diurnal temperature variation is large and reaches 30°C; frost-free period is only 40-80 days; snow may even fall in summer at altitudes above 3,000 m, and may stay for a few days. The meteorological conditions vary considerably due to altitude. In summer, air temperature drops 0.5°C at each 100 m elevation.

Relief

The Pamirs, known as the "Roof of the World," is one of the highest regions in the world; only topped by the Tibetan Plateau. The park includes the highest peaks of the Pamir such as Peak Istiqlol (7,134), Somoni Peak (7,495), and Korzhenevskaya Peak (7,105 m).

The overall picture of the Park's relief is determined by enormous mountain ranges like Academy of Sciences, Zaalai, Beleuli, Zulumart, North Alichur ranges, the eastern parts of the Vanj, Yazgulom, Rushan, and Darvaz ranges. The territory is characterized by large differences of altitudes and heavily dissected terrain and shaped by glaciers in particular during the last glacial period, ending about 12,000 years ago. All forms of glacier morphology are found here, different types of moraines, glacier shaped valleys, glacier mills carved deep into rocks and rock surfaces polished by glaciers.

The main part of the core area is located in the Eastern Pamir. Only Yazgulom range and the eastern part of Darvaz range belong to the Western Pamir.

The Eastern Pamir part of the Park is an elevated plate about 6,000 m above sea level carved by rivers and valleys at 3,600-5,000 m. Some of the river valleys are 10-15 km wide, e.g. Murghab and Alichur.

The Western Pamir section of the Park, in contrast to the east, is shaped by fast running rivers and deep river gorges with steep slopes, for instance 2,000 to 5,000 meters in the Bartang River with its tributaries.

Description of Geological Structure and Soil

The Park is a branch of the Central Asian upland. Deep metamorphosed Precambrian formations are exposed, represented by gneiss, various schist and marbles. Limestone deposits in the northern part of the territory belong to the Cambrian. Within the Akbaytal pass coal deposits are represented by shale and limestone. In the north-western part of the park, Lower Permian deposits are composed of shale-limestone deposits. Upper Permian carbonate deposits were discovered in the north-eastern part of the territory. Triassic sediments are cropping out along the northern border of the Pamirs. The major minerals in TNP territory are molybdenum ores in the upper valley of Vanj River and fluorite in the upstream of Tanymas River.

The soils of the Park, as well as for the entire Pamirs have not been well studied.

Lakes

The largest lakes of TNP are: Karakul with area 364 sq km, Sarez 88 sq km (both in the core zone) and Yashilkul 35.6 sq km (Limited Economic Use Zone). KaraKul is by surface the largest lake in the Pamir and Sarez by water volume, with 17 thousand m3 of water and a maximum depth 500 meters. In addition to these large lakes, the park has more than 400 small ones.

Karakul Lake lies within a circular depression at 3,900 m, interpreted as a meteorite impact crater with a rim diameter of 52 km. A peninsula projecting from the south shore and an island off the north shore divides the lake into two basins, a smaller eastern one which is relatively shallow, between 13 to 19 m deep, and a larger western one, 221 to 230 m deep. It has no drainage outlet. The lake is surrounded by large wetlands.

Lake Sarez appeared in 1911 as result of an earthquake, it is the largest fresh water deposit in Tajikistan and Central Asia. The lake is situated between Muzkul and North Alichur ranges in the core area of TNP. It is considered one of the newest creations of the Earth. As a result of a nine magnitude earthquake, during the night of 18 to 19 February 1911, a six billion ton landslide blocked the Murghab River. The landslide buried the village of Uzoi which blocked the Murghab River and created the highest dam, both natural and manmade, in the world (567 m). The lake flooded a large valley with several villages, one of which gave its name to the lake. The current water level was reached in 1920.

The status of the lake remains very unstable. Geologists fear that a new large magnitude earth-quake might break loose 3 cubic km of rock which would crush into the lake, creating another major wave which might cause the dam to break with disastrous consequences for the Murghab Valley below. One more landslide occurred already in 1968, which caused 2 m high waves in the lake, without damaging the dam.

Hundreds of mountain rivers emerge in TNP, and provide the watershed for several larger rivers such as Gunt, Bartang, Yazgulom, Vanj, and Obikhingov, which run westward through impressive gorges of the Western Pamir. The most significant rivers inside the Park are: Alichur, Marjanoy, Katadara, Pakhchakiv, Kokuybel, Murghab, Tanymas, Gurdara, Khavrazdara, Belyandkiik, Akjilga, Karajilga, Beleuli, Markansu and Sauksay.

Glaciers

The largest glaciers of Central Asia are situated in TNP; including Fedchenko Glacier, the longest and one of the biggest glaciers in the world outside the polar region. Fedchenko Glacier is also the largest middle-latitude valley type glacier in the world, with a length of 77 km, 2 to 3 km wide, covering an area of 1,000 sq km and a maximum thickness of the ice of 1,000 m (Annex 4).

Fedchenko Glacier, being situated on elevations from 2,900 m up to 6,200 m, seems to be one of the glaciers most resistant to global climate change. Impact of global warming caused the glacier tongue to retreat by 1 km since 1933 causing a loss of 2 cubic km, which is 5 % of its volume, but relatively little compared to the melting glaciers in other parts of the Pamirs as well as in the European Alps and the Caucasus.

Further east Grum-Grzhimailo glacier (length 37 km and area of 143 sq km) is located. Garmo glacier, which lies between Peter the Great and Darvaz ranges, has a length of 30.4 km and area of over 114 sq km (Annex 4). Besides, there are glaciers with a length of more than 20 km; among them Oshanin, Akjilga, Vavilov, Chatkal, Tanymas-1, Tanymas-2, Tanymas-3, Yazgulom, Small Tanymas, Moskvin, Fortambek, and Nalivkina glaciers. There are dozens of other smaller glaciers in TNP, with a length of more than 2 km.

All glaciers constitute an important source and reservoir of fresh water on which the wellbeing of large parts of Central Asian depends. It is estimated that the largest contributory of the Amu Darya, the Panj River, annually takes an average of 26-28 cubic kilometers of unpolluted drinking water from the Pamirs. It is important to underline,

that the park is unique in Central Asia by acting as its main storage of fresh water. There is no such place in other Central Asian countries. TNP is the main water-tower of Central Asia.

Mountain Peaks, Waterfalls and Springs

Ice capped mountains, three above 7,000 m, 40 above 6,000 m, and more than 100 around 5,000 m add to the aesthetic value to the area. Waterfalls with crystal clear waters are a special attraction in the harsh mountain landscape. There are many geothermal, radon, and hydro-sulphide sources in TNP. The most famous are Madiyan, Suman, and Uzyuk. Hot springs are resting and treatment places for tourists and locals. Widely known for its hot spring is Yashilkul, where hundreds of people are treated annually.

1.5 Main Ecosystems

The TNP is characterized by the following main ecosystems:

- Nival, above 4,500 meters occupying about 900,786 hectares or 34.5%.
- Cold High Mountain Desert, between 3,500 and 4,500 meters above sea level. Occupying about 11,500 sq km or 44%, it includes Udvardy's "Cold Winter Desert".
- Alpine meadows located between 3,200 – 4,000 m above sea level, occupying a relatively smaller area of 1,000 sq km.
- High mountain wetlands area covering about 200 sq km.

Nival Ecosystems

Nival Ecosystems are characterized by glaciers and deep snow including rocky terrain and gravel. It is the highest mountainous zone with poor vegetation, located above the 4,500 m. These ecosystems are found in the northern and north-western part of the National Park and cover 900,786 hectares or 34.5 %. This is the summer habitat of Siberian ibex (*Capra sibirica*), Marco Polo sheep (*Ovis ammon polii*), snow leopard (*Panthera (Uncia) uncia*) and sometimes wolf (*Canis lupus*). Birds are Pallas' sand grouse (*Syrrhaptes tibetanus*), Tibetan snow cock (*Tetraogallus tibetanus*) and snow finch (*Montifringilla nivalis*). All these species move to lower altitudes in late autumn.

High Mountain Deserts including "Cold Winter Desert"

High mountain desert ecosystems exist from 2,800 up to 4,500 meters above sea level in the eastern part of National Park (about 11,500 sq km or 44%). The prevailing plants are: Teresken (*Eurotia ceratoides*), wormwoods (*Artemisia pamirica, A. korshinskyi*), ajania (*Ajania tibetica*), feather grasses (*Stipa glareosa*), oxytropis (*Oxytropis immersa, O. poncinsii*), and thorn cushion plant formations (*Acantholimon diaspensioides, A. pamiricum*).

Aridity and a continental climate with stark seasonal temperature differences ranging from +32°C in summer to –48°C in winter, with permafrost, strong winds and intensive insolation is a typical feature of this environment. Such landscapes with gravel plains and stony sandy soil, with no or sparse vegetation, dominated by teresken and wormwoods, are widespread in the sub-alpine and alpine zones (at 4,000 – 5,000 m meters above sea level) in the Eastern part of the National Park.

This habitat type of continental deserts with cold winter is not well covered in WH sites. Adding the Tajik National Park to the World Natural Heritage list would overcome this deficit.

Animals with seasonal use of cold winter desert ecosystems are Marco Polo sheep, snow leopard, Siberian ibex, red marmot (*Marmota caudata*), Pallas' sand grouse, horned lark (*Eremophila alpestris*), desert and red-tailed wheatear (*Oenanthe deserti* and *Oenanthe xanthoprymna*).

Alpine meadows

Alpine meadows ecosystems, with rich vegetations, are located between 3,200 up to 4,000 meters above sea level. They are scattered in small patches along mountain ranges in the western and south-western part of the National Park. This ecosystem occupies about 100,000 hectares. They are important grazing areas for wild ungulates and important feeding and breeding grounds for several bird species.

High Mountain Wetlands

Swampy and wet meadows and bogs, covering about 200 sq km around lakes, along rivers, and streams. They include a rich flora and fauna and several endemic species. Flooding, melting permafrost and buried ice sheets shape the landscape with small hillocks and a large variety of small creeks and water courses between 3,500 and 4,000

m. The rich plant cover is grazed by wild and domestic ungulates. These wetlands represent also critical breeding and feeding habitats for resident and migratory birds such as Indian goose (*Anser indicus*), Brown-headed gull (*Larus brunicephalus*), Tibetan and Himalaya Snow cock (*Tetraogallus himalayensis*) and several species of waders.

The most extensive wetlands of this type are found around Karakul Lake. Valuable species of these ecosystems are: bluegrass (*Poa alpina*), sedge (*Carex melanantha*, *C. stenocarpa*), kobresia (*Cobresia stenocarpa*), oxytrope (*Oxytropis savellanica*), thyme (*Thymus seravshanicus*) and others. In drier areas barley meadow (*Hordeum turkestanicum*) are found.

1.6 Flora

1.6.1 General Overview

Most of the Park's territory belongs to the Central Pamir which covers the northern part of the Eastern Pamir. The Western Pamir belongs to the southwestern Asia floristic region, the Eastern Pamir to the Central Asian floristic region.

The general character of vegetation in the Park is desert; large parts are classified as "Cold Winter Desert" (Udvardy). There are rare-grass steppes in the central part of the territory. On the slopes of the mountains and especially on the bottom of cliffs the vegetation is somewhat richer due to more moisture with elements of steppe feather grass and onions.

57 families, 248 genera, and 639 species of plants have been identified in the Central Pamir. The largest families of plants are *Poaceae* (32 genera, 92 species), *Asteraceae* (118 species) and *Brassicaceae* (34 genera, 64 species). Next are *Fabaceae, Rosaceae, Boraginaceae, Caryophyllaceae, Chenopodiaceae, Juncaceae, Lamiaceae, Liliaceae, Polygonaceae, Primulacae, Scrophulariaceae,* and *Apiaceae.* The other plant families account for a limited number of species, sometimes only one. The list main plant species in TNP presented in Annex 5.

1.6.2 Wild relatives of cultivated plants

According to N. Vavilov the Western Pamir, including the Badakhshan and Tavildara areas of the TNP, is renowned for wild relatives of cultivated plants.

The Badakhshan area includes a large number of varieties of soft and club wheat and ranks first in number of botanic diversity of *Triticum* L. varieties, 151 out of 273 (Annex 6). The diversity of endemic local varieties of wheat, compact club wheat, and its wild

relatives is unique, it includes: *Triticum aestivum* L. var. *japschorvi* Nigm., var. *ruchczianum* Nigm, var. *meridionale inflatum* Nigm. var. *nova.,* var. *quasimeridionale-inflatum* Nigm. var. *nova.,* var. *quasiheraticum* Nigm var. *nova*.; soft wheat without ligulae: var. *sarezicum* Nigm., var. *Bar-Darai* Nigm.; spring club wheat: *Tr. compactum* Host. var. *Humboldti-inflatum* Vav. et Kob..

The Tavildara section of TNP is an outstanding site for wild relatives of cultivated fruit trees and shrubs; it includes "Walnut-Fruit-Forests". This is a forest ecosystems dominated by wild fruit and berry bearing woody plants, including wild apple (*Malus sieversii*) Tajikistan pear (*Pyrus tadshikistanica*), Bukhara pear (*Pyrus bucharica*), walnut (*Juglans regia*), Tajikistan cherry (*Cerasus tadshikistanica*), veracious cheery tree (*Cerasus verrucosa*), plum (*Prunus domestica*), Darvaz plum (*Prunus darvasica*), Bukhara almond (*Amygdalus bucharica*), Vavilov almond (*Amygdalus vavilovii*), Pontic hawthorn (*Crataegus pontica*), Turkestan hawthorn (*Crataegus turkestanica*), Songor hawthorn (*Crataegus songorica*), Hissar hawthorn (*Crataegus hissarica*), heterobotryoidal barberry (*Berberis heterobotrys*) are found here (Annex 7).

1.7 Fauna

1.7.1 Ichthyofauna

The ichthyofauna of the Pamirs belongs to an ancient group originating from India. It is characterized by poorness of species, absence of prey representatives, resistance to low temperatures and endemism. Tectonic processes and glaciations caused complete isolation and unique environmental conditions; as a result fishes developed specific adaptive features: black peritoneum, protecting gonads from high radiation, one-time spawning, taking place in a short time and ensuring preservation of offspring during short summer; toxicity of roe, protecting it from spawn-eaters.

False osman (*Schizopygopsis stoliczkai*), in Tajikistan, is found only in the Pamirs. Other populations exist far away in tributaries of Indus and Brahmaputra rivers in India and in some rivers of the Tibetan Plateau. It is the largest fish in the Pamirs. A river and a lake variety are found in TNP. The species is very cold-resistant, adapting to high altitudes and productive, it is of great scientific and economic (sport fishing, farming) interest. Different forms/subspecies of the osman add to its interest for science, in particular in context of evolutionary research and speciation.

Karakul stone loach (*Nemachilus stoliczkai lacusnigri*) is an endemic subspecies. It differs from Tibetan stone loach (*Nemachilus stoliczkai*) by shape of head and longer fins. Its length does not exceed 10 cm. This species lives in salty Karakul Lake (core zone) and in freshwater streams and rivers flowing into it. Its biology has not been studied.

Since the late Pliocene, there have been no considerable changes in Pamir's ichthyofauna. All four species which occur in the Park (Annex 7) belong to a relict fauna, characterized by high isolation over a long time. Barriers formed by glaciers during the Pliocene led to the isolation of individual lakes, leading to high endemism, among others the Karakul stone loach. Relative stability of environmental conditions in the lakes and absence of human disturbance have contributed to preservation of an undisturbed ichthyofauna in the National Park.

An introduced fish species (Sevan trout *Salmo ischchan*) is found in Lake Yashilkul, Bulunkul Lake and few smaller lakes. This species was introduced from Lake Sevan (Armenia) before the park was established. Its impact on the local fauna is unknown and needs to be investigated. Based on the results of theses investigations decisions should be made if the introduced fish in future should either be sustainable used or deliberately reduced.

1.7.2 Amphibians and Reptiles

Amphibians and reptiles occur only along border areas of the park. E.g. on the borders with Badakhshan in the west and Alai in the east. Snake-eyed skink (*Ablepharus alaicus*), Himalayan agama (*Laudakia himalayana*), water snake (*Natrix tesselata*), and green toad (*Bufo viridis* complex) are observed. The green toads are of high interest from an evolutionary point of view as there are different species with differing genetic characteristics which are morphologically difficult to distinguish. Tadpoles of the green toad were also observed in one of the water filled glacier mills near the glacier tongue of the RSC glacier at 2.400 m.

1.7.3 Avifauna

The Park is inhabited by 162 bird species (Annex 5). 25 species are resident all year round, 30 are only visiting the park for breeding, others use the park for resting and breeding during migrations. Breeding birds are closely related the avifauna of Tibet.

The area is inhabited by several endemic subspecies: *Charadrius mongolus pamirensis*, *Oenanthe xanthoprymna chrysopygia*, *Montifringilla nivalis alpicola*, *Carduelis flavirostris pamirensis*, *Leucosticte brandti pamirensis*.

Many species of TNP are listed in the Red Book of Tajikistan. These include: mountain goose (*Anser indicus*), Himalayan griffon (*Gyps himalayensis*), bearded vulture (*Gypaetus barbatus*), golden eagle (*Aquila chrysaetus*), Central Asian saker falcon (*Falco cherrug coatsi*), Tibetan snow cock (*Tetraogallus tibetanus*), brevirostrate plover (*Charadrius mongolus pamirensis*), brown-headed gull (*Larus brunnicephalus*), Pallas' sand grouse (*Syrrhaptes tibetanus*), snow pigeon (*Columba leuconota*).

1.7.4 Mammals (Theriofauna)

General Overview

The terrestrial vertebrate fauna of TNP is very distinctive, and has much in common with the fauna of Tibet, and partially Central Tien-Shan. Out of 85 mammal species inhabiting Tajikistan, 33 live inside TNP. This includes: Pamir vole (*Microtus juldaschi*), grey hamster (*Cricetulus migratorius coereulescens*), red marmot (*Marmota caulata*), tolai hare (*Lepus tolai pamirensis*), big-eared pika (*Ochonota macrotis*), silvery vole (*Alticola argentata*), snow leopard (*Panthera (Uncia) uncia*), Alpine weasel (*Mustella altaica* subsp.), caress (*Mustella nivalis pallida*), stone marten (*Martes foina intermedia*), Tibetan wolf (*Canius lupus laniges*), fox (*Vulpes vulpes ferganensis*), otter (*Lutra lutra*), brown bear (*Ursus arctos isabellinus*). Siberian ibex (*Capra sibirica*) is common throughout the park between 3,200 and 4,500 m. Males of ibex carry large horns (length 110 – 130) which have high attraction for trophy hunters as well as Marco Polo sheep (*Ovis omoni polii*) see below (Annex 5).

Endemic Species

From the above list of mammals *Microtus juldaschi* and *Lepus tolai pamirensis, Ovis ammon polii* are endemic species or subspecies, respectively.

Pamir vole (*Microtus juldaschi*) is abundant and occurs throughout TNP in meadows of floodplains and subalpine and alpine regions.

Tolai hare (*Lepus tolai pamirensis*) occurs throughout TNP and inhabits sparsely vegetated slopes.

Marco Polo sheep (*Ovis ammon polii*). Most probably the largest subspecies of wild sheep in the world with the most impressive spirally curved horns. Reaching 60 inches

(152 cm) is not unusual, one trophy of 66 inches (168 cm) has been recorded. It is listed in the Red Book of Tajikistan and as subspecies of argali included in the Red List of IUCN (Near Threatened). The body length reaches 150 cm and weight of males is 200 kg or more. Its distribution is limited to the Pamir; inside TNP between 3,200 to 4,500 m. At least 5,000 animals are found inside the Park in Pshart spur, North Alichur, Muzkul, Zulumartsk, and the Zaalaisk ranges. The Park provides all critical habitats, all year round; this includes winter and summer grazing areas and lambing sites.

Rare Species

Many mammal species living in the park are listed in the Red Book of Tajikistan: White-clawed subspecies of brown bear (*Ursus arctos isabellinus*), otter (*Lutra lutra*), Turkestan lynx (*Lynx lynx isabellina*). Marco Polo sheep (*Ovis ammon polii*) and Snow leopard (*Panthera (Uncia) uncia*) and Red wolf (*Cuon alpinus*) are listed as endangered by IUCN.

Otter (*Lutra lutra*) is widely distributed in Western Pamir, in Panj River and its tributaries which are rich in fish. Through Gunt, Bartang and Obikhingou rivers' and their tributes the otter gets into TNP. It is rare, precise data are missing.

Turkestan lynx *(Lynx lynx isabellina*). It is observed throughout TNP, population numbers are not available.

Snow leopard (*Panthera (Uncia) uncia*). Occurs at high altitudes between 1,500 and 4,500 m, it preys mainly on wild ungulates, but also on livestock, in particular in winter. The total number in Pamirs is unknown, conservative estimates are about 200 individuals, of which about 120 exist in TNP.

Asiatic wild dog (*Cuon alpinus*) may as well occur in the Pamirs and observations have been reported several times. It is possible that Asiatic wild dogs in the past occasionally migrated into the Eastern Pamir. However, so far scientific evidence about the past or current presence of the species is missing.

1.8 Cultural Features of TNP

1.8.1 Historical Settlements

Remains of different historical settlements, dating back to the 11th century have been discovered, often associated with exploration and extraction of minerals. In some places, remains include entire villages with large public facilities, buildings, roads, and even baths. These are remains of mining settlements in Bazar-Dara, Zurchersek, Ak-Jilga and

Sasyk. In particular, silver was mined in the 11th century. The most famous place in Pamir is the old mine in Bazar-Dara.

According to archaeologists (Ranov V., Veber C., 2005) TNP includes the following archaeological sites (Table 2).

Table 2.

Summary of Archaeological Sites in the TNP territory

Site	Theme	Date
Karaart	Geoglyphs, kurgans	Iron Age, 8^{th}-3^{rd} century BC
Shurali	Geoglyphs, kurgans	Iron Age, 8^{th}-3^{rd} century BC
Jalang	Petroglyphs	Middle Ages, 11^{th} century AD
Bazar-Dara	Mining town	Middle Ages, 11^{th} century AD
Ak-Jilga	Petroglyphs	Bronze Age to Middle Ages 2000 BC to 1000 AD, 18^{th} century AD
Yashilkul	Kurgans and megaliths	Iron Age, 8^{th}-3^{rd} century BC

1.8.2 Burial Objects

Most of the detected burial objects are mounds, burial places covered with stones and earth. On the surface they look like round or square hills up to 1.5 meters height. These are typical burial places of nomads; most of the mounds belong to the early Bronze Age. Other different objects have also been found with more complex structure than the mounds, including one object which is considered as mausoleum.

1.8.3 Other Cultural Features

Geoglyphs, prehistoric stone arrangements on the ground. Most of the figures associated with burial places of Bronze Age's. A most impressive site is near Karakul Lake (Annex 8).

Petroglyphs, images depicted or carved on rock surface. Most drawings depict animals living in the Pamir such as mountain goat, sheep or yak. The most common

images are hunters with bows and arrows. The earliest known petroglyphs refer to the Bronze Age. They are found throughout the park, in particular in the eastern part of the park and around Karakul Lake (Annex 8).

Rock Paintings, are drawings made with colored pigments of plants, minerals, and/or other natural substances on rock surface. Paintings exist in Jalang and Akjilga, they belong to the Mesolithic Period; they are quite fragile and require protection.

CHAPTER 2. BRIEF DESCRIPTION OF LAND USE

(Analysis of Issues and Problems)

2.1 History of Human Settlements

Man settled in the Pamir shortly after the decrease of the glaciers in the last stage of glaciations, in 5-6 millenniums BC. People lived in Barchadev, Rukhch, Pasor, Bopasor, and Ghudara in summer, attracted by the abundance of wildlife during the Neolithic and Bronze Age. In winter, hunters descended to the warm valleys of Kashgar. Later, nomadic tribes settled gradually in the region, their descendants live here today. The main occupation of local people since ancient times is cattle breeding and self-supporting agriculture based on irrigation.

Five small settlements (Barchadev, Rukhch, Pasor, Bopasor, and Ghudara) are situated in the "Zone for Limited Economic Use", located upstream of Bartang river. There are no other settlements inside the Park.

2.2 Land-use in the Territory of TNP

The territory of TNP is legally classified as conservation area. This implies that any activity that contradicts its conservation purpose is prohibited. The area is remote; most of its territory is covered by high mountain habitats which are difficult to access. Land use is limited to small scale subsistence agriculture (potato and wheat), traditional grazing (mainly in summer), hay making and collection of firewood in a few small locations along the Park's borders. Excessive cutting of teresken (*Eurotia ceratoides*) and other vegetation for use as fuel and animal fodder is a problem in some areas, where villages border the park. This applies also to illegal hunting, including Ibex and Marco Polo sheep in the Karakul region and in the upper Bartang in the Ghudara-Aktash area. Although this is limited to a few small areas without known negative impact on the population of both species at this stage, measures have to be taken to stop these illegal activities.

Mountaineering is the main form of land-use around the major peaks of the park; major recreational activities are limited to Lake Yashikul in the south.

There is no pressure from other land developments, mining or roads. Hydropower is only generated from Lake Yashilkul which serves as a semi-natural water reservoir for a power station outside the park. This has impacts on the dynamics of the water level, which may affect the suitability of spawning areas for the ichthyofauna.

Direct human impact on the area and its main features is therefore extremely small. Indirect impact on the parks landscape, in particular its glaciers, caused by global warming, is beyond the park's control.

The park management is taking this situation into account when setting its management priorities, which are:

- Monitoring wildlife populations;
- Monitoring land-use in areas assigned to local people for agriculture, grazing, hay making, collection of plants and firewood;
- Facilitating environmental monitoring, in particular impact of global warming on glaciers;
- Anti-poaching;
- Guiding and directing tourism, including alpinism;
- Education and awareness raising among the local population, decision makers, teachers, school children and visitors;
- Providing guidelines for local community on collection of medical plants and fruits, monitoring and controlling their implementation;
- Developing recommendations for trophy hunting in specifically selected sites of TNP, e.g. for the establishment of community based wildlife management. Monitoring and control of its implementation.

2.3 Land-use in Adjacent Territories

Natural resources bordering TNP are subject of restricted use, which include cattle grazing and limited cultivation of crops. There is little negative impact from people living around the park on the park's resources, except those mentioned above (poaching, illegal collection of firewood, and food for livestock).

The road from Murghab to the Kyrgyz border runs along parts of the eastern park border. Traffic is fairly small and limited to a few trucks and smaller cars per hour. There is no measurable impact at this stage.

Impact on the park for other developments such as mining or hydro-power does not exist.

CHAPTER 3. ADMINISTRATION AND RESOURCES OF TNP

The park is divided into 6 districts: Tavildara, Jirgatol, Vanj, Rushan, Shugnan, and Murghab. Each district is headed by a district ranger ("Chief of Branch"). Vanj, Rushan, Shugnan and Murghab belong to Gorno-Badakhshan (GBAO) Region. The district chiefs report to the park director, based in Khorog. The director reports to the Head of State Agency of Nature Protected Areas in Dushanbe. Tavildara and Jirgatol belong to other Districts and report to the Head of SANPA in Dushanbe. The rangers posts throughout the TNP areas presented in Annex 9.

3.1 Staff Numbers in 2011

Table 3.

According to tasks	**Actual**	
	Total	**Including staff with higher education**
Total number of TNP staff		
54	54	15
Management staff		
3	3	3
Chief of TNP district subdivisions		
3	3	3
Number of main specialists		
6	6	6
Number of leading specialists		
6	6	6
Number of rangers		
19	19	2
Number of accounting and planning staff		
3	3	3
Number of service staff		
14	14	1

Although most of the park is difficult to reach and in large parts inaccessible, it is obvious that 54 staff is insufficient to manage and control this vast territory. Staff increase is foreseen and part of the next 5 year plan (see Chapter 4.5).

3.2 Budget for TNP Activities in 2011

Table 4.

##	Funding source	Tajik somoni
1.	(SB) Salary for staff	156,495
2.	(SB) Funding for services (stationeries, household equipment, repair of vehicles, electricity, telephone, internet, water, etc.)	38,527
3.	(SB) Funding for research	27,860
4.	(SB) Funding for construction	120,000
5.	***Subtotal (1-4) State Budget (SB) of the Republic of Tajikistan for TNP***	***342,882***
6.	Funds from foreign donors	0
7.	Funds from local Tajik sponsors	0
8.	Annual earnings from eco-tourism activities in TNP	8,700
	Total (5-8)	**351,582**

This budget is extremely low and not covering the basic needs of the park. It is sufficient to pay salaries for all staff, but totally insufficient to upgrade protection and management of this huge area according to international standards. A major source for additional income is required (see 3.3 below).

3.3 The Infrastructure of TNP

Each district has 4 to 6 rangers, one 4 wheel drive car, 1-2 binoculars, and uniforms for rangers. Computers are only available in 4 offices. All offices have mobile telephones for communication between each other and with head quarters (see details below). Patrols by rangers are on foot, often in cooperation with guards from district and regional Departments of Environment Protection in GBAO. None of the rangers is armed. This will change next year, as a new law will be approved by the end of 2011, permitting rangers to carry arms.

It is evident, that the control of the Park can hardly be ensured with these modest resources. Additional income is required to fulfill the fundamental requirements for a well managed park such as: Strengthening the ranger network, training, equipment, management infrastructure, monitoring, education and information, tourism facilities and more (see 4.5 and 4.6 below). One opportunity would be trophy hunting, under scientifically based and socially acceptable management. A feasibility study, based on experience from other national parks, will be undertaken to outline rules and regulations for implementing this, see Annex 11. Another option would be to apply for support from aid agencies. For details see 4.5 and 4.6 below.

Table 5.

Items	Quantity	Condition
Main office	1	Main office is in Dushanbe in the building of State Agency of Natural Protected Areas
Regional office in Khorog city of GBAO	1	At present in Khorog city, located in a rented building which belongs to Forest Department of GBAO. The Government of GBAO allocated 0.03 ha land for building a new TNP Regional Office in Khorog city. 120,000 somonis has been allocated in the 2011 Budget for State Agency of Natural Protected Areas for starting the construction of the TNP office in Khorog city.
District Office in Murghab district	1	In stage of construction
District Office in Jirgatol district	1	Rented
District Office in Tavildara district	1	In stage of construction
Motor vehicle: GAZ – 66	1	Working
Car: GAZ 31-02	1	Working
Car: Niva 3212214	1	Working
Car: UAZ 31-519	3	Working
Horse	2	Working
Telephone for office	1	Working
Mobile telephones	40	Working
Uniform	70 % of staff	

Firearms and small arms	0	To be supplied in 2012
Binoculars	2	Working
Computers	4	Working
Digital photo camera (Panasonic)	1	Working
Digital video camera	1	Working
Navigational aid GPS	1	Working

3.4 Key Stakeholders (In addition to the State Agency of Natural Protected Areas)

Table 6.

№	Interested Partners
1	The Committee for Environment Protection under the Government of Tajikistan
2	Ministry of the Economic Development and Trade of the Republic of Tajikistan
3	Ministry of Foreign Affairs of the Republic of Tajikistan
4	The Committee on Tourism and Youth under the Government of the Republic of Tajikistan
5	The Academy of Sciences of the Republic of Tajikistan
6	Executive authorities
7	Local population living around of TNP. In the eastern part of TNP near Karakul Lake is located Karakul village, along the western border of TNP in the upper Bartang valley Ghudara, Pasor, Bopasor and Barchadev villages, in the upper of Vanch district Poimazor village.
8	Companies which organize hunting; Opening the park for controlled trophy hunting will be organised in cooperation with relevant professional organisations. Details to be determined by feasibility study.
9	Tourist agencies

Research activities and ecological monitoring in TNP are organized and conducted by TNP staff jointly with scientist from the Academy of Sciences of the Republic of Tajikistan based on the annual working plan. Research works includes wildlife monitoring (mammals and birds), wildlife ecology and biology, monitoring various forms of land use, impact of climate change.

Ecological education programs and activities are realized directly by TNP staff and the Department of Science and Eco-education of SANPA with collaboration of local and international NGOs.

CHAPTER 4. ANALYSIS OF THREATS AND REACTION ON THEM

4.1 Main Threats

Threats	Description of the threats
Threat 1:	Illegal hunting of wildlife by local poachers and hunting tourists.
Threat 2:	Illegal plant (teresken) harvesting as fuel, which is main fodder supply for Marco Polo sheep.
Threat 3:	Uncontrolled hiking of tourists through the park without any authorization.
Main reason for threats	Poverty and low living standard of local population around the park, leads to illegal use of park resources, insufficient possibilities of the TNP for law enforcement, lack of incentives for the local population.

4.2 Aims and Tasks of Protected Area Management (in response to threats)

Goal and tasks	Response to threats
General Goal/ Result	Preserving unique natural landscapes, conservation of rare and endangered species of flora and fauna, historical, cultural and natural sites, development and rationalization of tourism, public education to promote rational use of natural resources (The Decision of the Government of Tajikistan No. 267, dated 20.07.1992, "On Establishment of Tajik National Park").
Vision: Desired situation at the end of 5 years Management Plan	Effective management of TNP. Local people will better understand the value/importance of TNP, effective communications and coordination will be established between local government and TNP. Conservation status of biodiversity, especially rare species of flora and fauna, will be improved as a result of better management with support of local population and better technical and financial capacity.
Tasks to Achieve Goals	Conserving wilderness, wildlife and ecological processes in TNP. Promoting good management of resources, for the benefits of nature and the enjoyment of the people of Tajikistan and visitors and for the local communities of the region. Raising additional funding from aid agencies to upgrade staff capacities and infrastructure of TNP. Take regular revenues from trophy hunting.
Task 1	Prevention of any illegal activities within the TNP.
Task 2	Maintaining and where possible improving wildlife habitats by

	monitoring the status of biodiversity and the impact of human use in selected areas and implementation of remedial measures.
Task 3	Raising awareness and understanding on the values and potential benefits of the park, increase the level of support from the local population; by providing tangible benefits from protection and sustainable use of natural resources
Task 4	Advise relevant government authorities in strengthening conservation legation, in particular in relations to protected areas.
Task 5	Education and awareness programs at schools to raise awareness and support for environmental conservation.
Task 6	Increase socio-economic situation for local people living inside and around TNP by developing income sources, based on joint management of natural resources, e.g. rangelands for livestock grazing, and direct benefits for the local communities from the sustainable use of the nature resources, e.g. income and funding for local development from tourism and planned trophy hunting.
Task 7	Promoting improved energy efficiency and use of alternative energy sources.

4.3 Specific Limitations for Effective Management

Limitations	Justification	Methods of solution
Technical Knowledge of staff \ training	Managers, engineers and technical personnel, as well as ranger are unable to perform their tasks properly due to lack of technical knowledge. Young professionals entering job after graduation, as a rule, have a very low level of knowledge and lack of practical skills.	Training workshops
Equipment	Due to lack of funds equipment has not been replaced for many years Equipment supplied during the Soviet period is at the end of its live cycle and completely written off. TNP needs, first of all, cross-country vehicles, motorbikes, communication equipment and field equipment for ranger.	Raising necessary funds from state budget and from donors. Ensure sustainability through targeted use of revenues from trophy hunting.
Financing	Limited funding from state budget for infrastructure improvement, fuel purchase, restricts management activities and opportunities.	Preparation of financial plan for implementation of the Management Plan with financial needs and

		identification of possible funding sources.
Monitoring	Lack of funds for monitoring status of wildlife and habitats reduces management efficiency considerably.	Development and funding of monitoring plan will help to improve effectiveness of managing impact of poaching, traditional land-use, tourism, including alpinism, and trophy hunting on relevant wildlife populations, based on indicators to be developed in 2012

4.4 Zones of TNP

General Characteristics of Functional Zones of TNP

The following zones were agreed, based on the Law of the Republic Tajikistan "On Natural Protected Areas and Objects" and according to International Union for the Conservation of Nature (IUCN) criteria, advice from United Nations Environment Program (UNEP), specialists of SANPA with scientists from Academy of Sciences of the Republic Tajikistan, an IUCN international expert, and representatives of local authorities (Annex 3):

- Core Zone;
- Traditional Use Zone;
- Limited Economic Use Zone;
- Recreation Zone.

4.4.1. Core Zone

***Objective*:**

- Conservation of outstanding and special natural areas and ecological processes and biodiversity with particular attention to rare and endangered species, without any human interference, except controlled tourism and research.

Description and Values:

This zone covers 1,685,411 ha or 64.6% of the TNP area. It is an area of dazzling

high mountain wilderness, characterised by several mountain peaks over 7,000 m, deep valleys, high plateaus and an outstanding assembly of enormous glaciers, including the glacier complex named after A. Fedchenko, which is one of the biggest in the world with length of 77 km and thickness of ice more than 1,000 m. This glacier together with others represents the water tower for Central Asia which nourishes the Amu Darya River system on which the wellbeing of 55 million people depends, by providing water for irrigation, industries and human consumption.

The Amu Darya River Basin covers parts of Tajikistan, Kyrgyzstan, Afghanistan, Uzbekistan, Turkmenistan. Several major cities, industrial complexes and agricultural regions depend on it such as Khorog, Kulyab, Kurghan-Tube in Tajikistan, Badakhshan, Faizabad, Mazorisharif in Afghanistan, Termez, Urgench, Karshi, Bukhara, Khiva, Nukus in Uzbekistan and Kerki, Mary, Turkmenabad (Chardzhou), Dashoguz in Turkmenistan.

The Amu Darya River is the largest river in Central Asia. Its length from the headwaters of the Pyanj River is 2,450 km, its watershed covers 309 thousand sq km. The Amu Darya River gets this name when Pyanj and Vakhsh River, which get most of their water from TNP region, meet in Tajikistan. Thus the TNP is the main area of formation of water flow of the Amu Darya River. Table 7 shows the total irrigated area in the Amu Darya River basin.

Table 7.

Irrigated area in the Amu Darya River Basin

Country	Irrigated area, thousand hectares			
	1960 year	1985 year	1990 year	1998 year
Kyrgyzstan	5.0	11.0	23.6	22.0
Tajikistan	210.0	450.0	474.2	469.0
Turkmenistan	435.0	1234.4	1329.3	1735.0
Uzbekistan	1625.0	2001.3	2280.2	2321.0
Total in Amu Darya River Basin	2275.0	3696.7	4107.3	4547.0

The annual average areas of agricultural land irrigated from the Amu Darya watershed in Uzbekistan, Turkmenistan, Tajikistan and Kyrgyzstan are 4.0-4.5 million hectares. Most of this water comes from the glaciers of TNP.

The Core Zone is characterized by undisturbed ecological and geomorphological processes, including a high diversity of glacial formation, glacier dynamics, landscapes and special features formed by glaciers (e.g. deep glacier miles carved into solid rock), fast running rivers and wide flood plains covered with gravel and rocks.

The area includes the largest high mountain lake in the Pamirs, Lake Karakul, at an altitude of 3,914 m above sea level with its special flora and fauna, including a large number of endemics.

The high mountain plateaus and valleys provide summer- and winter grazing areas for wild ungulates, Marco Polo sheep, and the Siberian ibex, as well as snow leopard, Tianshan brown bear, breeding sites for Indian goose, brown-headed gull, Tibetan and Himalaya snow cocks.

Other values of the core area are wild relatives of cultivated plants in the Badakhshan and Tavildara section of TNP (Annex 6, 7).

Management:

Conservation and maintenance of biodiversity and ecological processes. The area is accessible for mountaineering, hiking and wildlife observation. There is no traditional use (see 4.4.2 below). Trails and a few basic camping sites for visitors will be permitted. Number, nature and extent will be strictly controlled. Possible sites and regulations for hunting tourism will be defined by a feasibility study.

4.4.2. Traditional Use Zone

***Objective*:**

- Maintain livelihoods for local people, by retaining traditional grazing rights, hay making and firewood collection, in selected areas;
- Tourism.

Description and Values:

This zone covers 127,665 ha or 4.9 % of the TNP area. This zone, includes, grassland for hay making and high mountain pastures where traditional rights for summer and winter grazing are being maintained for local people:

- Around Lake Karakul Lake, in particular in the north and east;
- East and west of Barchadev village;
- North of Vanch District, village of Poimazor;
- Tavildara valley.

This includes summer grazing areas for small livestock and yaks and some smaller areas for grazing yaks in winter. These zones are well defined and agreed with the local population. This measure includes keeping winter grazing areas such as wetlands (e.g. around Karakul Lake) free from summer grazing from May to September. This measure helps to provide important breeding and feeding grounds for a large variety of bird species, including migratory species, without putting any hardships on the local population.

Management:

Activities in this zone are limited to traditional grazing and hay making. Grazing pressure and interactions between wild ungulates, predators and livestock will be subject to monitoring, as well as status of rangeland. Livestock monitoring will be based on data to be established in 2012.

Adequate management measures will be taken in case of livestock pushing wild life into marginal habitats, or conflict between herders and predators and overgrazing. It is well understood by the local population that they will have to tolerate predation on livestock as a precondition for obtaining certain land-use rights inside a national park. Providing compensation, based on national legislation, is under consideration. In land-use maps this territory is shown as a traditional pasture.

Based on written agreements with relevant local communities, park staff will ensure that wetlands are kept free from livestock from May to September.

Trails and a few basic camping sites for visitors will be permitted. Number, nature and extent will be strictly controlled. Possible sites and regulations for hunting tourism will be defined by a feasibility study.

4.4.3. Limited Economic Use Zone

***Objective*:**

- Enhance protection and avert negative human influence on the core area,

where it could be in contact with negative human developments.

- Help maintain the life support system for local people (seasonal grazing and firewood collection).
- Allow well managed and controlled activities which provide income for the park, such as hunting tourism.

Description and Values:

This zone covers 740,198 ha or 28.3 % of the TNP area, it is established along and around fragile sites of the core area. Limited development is permitted, as long as this is not detrimental to the values of the Park. A Limited Economic Use Zone is unnecessary in the northern and western parts of the park, where the park boundary runs along high mountain ranges and glaciers between 4,000 and 6,000 m. These are areas without any human interference and outside any future economic development such as hydro power stations or mining. The Limited Economic Use Zones are established in the following sites:

- **Yashilkul Lake**:

Land use includes:

Water flow from the lake is regulated by a small dam (10 to 15 m). Water is stored in summer and released in winter to feed the hydropower station in Khorog. The surroundings of the Lake are permanently inhabited by about 400 people who live on livestock and agriculture. A thermal spring is being used by visitors from the region; the Lake is inhabited by an introduced trout species, which is being used commercially.

Management:

Existing land use will be monitored and permitted to continue, expansion will not be allowed.

- **Karakul Lake**:

Land use includes:

Trophy hunting for Ibex and Marco Polo sheep is under consideration for an area to the west and another one to the south of Lake Karakul. The main purpose of trophy hunting is to provide regular income for the park and to a limited extent also for the local population in the relevant area.

Management:

A detailed study will determine the best site and regulations under which hunting will be permitted. IUCN and WWF recommendations on trophy hunting will be followed. See Annex 11. Trophy hunting will only be allowed under the following conditions:

- Science based planes for harvest, habitat management and monitoring;
- An adequate legal framework;
- A substantial part of the revenues generated by trophy hunting are transferred to the park. Money will be spent on habitat management and protection, population monitoring, education, research and support for local communities.

- **West and east of the motor highway** leading to the state border with Kyrgyzstan and China along the Eastern border of the Park:

Land use:

The area is influenced by traffic (mainly heavy trucks) to and from Kyrgyzstan.

Management:

Stopping, parking and camping along the road allowed.

4.4.4. Recreation Zone

***Objective*:**

- Relieve pressure on the wilderness area by providing access and facilities for recreational use to sites of public interest.

Description and Values:

This zone covers 58,400 ha or 2.2% of the TNP area. This zone allows recreation and tourism as well as placement of supporting facilities. It includes sites of interest to mountaineers and the territory around Karakul and Yashilkul. The relevant map in Annex 10 showing existing road networks and settlements. Main sites for alpinism include Moskvina Plateau with the peaks Ismoili Somoni (7,495 m), E. Korzhenevskaya (7,105 m), Revolutsiya (6,974 m), and Istiqlol (7,134 m).

***Management*:**

The main recreational activities in this zone are mountaineering, hiking, cave

exploration, and health treatment in thermal, cold water, and carbon dioxide springs.

People engaged in mountaineering, hiking and cave exploration will be permitted to stay in well defined camping sites. Campers will have to bring their own food and fuel, cutting of firewood is not permitted. Visitors must not leave garbage behind. A guest house for mountaineers exists on Moskvina Plateau; it is managed by a tourist company. Bed and Breakfast facilities are offered by local people around Yashilkul Lake. A zone for intensive tourism services will be established at a later stage, depending on the results of tourism and recreation planning in TNP.

4.5 Management Actions to be carried out in order to achieve objectives for 2012-2016 (5years):

Activities and objectives	Actions	Time limits	Executor	Indicators	Financial expenses, thousand somoni	Sources of financing	
						A. State budget	B. Donors
Objective 1	**Effective law enforcement and wildlife management activities established and maintained**						
Activity 1	Strengthen ranger network by increasing staff and supplying park staff with transport facilities (vehicles, and motorbikes), uniforms, communication equipment, weapons, binoculars, and cameras.	2012-2016	State Agency of Natural Protected Areas (SANPA) and TNP Directorate	Maintain and operational costs (gasoline etc.). Each year 5 additional rangers. By 2013: 4vehicles, 10 motorbikes, uniforms, weapons, binoculars for all rangers, 10 (pending availability of funds). Effective communication system established by 2013/14.	100 350	100 200	0 150
Activity 2	Carry out training seminars for rangers and other conservation staff	2012-2016	SANPA and TNP Directorate	Two training courses per year for up to 20 staff	10	3	7
Activity 3	Establish and support network of	2012-	SANPA and	Voluntary ranger	5	2	3

	volunteer rangers	2013	TNP Directorate	network operational in all district (6) 2012/13			
Activity 4	Strengthen cooperation between ranger network and other law enforcement bodies	2012-2016	SANPA and TNP Directorate, regional and district authorities	Joint patrols, cooperation on legal issues, information exchange established.	5	2	3
Activity 5	Ensure systematic patrolling by rangers in critical sites during periods of wildlife concentration and passage during migrations.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Poaching of wildlife significantly reduced or absent reduced, based on 2011data in 2013. Populations of ungulates stable or increasing, behaviour of animals confirms absence of poaching pressure.	150	150	0
Activity 6	Establish boundary demarcation; manufacturing and installation of information panels in places frequently visited by local people and tourists.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Presence of installed panels, at least 20 % of relevant borders marked each year.	200	100	100
Activity 7	Promote conservation of Indian goose and Tibetan snowcock by enhancing protection of their habitats.	2012-2016	TNP Directorate Solijonov Sh.,	Numbers of these species stable or increased based on	200	50	150

			Davlatov N., Mamarasulov M.	2011 data, by 2016			
Activity 8	Improve habitat for argali, ibex and snow leopard by limiting or banning cattle grazing and limiting herder access to critical habitats, e.g. breeding and lambing sites.	2012-2013	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Population numbers maintained or increased based on 2011 data by 2013	100	30	70
Activity 9	Initiate feasibility study on trophy hunting for limited economic use zone.	2012	SANPA and TNP Directorate	Report	30	5	25
Objective 2	**Infrastructure for environmentally friendly tourism established**						
Activity 1	Develop and advertise hiking trails.	2012-2013	SANPA and TNP Directorate	Hiking trails established Maps and information booklet distributed	100	50	50
Activity 2	Promote establishment of guesthouses and train local people to house and care for tourists.	2012-2014	SANPA and TNP Directorate	Guesthouses established and at least 2 families trained per year.	200	20	180
Activity 3	Establish park owned tourist guesthouse with all necessary equipment for accommodation, kitchen and transport such as vehicles boats and tents.	2012-2015	SANPA and TNP Directorate	Guesthouse established by 2015	500	100	400
Activity 4	Establish Information Center.	2014	TNP	Functioning	200	50	150

			Directorate	Information Center established by 2014			
Activity 5	Publish booklets, maps with tourist destinations, natural, historical and cultural sites.	2012-2015	SANPA and TNP Directorate	Booklets available	20	10	10
Activity 6	Promote cooperation with " Pamiri Handicraft" and the "Yak House" in Murghab to assist local people in villages inside and around the park in the production of tourist souvenirs.	2012-2016	SANPA and TNP Directorate	Cooperation with these 2 NGO established in 2012 and working by 2013	100	10	90
Activity 7	Train local people as tour guides.	2012-2016	SANPA and TNP Directorate	Up to 10 people trained each year	10	2	8
Activity 8	Establish camping sites, with all necessary facilities including information panels with information on the park and the relevant site.	2012-2013	SANPA and TNP Directorate	5 sites established each year	50	10	40
Objective 3	**Wildlife and habitat monitoring and research system established**						
Activity 1	Implement and monitor trophy hunting according to recommendations from feasibility study and legal regulations.	2013-2015	SANPA and TNP Directorate	Guidelines and Report	10	5	5
Activity 2	Prepare and publish guidelines on wildlife monitoring and training of conservation staff.	2012	SANPA, TNP Directorate, Academy of Science	Guidelines published and at least 20 staff trained.	50	30	20
Activity 3	Organize one survey of Marco Polo	2012	SANPA and	Data base with	200	140	60

	sheep, ibex and snow leopard populations and habitat analysis every 3 years (Marco Polo sheep and ibex survey in the context of coordinated large scale survey in all suitable habitats.)	and 2015	TNP Directorate	results			
Activity 4	Investigate distribution and breeding biology of wetland birds, focus on Indian goose and brown-headed gull and prepare recommendations for improving their conservation status. GPS-mapping of their habitats;	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Distribution maps and scientific publications. Specific conservation action elaborated and implemented.	100	40	60
Activity 5	Investigate status of Tibetan snowcock and Pallas' sand grouse and prepare recommendations for improving their conservation status. GPS-mapping of their habitats;	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Distribution maps, recommendations on conservation elaborated and implemented, scientific publications.	100	40	60
Activity 6	Monitor distribution areas of wild relatives of cultivated plants: GPS-mapping of locations and elaboration and implement recommendations for improving conservation.	2012-2016	.TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Distribution maps published. Recommendations on conservation elaborated and implemented.	150	50	100
Activity 7	Monitor livestock numbers and impact	2012	SANPA, TNP	Monitoring report.	50	20	30

	in traditional grazing areas.	and 2015	Directorate, Academy of Science				
Activity 8	Facilitate monitoring of status and developments of the Fedchenko glacier in response to global warming. GPS-mapping of the lower part of the glacier.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M. Glaciologist from State Agency of Hydrometeorology	Maps and report on result of glacier monitoring.	200	30	170
Activity 9	Promote survey (satellite imagery) on status of the main glaciers in TNP and establishment of long term monitoring programme.	2012-2013	SANPA TNP Directorate State Agency of Hydrometeorology, and Academy of Science	Report. Monitoring programme established.	150	20	130
Activity 10	Collect, analyze and record major annual events and developments in the park.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Annual report on major events.	25	25	0

Objective 4	**Support for TNP conservation raised in the population living in the TNP area, by a broad public education and awareness programme and specific rural development activities.**						
Activity 1	Elaborate Education/Awareness Strategy directed at different target groups.	2013	SANPA TNP Directorate with support from Ministry of Education	Strategy established by 2013 and implemented.	50	10	40
Activity 2	Prepare a film about the nature of TNP, brochures and advertising booklet.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Film about nature of TNP, brochures and booklet	100	10	90
Activity 3	Initiate periodic publication of articles and interviews of leaders in mass media, researchers and experts on biodiversity conservation and TNP activities.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Regular articles in Mass media.	10	10	0
Activity 4	Organize an exhibition about nature of the Pamirs and the Pamir-Alay.	2012-2016	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	3 exhibitions organized.	50	10	40
Activity 5	Organize an annual “March for TNP” with students, schoolchildren, representatives of the local society,	2012-2016	TNP Directorate, University,	Annual	100	20	80

	decision makers and mass media.		schools and Mass media				
Activity 6	Explore possibilities for supporting energy efficiency and providing alternative energy resources to local population around the park and assist in following up recommendations.	2012-2013	TNP Directorate with local authorities	Report. Results based on recommendations.	500	0	500
Activity 7	Identify, and allocate pasture and hayfields for use by local populations in the TNP economic use zone, to promote cooperation and support for TNP goals in local communities around TNP	2012-2016	TNP Directorate with local authorities	Pastures and hay fields identified and allocated to the local people.	10	10	0
Objective 5	**Monitoring of management effectiveness**						
Activity 1	Monitor annual work plan implementation	2012-2016	SANPA and TNP Directorate	Evaluation report	30	30	0

Approved by
the Chairman of the Committee
for Environment Protection
under the Government of
the Republic of Tajikistan

_____ T.O.Salimov

"_____" _____ 2012

4.6 Annual Work Plan for 2012

Activities and objectives	Actions	Time limits	Executor	Indicators	Financial expenses, thousand somoni	Sources of financing	
						A. State budget	B. Donors
Objective 1	**Effective law enforcement and wildlife management activities established and maintained**						
Activity 1	Strengthen ranger network by increasing staff and supplying park staff with transport facilities (vehicles, and motorbikes), binoculars, and cameras.	2012	State Agency of Natural Protected Areas (SANPA) and TNP Directorate	1 vehicle 4 motorbikes provided, 2 binoculars and 2 cameras purchased	88,5	48,5	40
Activities 2	Purchase uniforms for TNP staff	2012	Chief of Finance department of SANPA Rakhimov V.	20 rangers have uniforms	25	13	12

Activities 3	Ensure funding for construction of the administrative buildings	2012	Chief of Finance department of SANPA Rakhimov V.	Continuation of construction	28,6	28,6	0
Activities 4	Operational costs (stationeries, household equipment, repair of vehicles, electricity, telephone, internet, water supply, etc.)	2012	Chief of Finance department of SANPA Rakhimov V.	Equipment in place	25	10	15
Activities 5	Acquisition of vehicles and boats for development of tourism, such as tents, and transport equipment.	2012	Division on Tourism and International Relations of SANPA	Availability of vehicles, motor boats, tents and other equipments.	40	10	30
Activity 6	Carry out training seminars for rangers and other conservation staff	2012	SANPA and TNP Directorate	Two training courses for up to 20 staff	10	5*	5
Activity 7	Establish and support network of volunteer rangers	2012	SANPA and TNP Directorate	Voluntary ranger network operational in all district (6) 2012/13	3	3**	0
Activity 8	Strengthen cooperation between ranger network and other law enforcement bodies	2012	SANPA and TNP Directorate, regional and district authorities	Joint patrols, cooperation on legal issues, information exchange established.	2	2**	0

Activity 9	Regular patrols of key wildlife habitats and the traditional use zone by rangers.	2012	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Reduction of poaching by 10 % based on 2011 data.	30	4	26
Activity 10	Establish boundary demarcation; manufacturing and installation of information panels in places frequently visited by local people and tourists.	2012	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Presence of installed panels, at least 10 % of relevant borders marked.	35	5*	30
Activity 11	Promote conservation of Indian goose and Tibetan snowcock by enhancing protection of their habitats.	2012	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Monitoring programme established	30	5*	25
Activity 12	Improve habitat for argali, ibex and snow leopard by limiting or banning cattle grazing and limiting herder access to critical habitats, e.g. breeding and lambing sites.	2012	SANPA and TNP staff	Baseline data will be established and used as monitoring tool for the following years.	20	2	18
Activity 13	Initiate feasibility study on trophy hunting for limited economic use zone.	2012	External experts and SANPA and TNP staff	Report on possible sites for trophy hunting (Lake Karakul, Marjanay	30	5*	25

				valley and Southern Alichur Range, Muzkul *zakaznik*			
Objective 2	**Infrastructure for environmentally friendly tourism established**						
Activity 1	Develop and advertise hiking trails.	2012	SANPA and TNP Directorate	At least 2 hiking trails established Maps and information booklet distributed	20	4	16
Activity 2	Establish park owned tourist guesthouse with all necessary equipment for accommodation, kitchen and transport such as vehicles boats and tents.	2012	SANPA and TNP Directorate	Search for potential donor	5	5*	0
Activity 3	Production of promotional booklets, maps with tourist destinations, natural, historical, and cultural attractions, etc.	2012	SANPA and TNP Directorate	Availability of booklets.	10	4	6
Activity 4	Promote cooperation with “De Pamiri Handicraft” and the “Yak House” in Murghab to assist local people in villages inside and around the park in the production of tourist souvenirs.	2012	SANPA and TNP Directorate	Cooperation with these 2 NGO established in 2012 and working by 2013	30	0	30
Activity 5	Train local people as tour guides.	2012	SANPA and TNP Directorate	Up to 10 people trained	5	2**	3

Activity 6	Establish camping sites, with all necessary facilities including information panels with information on the park and the relevant site.	2012	SANPA and TNP Directorate	2 sites established	20	0	20
Objective 3	**Wildlife and habitat monitoring and research system established**						
Activity 1	Implement and monitor trophy hunting according to recommendations from feasibility study and legal regulations.	2012	SANPA and TNP Directorate	Guidelines and Report	5	2**	3
Activity 2	Preparation of simple and practical methodology for monitoring of key indicator species of flora and fauna.	2012	SANPA, TNP Directorate, Academy of Science	Availability of methodology.	2	2	0
Activity 3	Training for TNP staff on monitoring species, diversity of flora and fauna and natural resources.	2012	SANPA, TNP Directorate, Academy of Science	1 seminar and 1 training, 20 staff trained.	30	0	30
Activity 4	Wildlife surveys in autumn and analysis habitat status.	2012	TNP staff and hired specialist	Survey report	12	2	10
Activity 5	Carrying capacity established for Marco Polo sheep and Ibex in key habitats.	2012	SANPA and TNP Directorate	Key habitats and their carrying capacity identified.	6	4	2
Activity 6	Bird nesting sites around Lake Karakul and Lake Sarez identified and restriction of land use in these areas established.	2012	SANPA, TNP Directorate, Academy of Science	Nesting sites for wetland birds identified and free from disturbance (livestock and	12	2	10

				people).			
Activity 7	Monitor livestock numbers and impact in traditional grazing areas.	2012	SANPA, TNP Directorate, Academy of Science	Monitoring report.	10	3**	7
Activity 8	Promote survey (satellite imagery) on status of the main glaciers in TNP and establishment of long term Environmental monitoring (weather, glaciers) programme.	2012	SANPA TNP Directorate State Agency of Hydrometeorology, and Academy of Science	Report. Establishment of Monitoring programme under way	10	4	6
Activity 9	Collect, analyze and record major annual events and developments in the park	2012	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Annual report on major events.	5	5**	0
Objective 4	**Support for TNP conservation raised in the population living in the TNP area, by a broad public education and awareness programme and specific rural development activities.**						
Activity 1	Elaboration of 3-year Awareness and Education Program with clear milestones to reach different target groups.	2012	SANPA TNP Directorate with support from Ministry of Education	Elaboration of strategy under way, to be completed by 2013	10	0	10

Activity 2	Periodic publications in mass media	2012	SANPA TNP Directorate with support from State Committee of TV and Radio	Regular articles in Mass media.	5	5***	0
Activity 3	Organize an exhibition about nature of the Pamirs and the Pamir-Alay.	2012	SANPA TNP Directorate with support from Committee for Environment Protection	1 exhibition organized.	15	5**	10
Activity 4	Organize an annual "March for TNP" with students, schoolchildren, representatives of the local society, decision maker and mass media.	2012	TNP Directorate, University, schools and Mass media	One event organised.	10	5 **	5
Activity 5	Explore possibilities for supporting energy efficiency and providing alternative energy resources to local population around the park and assist in following up recommendations.	2012	TNP Directorate with local authorities	Identify possible funder for investigation and implementation.	20	0	20
Activity 6	Identify, and allocate pasture and hayfields for use by local populations in the TNP economic use zone and traditional use zone to promote cooperation and support for TNP goals in local communities around TNP. Make agreement with local communities on livestock numbers.	2012	TNP Directorate with local authorities	Pastures and hay fields identified and allocated to the local people. Livestock numbers agreed	5	3*	2

Objective 5	**Monitoring of management effectiveness**						
Activity 1	Annual Review of the Management Plan with assessment of achievements, failures and constraints and recommendations for improvements.	2012	TNP Directorate Solijonov Sh., Davlatov N., Mamarasulov M.	Review of indicators.	3	3**	0
Activity 2	Monitor annual work plan implementation	2012	SANPA and TNP Directorate	Evaluation report	6	6**	0
Activity 3	Ensure salary for staff	2012	Chief of Finance department of SANPA Rakhimov V.	Finance report	249,743	249,743	0
				Subtotal I: State Budget for TNP		**387,843**	
				*Subtotal II: Budget from TNP Eco tourism		**28**	
				**Subtotal III: Support Budget from CEP		**36**	
				***Subtotal IV: State Budget direct from State Committee of TV and Radio		**5**	
				TOTAL:	**872,843**	**456,843**	**416**

Head of State Agency of the Natural Protected Areas **N. Saidov**

Annexes

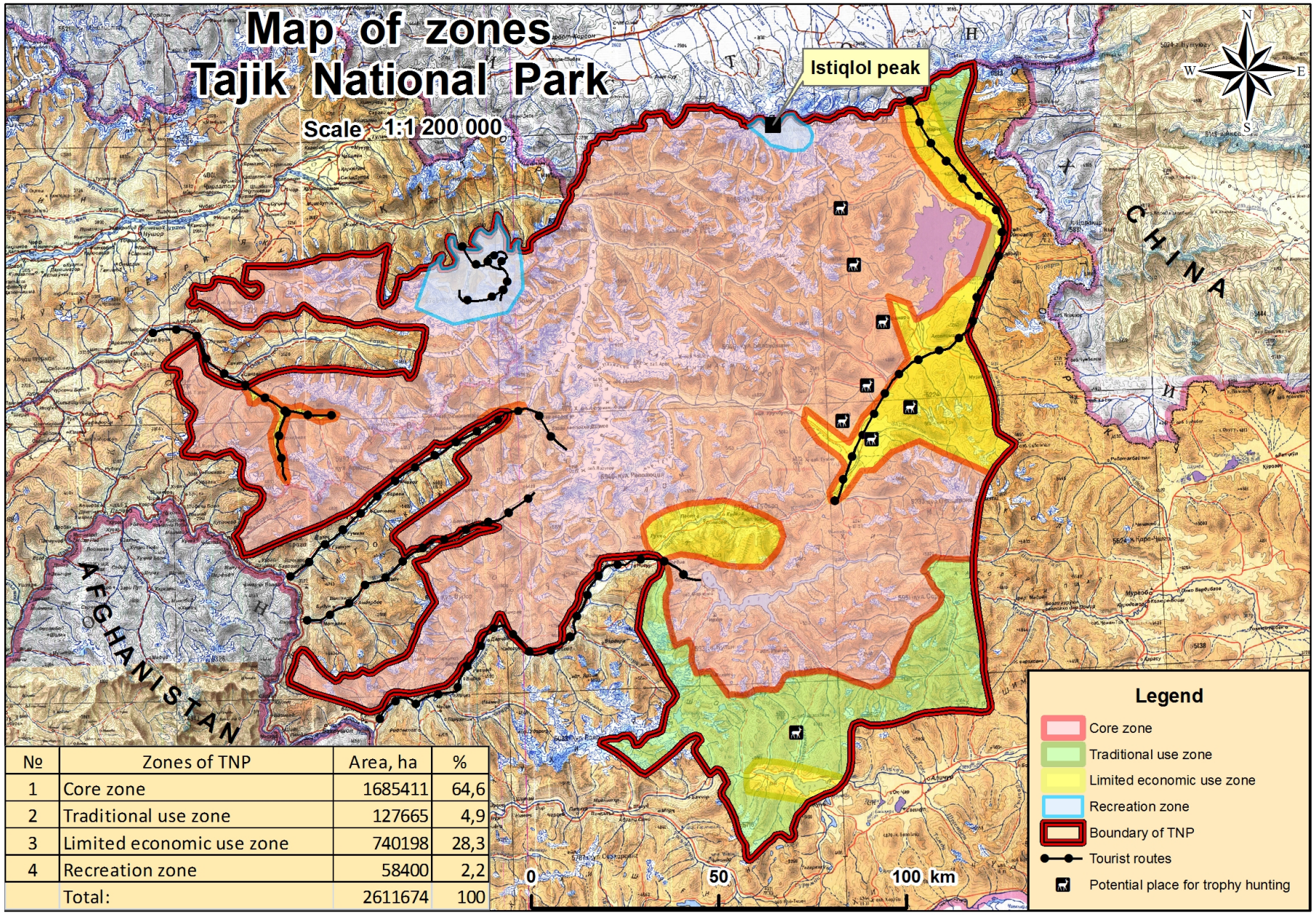
ANNEX 1. List of Member Working Group for Preparation of Management Plant for TNP

According to order of Chairman of CEP from April 29, 2011 under number 46 was created working group from national experts. The list of member of national experts included:

1. Dr. Nurali Saidov – Head of State Agency of Natural Protected Areas – Head of National Expert Group;
2. Mr. Usefbek Usufbekov - Deputy of Head of State Agency of Natural Protected Areas – deputy of Head of national experts;
3. Dr. Adulnazar Abdulnazarov – Head of department of forestry of Gorno Badakhshan Autonomous Oblast (GBAO) – member of working group;
4. Mr. Shodibek Qurbonov – Expert of Department of Forestry and Natural Protected Areas of Committee for Environment Protection under Government of the Republic of Tajikistan - member of working group;
5. Mr. Ustyan Ivan Petrovich – Chief of department of nature reserve and parks of State Agency of Natural Protected Areas- member of working group;
6. Mr. Shodi Solijonov – Director of regional office of Tajik National Park in GBAO - member of working group;
7. Dr. Rustam Murodov – Senior research worker of Institute of zoology and parasitology of Academy of Science of Tajikistan - member of working group;
8. Mr. Alisher Agzamov – Attaché of Tajik National committee of UNESCO - member of working group;
9. Dr. Butorin A.V. - Senior research worker of Institute of Geography of Academy of science of Russian - member of working group;
10. Mr. Shvartz A.B. – GIS consultant;
11. Dr. Hartmut Jungius – International consultant to IUCN and WWF International.
12. Ms. Gafurova Irina Akhmedova- Cartographer engineer, Chief Administration for Geodesy and Mapping (Tajikaerokosmogeodezija).
13. Mr. Ubaidullo Akramov – Expert on education.

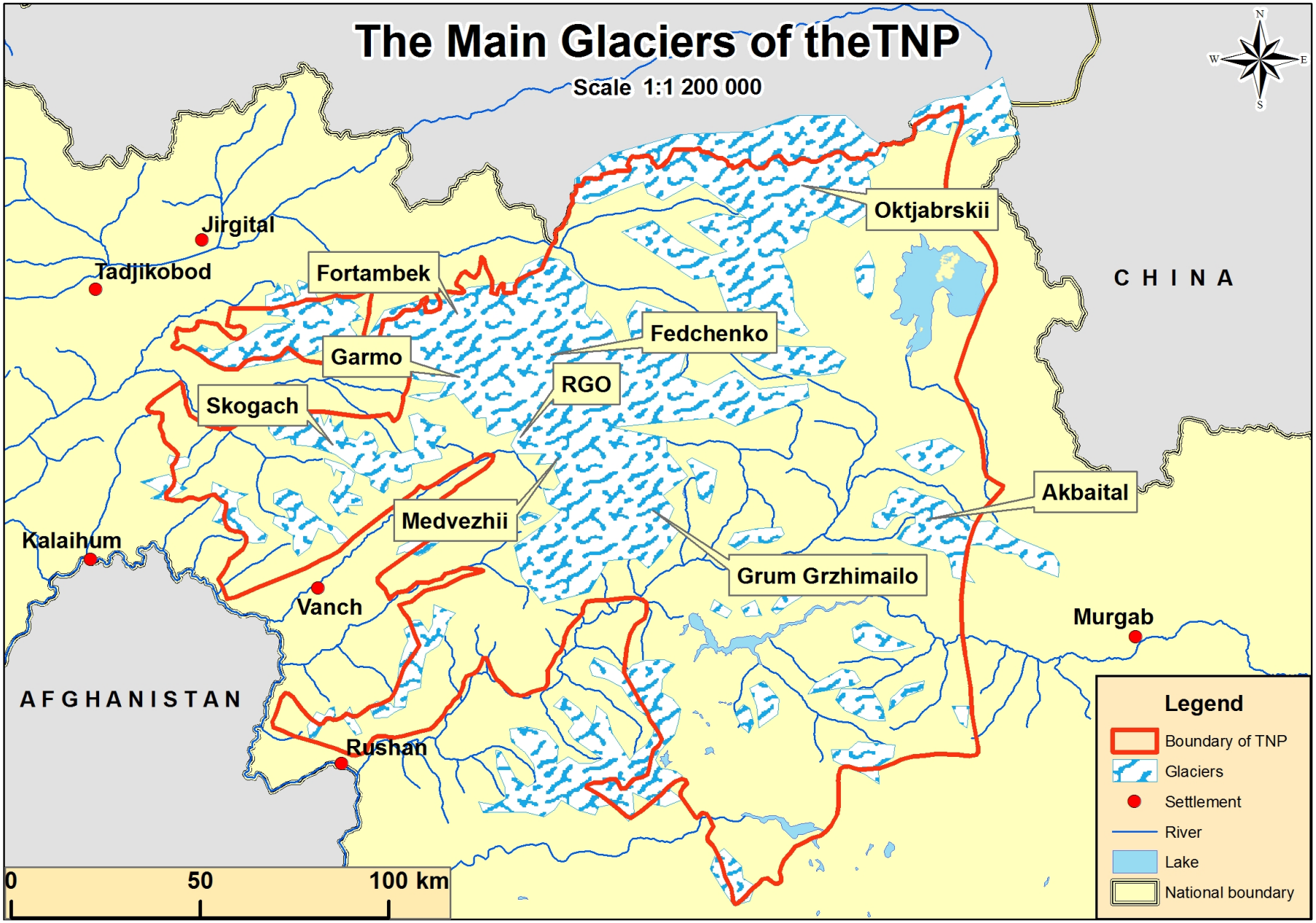
ANNEX 2. Map of TNP View

ANNEX 3. Zones of TNP



№	Zones of TNP	Area, ha	%
1	Core zone	1685411	64,6
2	Traditional use zone	127665	4,9
3	Limited economic use zone	740198	28,3
4	Recreation zone	58400	2,2
	Total:	2611674	100

ANNEX 4. The Main Glaciers of the TNP.



ANNEX 5. Flora and Fauna

LIST OF COMMON AND RARE SPECIES OF THE PAMIR

Flora	Fauna
PLANT RARE SPECIES (RED BOOK)	**ANIMAL RARE SPECIES (RED BOOK)**
	Insects
Acantholimon varivtzevae	*Carabus (Deroplectes) sphinx dardazicus* - Carabus beetle
Allium stipitatum	*Papilio alexanor* – Butterfly
Androsace bryomorpha	*Polyommatus (Eumedonia) kogistana* - Small blue-winged butterflies
Astragalus darwasicus	*Dolbinopsis grisea* - Hawkmoth
Atraphaxis karataviensis	
Bergenia stracheyi	**Reptiles**
Bunium persicum	*Ablepharus alaicus* – Alai snake-eyed skink
Cephalopodum badachschanicum	*Vipera lebetina* – Levantine viper
Chesneya tadshikistana	
Cousinia corumbosa	**Birds**
Cousinia hilariae	*Anser indicus* – Bar-headed (Indian/mountain) goose
Desideria pamirica	*Ibidorhyncus struthersi* – Ibis-bill
Desmatodon altipes	*Neophron percnopterus* – Egyptian vulture
Erianthera rhomboidea	*Gyps himalayensis* – Himalayan griffon
Erianthera rhomboidea	*Gypaetus barbatus* – Lammergeyer
Ficus carica	*Aquilia chrysaetus daphanea* – Golden eagle
Gymnospermium darvasicum	*Falco cherrug coatsi* – Mongol saker falcon
Gymnospermum darvasicum	*Falco peregrinus babylonicus* –Barbary falcon
Iris hoogiana	*Tetraogallus tibetanus* – Tibetan snowcock
Jasminum revolutum	*Charadrius mongolus pamirensis* – Shortbilled plover
Juno baldshuanica	*Larus brunnicephalus* – Brown-headed gull
Juno tadshikorum	*Syrrhaptes tibetanus* – Tibetan Pallas sand grouse
Jurinea darvasica	*Columba leuconota* – Snow pigeon
Keyserlingia mollis	*Columba palumbus casiotis* – Ring dove
Kudrjaschevia korshinskyi	*Chaimarrornis leucocephala* – White crowned
Kudrjaschevia nadinae	

Ostrowskia magnifica *Oxytropis astragaloides* *Oxytropis hedini* *Paeonia intermedia* *Parasilaus asiaticus* *Petilium eduardii* *Polygonum ovczinnikovii* *Primula flexuosa* *Pulsatilla kostyczewii* *Rosularia lutea* *Saussurea caprifolia* *Saxifraga albertii* *Saxifraga pulvinaria* *Seseli sclerophyllum* *Tragacantha alexeenkoana* *Tulipa anisophlla* *Tulipa lehmanniana* *Tulipa linifolia* *Vassilczenkoa sogdiana* *Zygophyllum darvasicum*	(water) redstart *Myophonus caeruleus turkestanicus* – Blue bird **Mammals** *Ursus arctos isabellinus*– Tien Shan brown bear *Mustela altaica sacana* – Alpine weasel *Lutra lutra* – Otter *Lynx lynx isabellina* – Turkestan lynx *Panthera (Unicia) uncia* – Snow leopard *Ovis ammon polii* – Pamir Marco Polo argali sheep
COMMON SPECIES **Nival – 4800m+** *Melandrium apetalium* *Ctrastium ctrastoides* *Tanacetum xhyllorhisum* *Sibalidia tetranda* **Alpine-4200-4800m** *Tanacetium xyllorhisum* *Oxytropis immerse* *O. poncinsii* *Smelovskia calicina*	**COMMON SPECIES** **Fish** *Schizopygopsis stoliczkai* – false osman *Schizotorax intermedius* – marinka *Nemachilus stoliczkai lacusnigri* – Karakul loach (endemic) **Amphibians** *Bufo viridis* complex – green toad (species group) *Rana ridibunda* – sea frog **Reptiles** *Agrionemus horsfieldi* – Central Asian tortoise

Eurotia ceratoides *Artemesia skornjakovii* *Tanacetium xyllorhisum* **Sub-alpine – 4100-4200m** Eurotia and Stipa desert steppe *Ceratoides paposa* – teresken, gray eurotia *Artemesia rhodantha* – sagebrush *Ajania tibetica* *Acantholimon diapensioides* *Oxytropis immerse* *Subbaldia tetranda* *Festuca sulcata* *Stipa glareosa* *S. oritntalis* *Christolea crassifolia* **Sub-alpine meadows** *Carex melanantha* *C. pseudo-foetida* *C. orbicularis* *Kobresia capilliformis* *K. stenocarpa* *Artemesia rutfolia* *A. santolinifolia* *Waldheimia rutifolia* *Saussurea glacialis* *Macrotomia euchroma* *Medisarum cephalotes* *Acantholimon pamiricum*	*Laudakia himalayana* – Himalayan agama *Ablepharus brandti* – Asiatic snake-eyed skink *Natrix tesselata* – water snake *Hemorrhois ravergieri* – spotted whip snake *Agkistrodon halys* – halys viper **Birds** *Charadrius mongolus pamirensis* (endemic)– Pamir plover *Oenanthe xanthoprymna chrysopygia* (endemic) *Montifringilla nivalis alpicola* (endemic) - Alpine snow finch *Carduelis flavirostris pamirensis* (endemic) - Pamir twite *Leucosticte brandti pamirensis* (endemic) - Pamir Brandt's rosefinch *Phalocrocoracs carbo sinensis* – Great cormorant *Ardea cinerea cinerea* – Common heron *Eulabea indica* – Bar-headed goose *Mergus merganser orientalis* – Himalayan merganser *Aythya ferina* – Pochard *Anas querquedula* – Garganey teal *A. platyrhynchos* – Mallard *Tadorna ferruginea* – ruddy shelduck *Falco cherrug milvipes* - Saker falcon *F. tinnunculus* - kestrel *Milvus korschun korschun* –Black kite *Neophron percnopterus percnopterus* – Egyptian vulture *Gypaetus barbatus hemachalanus* - Bearded vulture *Aquila chrysaetus daphanea* – Golden eagle *Gyps fulvus himalayensis* – Griffon vulture *Circus cyaneus cyaneus* – Hen harrier *C. aeruginosus aeruginosus* – Marsh harrier *Alectoris kekelik palescens* – Keklik *Tetraogallus himalayensis himalayensis* – Snowcock *T. tibetanus tibetanus* – Tibetan snowcock *Fulica atra atra* - Coot

	Gallinula chloropus chloropus – Gallinule *Charadrius dibius curonicus* – Little ringed plover *Ibidorhyncha struthersi* – Ibis bill *Tringa hypoleucos* – Fiddler *Capella gallinago gallinago* – Spine *Sterna hirundo tibetana* – Tibetan scray *Syrrhaptes tibetanus* – Tibetan or Pallas' sand grouse *Larus ichthyaetys* – Great black-headed gull *L. brunnicephalus* – Brown-headed gull *Columba rupestris turcetanica* – Blue hill pigeon *Athene noctua bactriana* – Little owl *Otus cops pulchellus* – Scops owl *Bubo bubo auspicoblis* – Eagle owl *Caprimulgus europaeus sarudnyi* – Nighthawk *Alcedo atthis atthis* – Halcyon *Upupa epops epops* – Hoopoe *Apus apus pekinensis* – Black swift *Calandrella acutirostris acutirostris* – Western slender-billed lark *Eremophila alpestris albigula* – Horned lark *Hirundo rustica rustica* – Common swallow *Delichon urbica meridionalis* – House martin *Riparia rupestris rupestris* – Crag martin *Oriolis orilois kundoo* – Indian oriole *Corvus corax tibetanus* – Tibetan raven *C. corone orientalis* – Eastern carrion-crow *Pica pica hemileucoptera* – Magpie *Pyrrhocorax pyrrhocorax brachypus* – Central Asian chough *P. graculus forsythi* – Central Asian alpine chough *Sitta tephronota* – Rock nuthatch *Tichodroma muraria* – Wall creeper *Cinclus cinclus leucogaster* – White-bellied dipper *C. pallassi tenuirostris* – Brown dipper

	Troglodytes troglodytes tianschanicus – Tien-Shan wren *Phylloscopus trochiloides viridanus* – Greenish warbler *Sylvia nisoria merzbacheri* – Barred warbler *S. communis rubicola* - Whitethroat *T. ruficollis atrogularis* – Black-throated thrush *Monticola saxatilis turkestancius* – Rock thrush *Myophonus caeruleus turkestanicus* – Turkestan whistling thrush *Oenanthe oenanthe oenanthe* – Common wheatear *O. xanthoprymna chrysopygia* – Red-tailed wheater *O. deserti oerophila* – Mountain desert wheatear *Saxicola torquata maura* – Blackcap *Phoenicurus ochruros phoenicuroides* – Turkestan black redstart *P. rythrogaster grandis* - Central-Asian Guldenstadt's redstart *Chaimarrornis leucocephala* – Whitecapped redstart *Lesvecica tianschanica* – Bluethroat *Microcichla scouleri scouleri* – Whitefoot *Prunella collaris rufilata* – Alpine accentor *P. himalayana* – Himalayan accentor *P. fulvescens fulvescens* – Tien Shan brown accentor *M. citreola verae* – Western yellow-headed wagtail *M. cinerea caspica* – Gray wagtail *M. alba personata* – Turkestan white wagtail *Lanius schach erythronotus* – Rufousbacked shrike *L. cristatus phoenicuroides* – Turkestan red-tailed shrike *Passer domesticus griseogularis* – Spadger *P. montanus pallidus* – Turkestan tree sparrow *Carduelis flavirostris pamirensis* – Pamir twite *Bucanetes mongolicus* – Mongol trumpeter bullfinch *Rhodopechys sanguinea sanguinea* – Asian red-winged rose-finch *Erythrina rubicilla diabolica* – Great rosefinch *E. erythrina kubanensis* – Scarlet finch *Fringilla coelebs coelabs* – Chaffinch

	Leucosticte nemoricola altaica – Hodgson's rosy finch *Emberiza bruniceps* – Red-headed bunting *E. leucocephala leucocephala* – Pine bunting *E. buchanani* – Gray-necked bunting **Mammals** *Microtus juldaschi* – Pamir field vole (endemic) *Cricetulus migratorius* – Migratory field vole *Marmota caulata* – Red marmot *Lepus tolai pamirensis* – Tolai hare (endemic) *Ochotona macrotis* – Piping hare *Alticola argentata* - Silver field vole *Lynx lynx isabellina* – Turkestan lynx *Panthera(Uncia) uncia* – Snow leopard *Mustela alticola* – Alpine weasel *Mustella nivalis pallida* – Least weasel *Martes foina intermedia* – Stone marten *Canus lupus laniges* – Wolf *Vulpes vulpes ferganensis* - Fox *Lutra lutra* – Otter *Ursus arctos isabellinus* – Tien Shan Brown bear *Capra sibirica sakeen* – Central-Asian ibex *Ovis ammon polii* - Pamir argali (endemic)

Table of TNP Mammalia with Russian names

№	Russian name	Latin name	English name
Artiodactula			
1.	Памирский архар	*Ovis ammon polii*	Marco Polo sheep
2.	Сибирский козерог	*Capra sibirica*	Ibex
3.	Кабан	*Sus scrofa*	Wild boar

		Carnivora	
4.	Снежный барс	*Panthera uncia*	Snow leopard
5.	Туркестанская рысь	*Lynx lynx*	Lynx
6.	Бурый медведь	*Ursus arctos*	Brown bear
7.	Волк	*Canis lupus*	Wolf
8.	Лисица	*Vulpes vulpes*	Fox
9.	Солонгой	*Mustela altaica*	Mountain weasel
10.	Ласка	*Mustela nivalis*	
11.	Горностай	*Mustela erminea*	Stoat
12.	Каменная куница	*Martes foina*	
13.	Барсук	*Meles meles*	Badger
14.	Среднеазиатская выдра	*Lutra lutra*	
		Lagomorpha	
15.	Большеухая пищуха	*Ochotona roylei*	Royle's pika
16.	Красная пищуха	*Ochotona rutila*	
17.	Заяц-толай	*Lepus tolai*	Tolai hare
		Rodentia	
18.	Красный сурок	*Marmota caudate*	Long-tailed marmot
19.	Лесная соня	*Dryomys nitedula*	
20.	Туркестанская крыса	*Rattus turkestanicus*	Turkestan rat
21.	Домовая мышь	*Mus musculus*	House mouse
22.	Лесная мышь	*Apodemus sylvaticus*	Forest mouse
23.	Серый хомячок	*Cricetellus migratorius*	Grey hamster
24.	Серебристая полевка	*Alticola argentata*	Royle's mountain vole
25.	Памирская полевка	*Microtus juldaschi*	Pamir vole
26.	Арчовая полевка	*Microtus carruthersi*	Junipers vole
27.	Восточная слепушонка	*Ellobius tancrei*	
		Chiroptera	
28.	Нетопырь карлик	*Pipistrellus pipistrellus*	
29.	Кожановидный нетопырь	*Vespertilio savii*	
30.	Усатая ночница	*Myotis mystacinus*	
		Insectivora	
31.	Бухарская бурозубка	*Sorex buchariensis*	
32.	Белохвостая белозубка	*Crocidura perigresea*	

Table of TNP Reptilia with Russian names

1. Степная черепаха – *Agrionemus horsfieldi*
2. Гималайская агама – *Laudakia himalayana*
3. Азиатский гологлаз – *Ablepharus brandti*
4. Алайский гологлаз – *Ablepharus alaicus*
5. Водяной уж – *Natrix tesselata*
6. Разноцветный полоз – *Hemorrhois ravergieri*
7. Гюрза – *Vipera lebetina*
8. Щитомордник – *Agkistrodon halys*

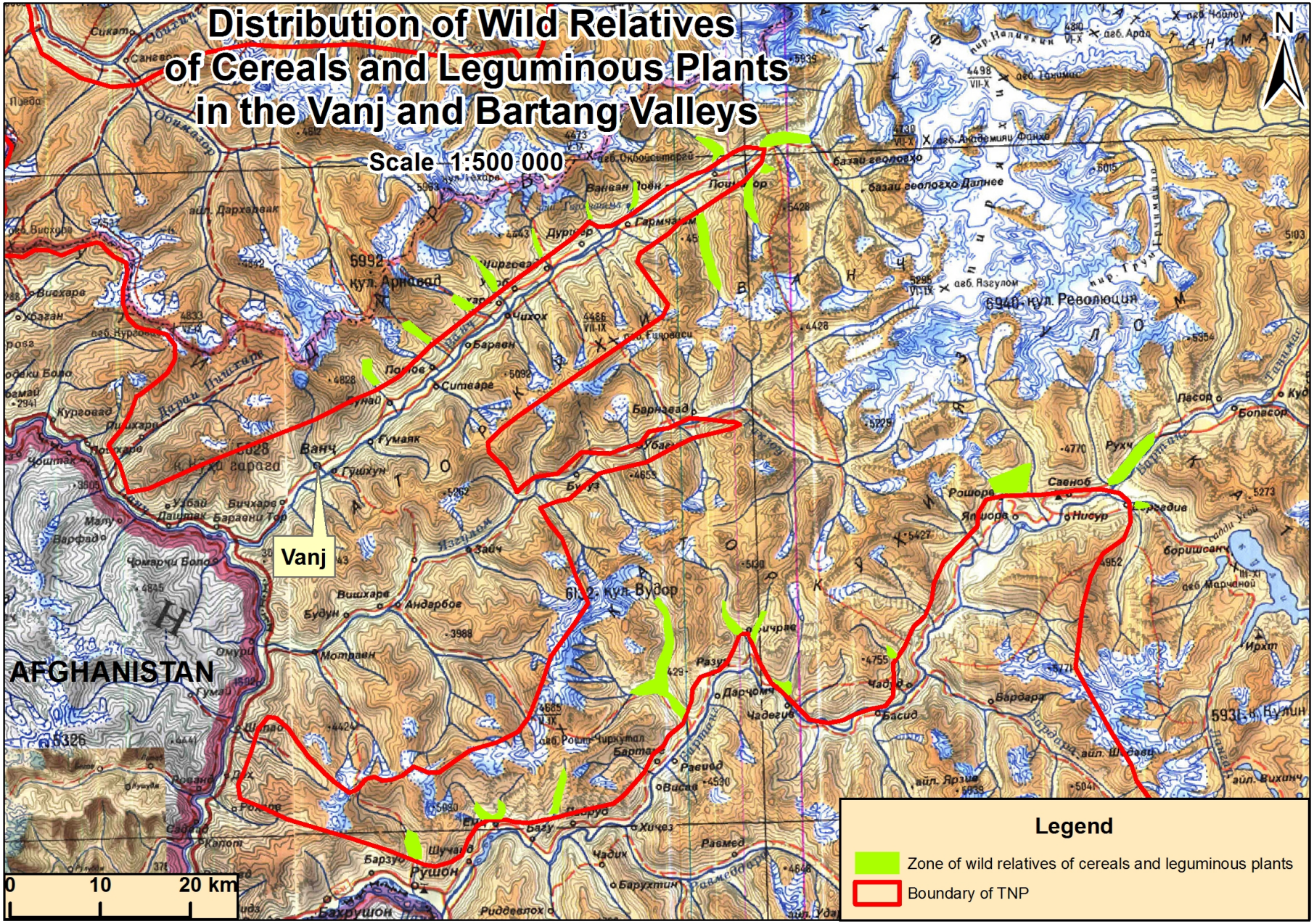
Table of TNP Amphibians with Russian names

1. Озерная лягушка – *Rana ridibunda*
2. Зеленая жаба – *Bufo viridis* complex

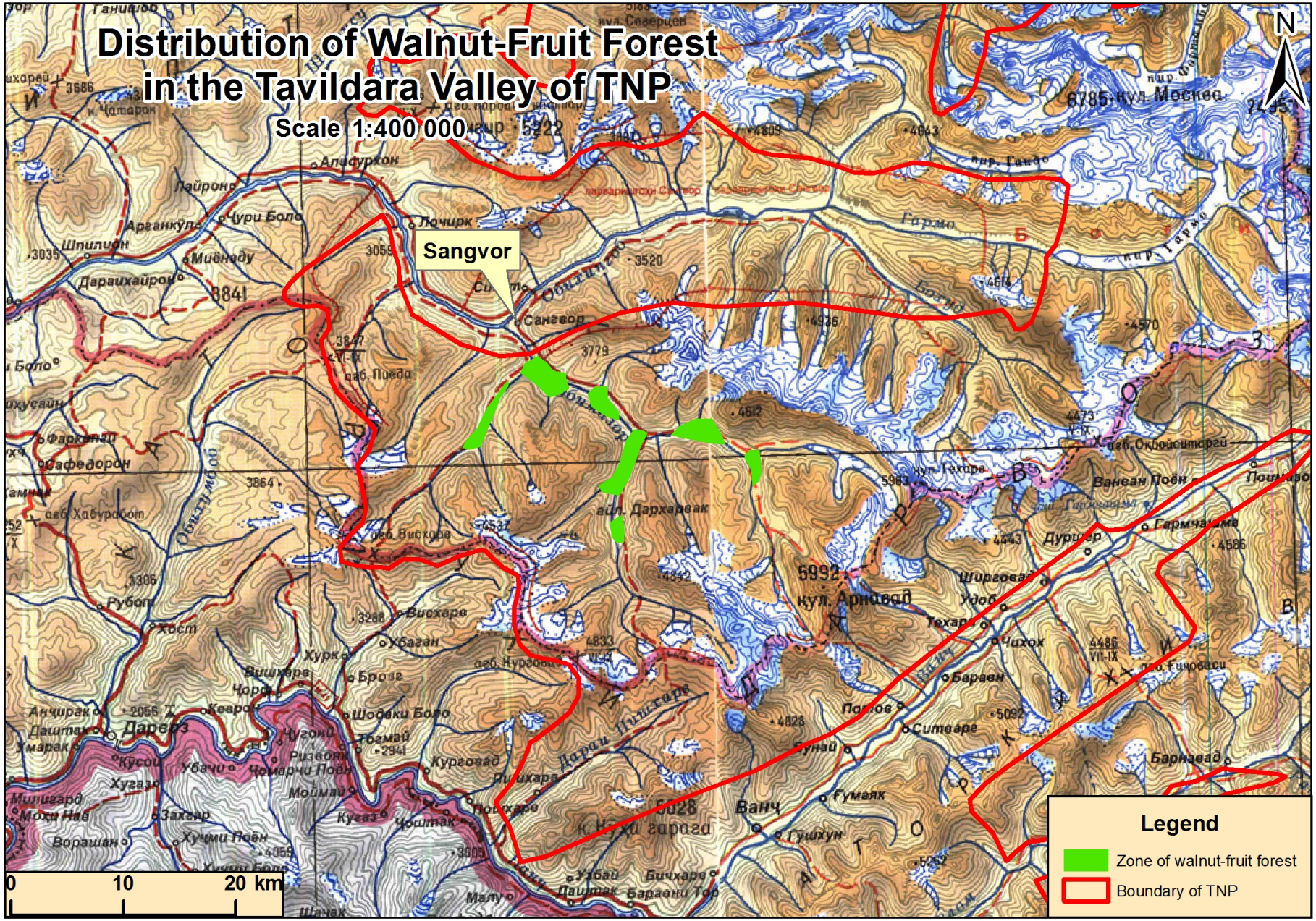
Table of TNP Fishes (Pisces) with Russian names

1. Обыкновенная маринка – *Schizothorax intermedius*
2. Лжеосман – *Schizopygopsis stoliczkai*
3. Каракульский голец – *Nemachilus stoliczkai lacusnigri*
4. Тибетский голец – *Nemachilus stoliczkai*
5. Иссыкульская форель – *Salmo ischan*
6. Амударьинская форель – *Salmo trutta*
7. Пелядь - *Coregonus peled*

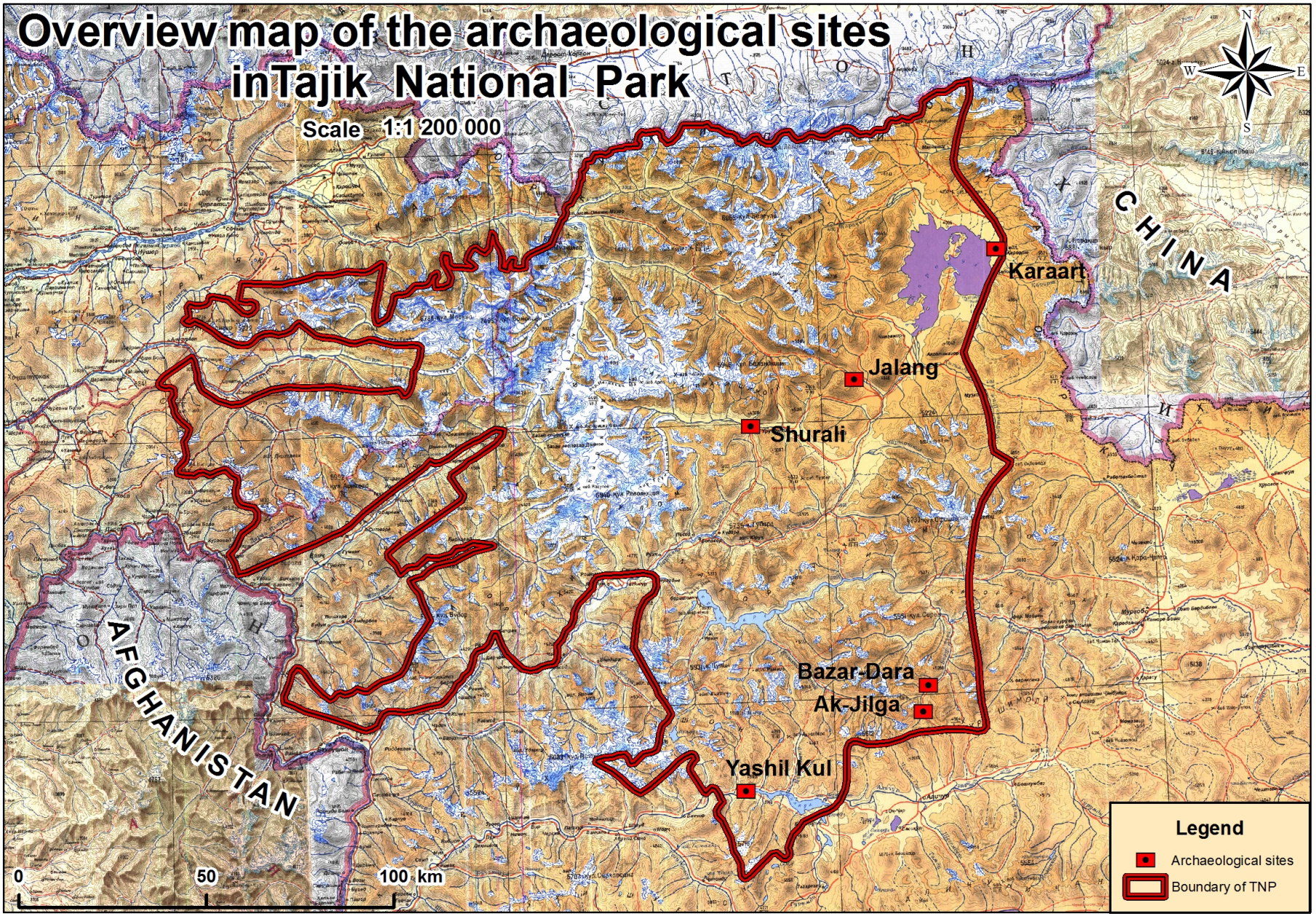
ANNEX 6. Distribution of Wild Relatives of Cereals and Leguminous Plants in the Vanj and Bartang Valleys.



ANNEX 7. Distribution of Walnut-Fruit Forest in the Tavildara Valley of TNP.

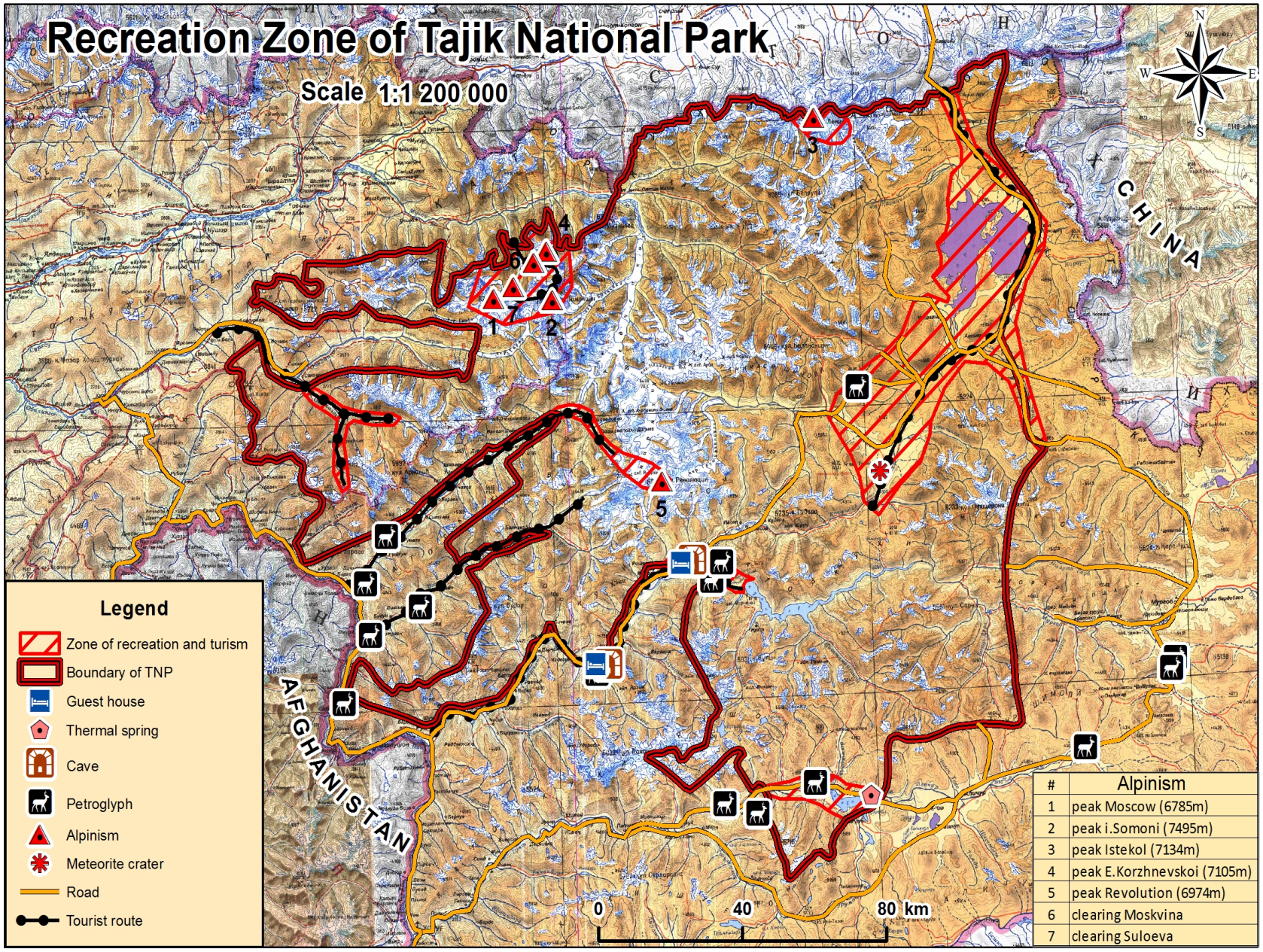


ANNEX 8. Overview map of the archaeological site in TNP.



ANNEX 9. Ranger Posts in TNP Areas.

ANNEX 10. Recreation Zone of TNP.



ANNEX 11.

Considerations on Possible Trophy Hunting in the Economic Use Zone of Tajik National Park

By

Dr. Hartmut Jungius

Trophy hunting of endangered species is considered as a controversial issue by the conservation community and should only be taken into account when all other options have been explored.

WWF states: *"This is particularly the case in areas where alternative sources of income or land use practices are unlikely to bring in much needed funds for people or wildlife, or create sufficient incentives for conservation"* and "*where it is scientifically based and properly managed"* trophy hunting "*has proven to be an effective conservation and management method"*

IUCN, Resolution 3.094 at the World Conservation Congress (Bangkok 2004) aims into the same direction by stating "*that well-managed recreational hunting has a role to play in the managed sustainable consumptive use of wildlife populations*

IUCN Caprinae Specialist Group is more specific and recognizes that *"under appropriate management conditions, trophy hunting can be a valid component of many conservation programs for Caprinae and their habitats"* that satisfy the following criteria: A science based-harvest and a conservation oriented use of the funds generated by trophy hunting. Hunting for purely economic goals is not supported

There is good evidence, from several countries in Africa, Asia and in Russia that scientifically based and well managed trophy hunting can be an effective conservation management tool, which produces significant revenues for nature conservation, supporting protected areas and local communities, in addition to help reduce poaching on the target species and other wildlife.

An essential aspect of trophy hunting in general and in protected areas in particular has to be that it produces not only benefits for the conservation of the species or its habitat but also for nature conservation/protected area management and for local communities. A significant proportion of revenue generated should be reinvested into conservation programmes.

Possible Trophy Hunting in the economic use zone of Tajik NP should be based on the above criteria with particular focus on:

1. Science based harvest and habitat management plans have to be established for ibex and Marco Polo sheep. Harvest of trophy males must be limited; a certain number of mature males must be allowed to die naturally. Excessive hunting of trophy males may lead to selection of small horns, or alter the life-history strategy of Caprinae males (IUCN Caprinae Specialist Group).
2. An adequate legal framework to regulate all aspects of the trophy hunting programme should be in place (e.g. quota, trophy standards, national legislation, professional guide and hunter standards).
3. Most of the range of Ibex and Marco Polo sheep are fully protected and serve as refuge for species affected by hunting.
4. A science based monitoring programme.
5. Funds generated by trophy hunting are used for conservation. A substantial part of the revenues should be spent on habitat management and protection, population monitoring, education, research and support for local communities).

Unacceptable is:

1. Hunting for purely economic reasons, where revenues go into government funds or to the international outfitters
2. Lack of benefits to local communities
3. Predator control
4. Artificial feeding
5. Selective hunting with the goal to affecting horn morphology
6. Overharvest

Background Information:

- WWF (2007); 3 case studies: WWF Projects with a trophy hunting component
- WWF (2010); Using trophy hunting as an effective conservation tool
- Ute Grimm (2008) CITES Scientific Authority; Trophy hunting for endangered species.
- IUCN, Resolution 3.094 at the World Conservation Congress (Bangkok 2004).
- IUCN Caprinea Specialist Group (2008) http://pages.uherbrooke.ca/mfesta/iucnwork.htm