

The Sarychat-Ertash State Reserve

Management Plan 2007 - 2015



Draft Plan produced Jan 2008 for consultation





1. Introduction

1.1 The Management Plan Process and Structure

The Management Plan is a written summary of the policies and actions that govern how the Sarychat Ertash Zapovednik (referred to as the Reserve from here on) will be managed from 2007 to 2015. The contents of the Plan have been developed with the participation of a wide variety of stakeholders, including local inhabitants, local and national Government and a range of organisations, experts and institutions which have experience of the site or of the management plan process. It is therefore a Plan which has been made through the *participation* of all those who might affect or be affected by the Reserve.

The Plan is intended to be a public document. It should be available for public inspection and comment, and all actions of the Reserve management henceforth will be framed by the agreed Plan.

The plan is structured so that it flows from background information, to a Goal which summarises what the Reserve intends to achieve in the next 20 years, through to a discussion of issues structured around a series of main themes, then to the determination of the objectives which if fulfilled will achieve the goal, and then a determination of the actions needed to implement the objectives. The actions are prioritised and costed, and the document is completed with a Monitoring Plan which allows progress with implementation to be charted and assessed.

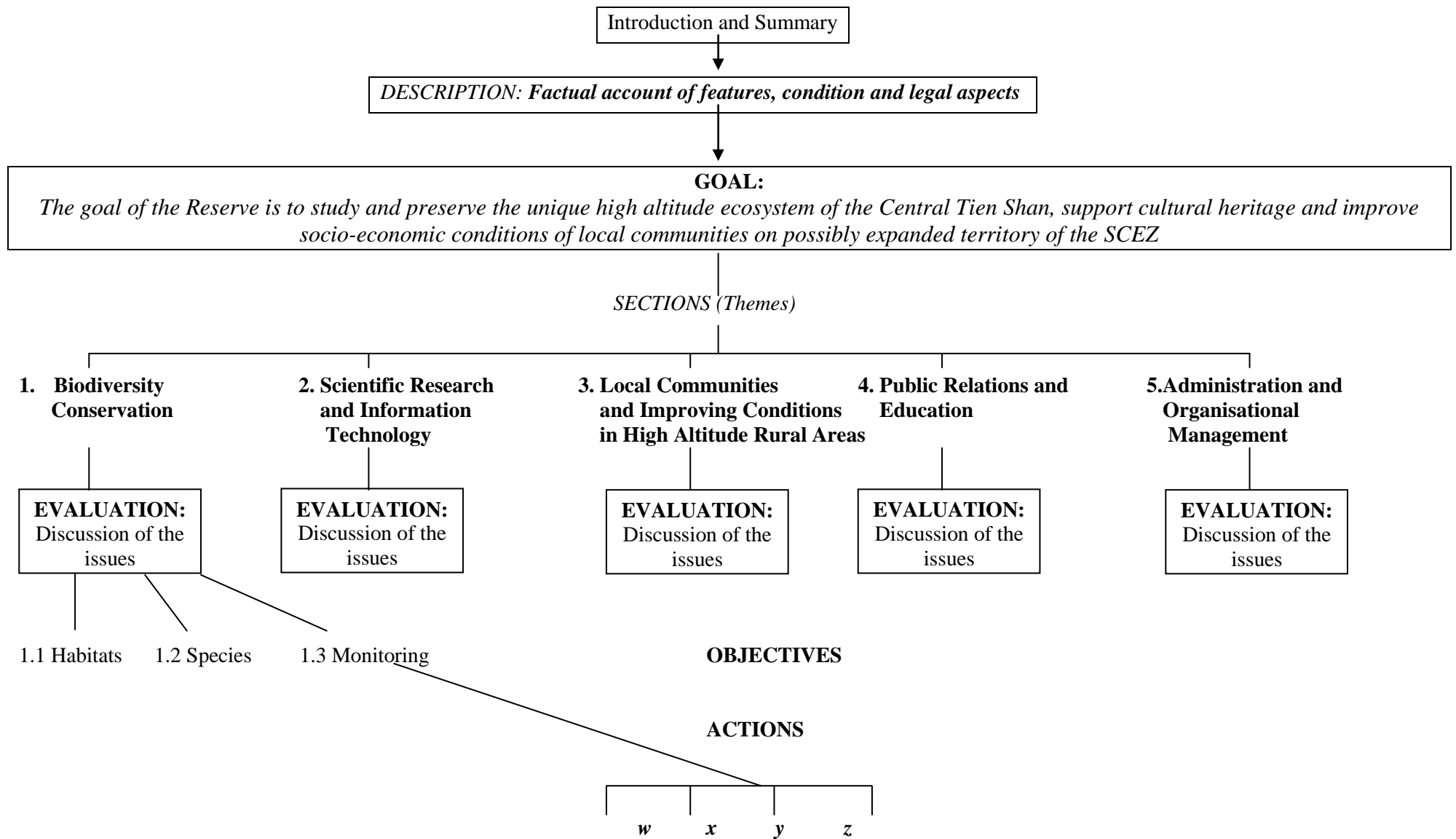
The overall structure of the Plan is summarized in Figure 1.

Five themes have been selected for the Plan. These themes reflect the main areas of activity in setting objectives and delivering actions. They are:

- 1 Biodiversity Conservation
- 2 Scientific Research and Information Technology
- 3 Local Communities and Improving Conditions in High Altitude Rural Areas
- 4 Public Relations and Education
- 5 Administration and Organisational Management

Note that while the themes are considered separately and presented as individual chapters, the Management Plan team has ensured that actions which cut-across themes are fully addressed. A process of cross-theme auditing has also ensured that an Action in one theme does not act in opposition to objectives and actions in other themes.

Figure 1: Management Plan Structure



1.2 The Sarychat-Ertash State Reserve

The Sarychat-Ertash State Reserve is a regional nature conservation scientific research institution organized in accordance with the Decree of the Government of the Kyrgyz Republic № 76 of March 10, 1995. The Reserve is an independent unit of the Ministry of Ecology and Emergency and belongs to the category of specially protected nature territories of the Kyrgyz Republic.

The territory of the Reserve constitutes a 72,080 hectare core zone and a 62,060 hectare buffer zone. The entire territory is secured for scientific research and nature conservation purposes. Economic use of the area is prohibited.

The Reserve has its own security, scientific and administrative/technical personnel and is headed by a director. The activities of the Reserve are financed out of the state budget, national and local funds for nature conservation, and other sources.

The Reserve's organizational structure and staffing, annual budget, work plans for scientific research and ecological educational activities, guarding and reproduction operations and logistical support are approved by the minister.

A number of scientific technical councils (STCs) consisting of the Reserve director, deputy director (for scientific work), scientific staff, security staff, as well as specialists of other research and higher education institutions, function at the Reserve. Composition of the STCs and their provisions are approved by the ministry.

1.3 The Main Goals and Objectives of the Reserve

The Reserve is organized with the aim of:

- Conserving, in their natural condition, all natural complexes (flora and fauna, geological formations, reservoirs, subterranean waters, soils, etc.), typical for this geographic zone / area, as well as any unique natural objects;
- protecting rare animals and plants, conserving the gene pool of species endemic to this geographic zone or area;
- conserving and studying natural processes and understanding their dynamics with territories outside the Reserve used for economic purposes;
- conserving valuable species of wild animals and plants, their propagation and reproduction.

The Reserve is entrusted with the performance of the following main objectives:

- maintenance of the established order on the territory of the Reserve;
- realization of scientific research, assistance in implementation of scientific research by other research organizations and educational institutions;
- assistance in training of scientific staff and specialists using the Reserve;
- raising awareness of issues related to the state of environment and conservation of biodiversity through the publication of scientific papers and articles, as well as the organization of Nature Museums.

1.4 The Main Legal Acts relating to the Reserve in the Area of Biodiversity Conservation

There are some 22 national laws relating to the Reserve and its management:

- Law of the Kyrgyz Republic № 53 of June 16, 1999, “On Protection of Environment”
- Law of the Kyrgyz Republic № 1561-XII of May 28, 1994 “On Specially Protected Natural Territories”
- Law of the Kyrgyz Republic № 51 of June 12, 1999, “On Protection of Ambient Air”
- Law of the Kyrgyz Republic № 54 of June 16, 1999, “On Ecological Expertise”
- Law of the Kyrgyz Republic № 26 of June 27, 1996, “On Quarantine of Plants”
- Law of the Kyrgyz Republic № 48 of June 9, 1999, “On Biosphere Territories in the Kyrgyz Republic”
- Law of the Kyrgyz Republic of June 20, 2001, “On Protection and Use of Flora”
- Law of the Kyrgyz Republic № 59 of June 17, 1999, “On Fauna”
- Law of the Kyrgyz Republic № 1422-XII of January 14, 1994 “On Water”
- Land Code of the Kyrgyz Republic № 45 of June 2, 1999
- Forest Code of the Kyrgyz Republic № 66 of July 8, 1999
- Order of the Ministry of Environmental Protection of the Kyrgyz Republic № 90 of October 15, 1998 “On Approval of Coefficient of Indexation of Rates and Taxes for Use of Natural Resources in the Kyrgyz Republic”
- Instruction on the order of realization of evaluation of impact of planned activity on the environment (OBOC) in the Kyrgyz Republic (approved by the Ministry of Environmental Protection of the Kyrgyz Republic on June 27, 1997)
- Instruction on determining the fee for emissions (from stationary sources), discharge of contaminants and disposal of waste in the environment (approved by the Resolution № 4 of the Board of the Ministry of Environmental Protection of the Kyrgyz Republic of September 17, 1999).
- Instruction on the order of requisition, registration, storing and handing over objects, which served as instrument of crime or direct object of violation of regulations of use and protection of fauna and flora (approved by the Order № 76 of the State Committee on Nature of the Kyrgyz Republic of November 16, 1995)
- Regulation on protection and use of fish resources and water organisms in the Kyrgyz Republic (approved by the Resolution № 8 of the Board of the State Committee on Nature of the Kyrgyz Republic of August 4, 1994)
- Regulation on protection of subterranean waters (approved by the State Committee on Nature of the Kyrgyz Republic on November 4, 1994)
- Regulation on the state control of environmental protection, rational use of natural resources and provision of ecological security of the Kyrgyz Republic (approved by the Decree № 295 of the Government of the Kyrgyz Republic of May 25, 2000)
- Regulation on the Chronicles of the nature of the Reserve
- Regulation on the STC of the Reserve
- The National Strategy and Action Plan on Conservation of Biological and Landscape Diversity of the Kyrgyz Republic”
- Regulation on the Biosphere Territory “Ysyk-Kel”

1.5 Process of Management Plan Development

This management plan was compiled over a 20-month period to May 2007 by the staff of the Reserve with the help of Bashat's (CBF) staff. Technical input was provided a number of national specialists, Fauna & Flora International and the International Snow Leopard Trust. The management planning process was facilitated by Fauna & Flora International.

1.6 Procedures for Modifying the Management Plan

The Reserve's Management Plan should be flexible enough to accommodate changes in the scientific data available and in the behaviour or impacts of stakeholders. It is therefore not a fixed document, but a statement of proposals based on the conditions that existed at the time of writing. The main purpose, goal and objectives of the protected area (as written in the plan) are unlikely to change during the plan period and should continue to provide the purpose and a sense of direction for the Reserve for the next 10 to 20 years.

Any changes in the Reserves 'condition' should be accommodated through revisions to the table of Actions. The inclusion of new or amended actions will allow the Reserve staff to be flexible – to respond to changes – whilst retaining the overall purpose for which the Reserve was created.

To this end, the actions detailed in the action plan table should be reviewed annually by the Reserve staff. At each review, any changes in Reserve 'condition' should be considered and minor amendments and the re-prioritisation of actions undertaken to ensure that planned actions address management needs.

The full management plan should be comprehensively reviewed every five years, including a re-analysis of the main issues (as presented in the introductions to each theme). Any significant new data should be included in the plan. At this time, the prescribed actions may need to be partially or completely re-written.



A new section in the Monitoring chapter should assess the degree to which the management plan has been implemented, what has worked and what has not, and any other lessons learned. The results of this assessment will inform any revisions that need to be made to the plan in the future.

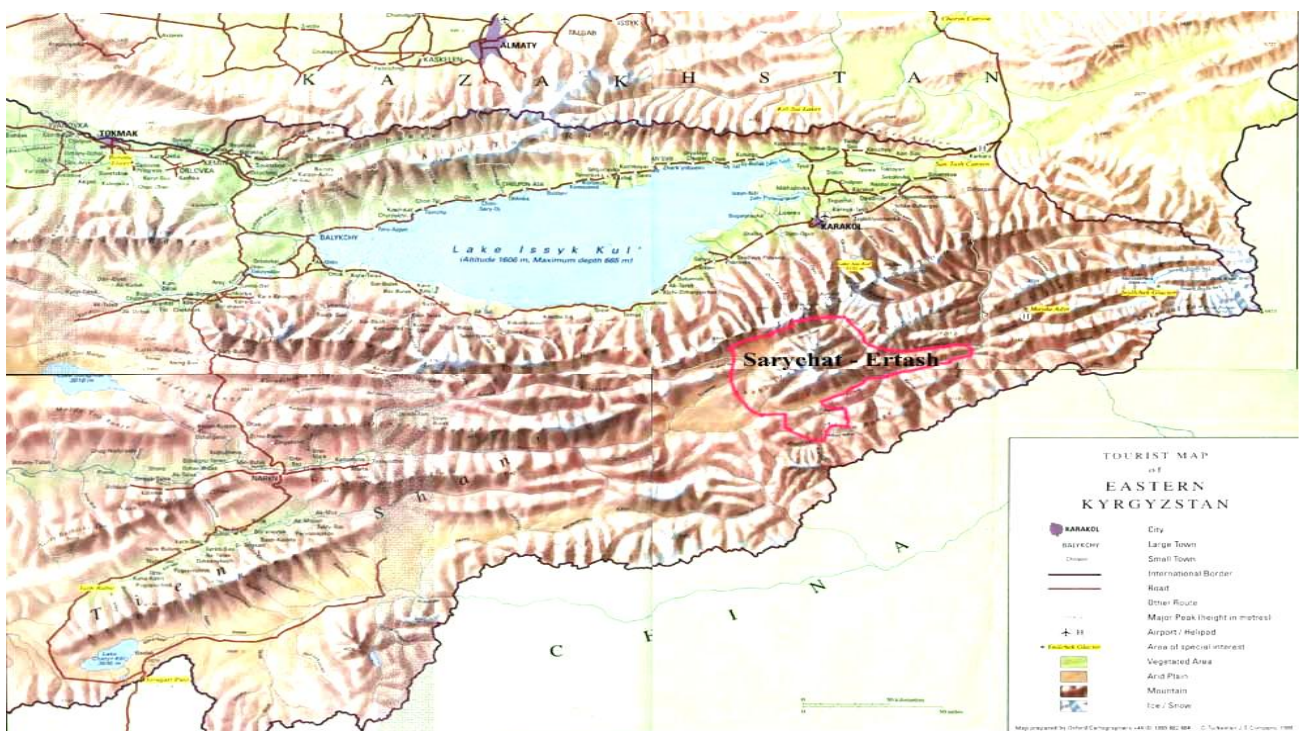
Unless there has been a made change to the status/designation of the Reserve, the Goal should only be reviewed every 20-years and the objectives every 10-years.

1.7 Description

Administration

The Reserve was established by decree of the Government of the Kyrgyz Republic № 76 of March 10, 1995. In creating the Reserve, a regime of a specially protected natural area (SPNA) was established on this territory. This requires the full discontinuance of economic activity on the territory (including cattle grazing, construction of buildings, roads, etc.).

The Reserve is situated at the meeting-point of the Inner and Central Tian-Shan in the valley (tributary of the Sary-Jaz River) and constitutes an area typical of the high altitude pasture (syrt) zone. The total territory of the Reserve is 135,400 hectares, of which 72,080 hectares are assigned as core zone and 62,060 hectares as buffer zone. The Reserve is situated between the altitudes of 2000 to 5500 meters above sea level. This territory is characterized by vertical zoning.



The northern border of the core zone starts at the Terskei Ala-Too mountain range, 1km eastward of the Jukuchak pass (4,049 m above sea level), in the area of the upper reaches of the Sary-Chat River, and runs through the Terskei Ala-Too eastward until the administrative border with Ak-Suu Rayon.

The eastern border runs through the administrative border dividing Jety-Oguz and Ak-Suu Rayons from the Terskei Ala-Too mountain range in the south-eastern direction along the watershed range of the Ertash and Koiluu Rivers, further turns in the south-western direction along an unnamed mountain range (4303 m above sea level) and descends to the Ertash River Valley in the area of its left tributary the Kurgak-Tepchi River.

The southern border runs from the mouth of the Kurgak-Tepchi River up-stream as far as the source of the river and then turns to the west, across the Petrov glacier (3983 m above sea level) and runs along the watershed in the same direction as far as the source of the Sarychat River.

The western border runs in the north-western direction along the watershed of the Sarychat and Arabel Rivers (3614 m above sea level) and comes out at the starting point.

Relief

The relief constitutes intermontane depression of oblong valleys surrounded by high mountains on all sides. The surface of tracts is slightly hilly with occasional flat valleys. Denudation plateaus constituting the southern slope of the Teskei mountain range descend gently to the surface of remote pasture (syrt) plains. The angle of slope of denudation surfaces is 7-10° on average. The upper part of the valley is filled with modern finite moraine buildups of the Kolpakovsky glacier. Westward, it is partitioned off by the wide zone of disordered moraine hilly relief presenting alteration of hills and ridges with decrease, quite often secluded and occupied by moraine lakelets, located crosswise to the left bank of the Sary-Chat River below the Kolpakovsky glacier. The modern finite moraine differs from hills by strong turfing. Numerous boulders covered with scale lichens are scattered on the entire surface of the described zone of moraine-hilly relief. The Sarychat River breaks through the ancient moraine on its left side. More or less large tributaries of the Sary-Chat River on the left side are the Boroko River, the western Bordu, the eastern Bordu, and the western Koiluu. On the right side can be found the Chon-Sarytor, the Oroi-Suu, the Aigyr-Bulak, the Jaman-Suu and the Eshek-Art rivers. There are also many small lakes which are evidence of the recent covering of the territory by water from glaciers.

The climate of the Reserve is very harsh and sharply continental. The average annual temperature equals 7.5° below zero. The average monthly temperature in January is -21,5° and in June + 4,2°. The annual comparative humidity is 52%, reaching 64% in January and dropping to 48% in July. Annual precipitation is 295 mm with 164 mm falling between June and August. The number of days per year with snow cover fluctuates between 200 and 210 days in the upper high-altitude zones.

Rivers

The Sary-Chat River is one of the main rivers of the Central Tian-Shan. It originates in the eastern third of the Terskei Ala-Too mountain range and is oriented from the south-west to the north-east. The river valley is framed by the Ak-Shyirak mountain range to the south and the Terskei Ala-Too mountain range to the north. After taking in the tributary Bordu-2, the river, now under the name of the Ertash, abruptly turns to the south-west and cuts a valley for itself between the eastern extremity of the Ak-Shyirak mountain range and the western extremity of the Koiluu mountain range. It then flows from the west to the east under the name of Uch-Kul and into the Sary-Jaz River. The left tributaries are: the Boroko, the Bordu, the eastern Bordu, the Koiluu, and on the right side, the Oroi-Suu, the Chomoi, the Jaman-Suu, and the Kurgak-Tepchi flow into it. The Koenduu River flowing into the Ak-Shyirak River is a large separate waterway on the southern side.

Geology

The newest geological structures of the Central Tian-Shan result from a history of tectonic movement, which is reflected in the development of modern physiographic complexes.

Rocks of very different genesis, age and composition – from pre-Cambrian crystalline slates to modern loose fragmental quaternary formations – are found on the territory of the Central Tian-Shan. The pivotal feature of the geological structure of the territory of the area concerned is that its northern outlying districts (to the north of the “Main Structural Line of the Tian-Shan”) are composed of predominantly pre-Cambrian and Lower Paleozoic sedimentary rocks notable for a significant degree of metamorphism, as well as volcanic rocks - granites and granites-diorites, whereas in the structure of the southern part of the Central Tian-Shan the main role is played by the Middle Paleozoic deposits, and the rocks of the pre-Cambrian and the Lower Paleozoic are almost

absent. The Neozoic continental deposits are developed mainly within the bounds of intermontane depressions.

Glaciers, Permanent Snow and Snowfields

The Ak-Shyirak and the Terskei Ala-Too mountain ranges represent large centers of glaciation of the region. They are characterized by various types of glacial formations.

The Terskei is characterized by flat peak and valley glaciers. One of the largest valley glaciers is the Kolpakovsky glacier, which, according to the latest data, is 10 km long and upto 1.1 km wide at its widest point. The glacier covers approximately 30.4 square km. The glacier nose (terminus) is situated at 3660 m. As with other glaciers in the Terskei the Kolpakovsky glacier is in retreat. Other glaciers situated at the upper reaches of the Boroko and the Bordu Rivers are smaller in size than the Kolpakovsky glacier.



In addition to valley glaciers, hanging glaciers and individual snowfields are peculiar to the Ak-Shyirak. The glaciers of the southern slope of the Terskei and the northern slope of the Ak-Shyirak give rise to many rivers, which collectively create one of the tributaries of the Sary-Jaz River – the Sary-Chat River.

Landscape

Elevation, seclusion, variation in heights and relief and climatic peculiarities have created a diversity of elementary landscapes in the Sary-Chat River basin. Relief is the key factor determining the borders of the various landscape types with five key high altitude zones being distinguishable, including more than 30 elementary landscapes.

The Reserve's High Altitude Pastures (Syrts) have a character reminiscent of the Arctic tundra. Here, one can come across a combination of high altitude polygonal, tundra, badland, and underdeveloped rocky soils. There are many peaty and meadow-marshy soils. Permafrost is observed at a shallow depth. High altitude tundra, polygonal, semi-peaty soils are weak and scanty. By their mechanical composition the soils are semi-loamy with a high concentration of rock fragments and detritus.



Flora

The vegetation of the Reserve has evolved under the influence of extreme factors - sharply continental, cold and dry climate, elevation, intensity of solar radiation, open wide flat areas dominated by wind with no snow cover in winter time. This has led to a prevalence of bushy and blanket cover type plants, with a dominance of high altitude, mono-dominant wormwood deserts and shallow *Festuca* steppes. So far, 118 species have been identified; this total is expected to increase significantly once baseline surveys have been carried out in all parts of the Reserve.

Grassland communities include *Artemisia (Artemisia rhodantha)* with herbs (*Ptilagrostis subsessiliflora*, *Festuca sulcata*, *Andrsace sericea*, *Oxytropys macrocarpa*, *Dracocephalum paulsena*). The formation of *Festuca kryloviana* with *Ptilagrostis purpurea* and *Ptilagrostis*

subsessiliflora, *Poa litvinova*, and *Kobresia humilis*. *Kobresia* communities consist of *Cobresia capilliformis*., *Saussurea leucophylla*, *Oxytropys macrocarpa*, *Carex stenocarpa*, and *Cobresia humilis*. The formation of *Dryadanthe tetrandra* forms cushions between which sedges, *Calamagrostis tianschanica*, *Saussurea leucophylla*, and others grow.

Vertical zones

The Reserve is situated mainly in the basin of one river - the Sarychat. For this reason it represents a good model of a high altitude ecosystem, which lies between altitudes of 2200m and 5000 m above sea level.

According to classical system, high altitude systems can be zoned into 5 vertical belts. Indeed, the Central Tien Shan range is characterized by 5 high altitude zones. However, the Reserve is characterized by 4 belts (see box 1), including more than 30 elementary vegetation communities. The sub-alpine zone is not represented.

Box 1: The four key vertical belts within the Reserve and associated

<p>1. Semi-Desert belt - (2300 – 3400 m)</p> <ul style="list-style-type: none"> • Wormwood deserts with <i>Artemisia rhodantha</i> • Wormwood deserts with <i>Artemisia rutifolia</i> • Saussurea deserts with <i>Saussurea leucophylla</i> • Saltwort desert with <i>Salsola passerina</i> 	<p>2. Steppe belt - (2800 – 3900 m)</p> <ul style="list-style-type: none"> • Fescue steppes with <i>Festuca sulcata</i> • Fescue steppes with <i>Festuca kryloviana</i> • Feathergrass (<i>Ptilagrostis</i>) steppes with <i>Stipa subsessiliflora</i> • Feathergrass steppes with <i>Stipa caucasica</i> • Meadow oat grass steppes with <i>Arenochloa (Arenastrum) desertorum</i> • Wheatgrass steppes with <i>Elymus dasystachis</i> (?) • Barley steppes with <i>Hordeum turkestanicum</i>
<p>3. Alpine belt - (3100 – 4100 m)</p> <ul style="list-style-type: none"> • Fescue meadow-steppes with <i>Festuca tianschanica</i> • Feathergrass (<i>Ptilagrostis</i>) meadow-steppes with <i>Stipa (Ptilagrostis) mongolica</i> • <i>Kobresia</i> meadow-steppes with <i>Kobresia humilis</i> • Meadows: <ul style="list-style-type: none"> ○ <i>Kobresia</i> meadows with <i>Kobresia capilliformis</i> ○ Sedge meadows with <i>Carex melanocephala</i> ○ Bluegrass meadows with <i>Poa alpina</i> ○ Floodplain sedge meadows with different types of sedges – <i>Carex</i> spp. ○ Floodplain meadows with <i>Festuca orientalis</i> ○ Floodplain meadows with bush grass – <i>Calamagrostis epigeios</i> ○ Floodplain meadows with Batalin’s couchgrass – <i>Elytrigia batalinii</i> 	<p>4. Nival belt - (3750 - 5000 m)</p> <p>Rocks are inhabited mainly by cructose lichen. In places of accumulation of pit-run fines lithophilous mosses are found. Wetland communities are also found in all altitudinal zones and include:</p> <p><i>Marshes</i></p> <p>Moss bogs</p> <ul style="list-style-type: none"> ○ Sedge marshes with various types of sedges – <i>Carex</i> (<i>C. melanatha</i>, <i>C. pseudo-foetida</i>, <i>C. orbicularis</i> and others) <p><i>Subshrubs</i></p> <ul style="list-style-type: none"> ○ Brushwood of <i>Comarum salesovianum (Potentilla salesoviana)</i> ○ Brushwood of German tamarisk – <i>Myricaria alopecuroides</i> <p><i>Shrubs</i></p> <ul style="list-style-type: none"> ○ Flood-plain combined bushes with willows – (<i>Salix alatarica</i>, <i>S. caprea</i> and others, sea buckthorn – <i>Hippophae rhamnoides</i>) ○ Pea shrub with <i>Caragana jubata</i> <p>In the lower reaches of the Uch-Kul River birch forests are found along alluvial fans, floodplain terraces and temporary waterways.</p>

Fauna

From the zoogeographic point of view, the Reserve is part of the Palaearctic Realm and is included in the Southern-Palaearctic sub-area of the Mountainous Asian Province. It represents the Sary-Jaz sector of the high altitude zoogeographic district of the same name in the Central Tian-Shan region.

Mammals

25 species of mammals occur on the territory of the Reserve and the presence of 6 other species is possible (a total of 31 species). These belong to 5 orders, 11 families and 17 genera: Snow Leopard (*Uncia uncia*), Manul (*Felis manul*), Wolf (*Canis lupus*), Fox (*Vulpes vulpes*), Brown Bear (*Ursus arctos*), Stone Marten (*Martes foina*), Mountain Weasel (*Mustela altaica*), Weasel (*Mustela nivalis*), Ermine (*Mustela erminea*), Polecat (*Mustela eversmanni*), Ibex (*Capra ibex (sibirica)*), Argali (*Ovis ammon*), Grey Marmot (*Marmota baibacina*), Tian-Shan Vole (*Sicista tianschanica*), Grey Hamster (*Cricetulus migratorius*), Silver Field-vole (*Alticola argentatus (roylei)*), Kyrgyz Field-vole (*Microtus kirgisorum*), Narrow-headed Field-vole (*Microtus gregalis*), Hare (*Lepus capensis*), Royle's Pika (*Ochotona roylei*) and others.

Bats (Chiroptera) have not been studied, although at least 2 species have been observed.

Red Data Book species: Snow Leopard, Brown Bear, Manul, and Argali.

Fish

1. Tian-Shan Scaly Osman (*Diptychus gymnogaster* Kessler)
2. Tibetan Loach (*Nemachilus stoliczkai* Steindachner)

Amphibians and Reptiles

Only one species of amphibian, Green Toad (*Bufo viridis*) is found in the Reserve. On the border of the Reserve in the Jangart area where a small, unidentified species of lizard is found.

Invertebrates

Invertebrates in this area have not been studied, and are a priority for survey. Among the Red Data Book species, there are Swallowtail (*Papilio machaon*) and the Tian-Shan Apollo (*Parnassius tianshanicus*). Butterflies are widespread and some interesting high-altitude communities have been identified. Butterflies are a priority for survey and monitoring as they are excellent ecological and environmental indicators and many endemic species and subspecies have been identified in the mountains of Central Asia.

Molluscs are also potentially of great interest as Central Asia contains many restricted-range endemics.



Aquatic invertebrates are potentially of interest as indicators of water pollution (rivers, lakes) but they also have not been studied.

Birds

There are 84 species of birds recorded in the Reserve, including 31 resident species and around 55 breeding species. Raptors include Golden Eagle (*Aquila chrysaetos*), Bearded Vulture (*Gypaetus barbatus*), Himalayan Griffon (*Gyps himalayensis*), Eurasian Griffon (*Gyps fulvus*), Cinereous Vulture (*Aegypius monachus*) and Saker Falcon (*Falco cherrug*).

Galliforms include Himalayan Snowcock (*Tetraogallus himalayensis*), Chukar (*Alectoris chukar*) and Daurian partridge (*Perdix dauuricae*).

Ruddy Shelduck (*Tadorna ferruginea*) and Lesser Sand Plover (*Charadrius mongolus*) can also be found at mountain lakes.

Passerine birds include Red-billed Chough (*Pyrrhocorax pyrrhocorax*), Yellow-billed Chough (*Pyrrhocorax graculus*), Horned Lark (*Eremophila alpestris*), Brandt's Mountain Finch (*Leucosticte brandti*), Plain Mountain Finch (*Leucosticte nemoricola*), Wallcreeper (*Tichodroma muraria*) and other species.

There are 4 Red Data Book bird species: Golden Eagle (*Aquila chrysaetos*), Bearded Vulture (*Gypaetus barbatus*), Himalayan Vulture (*Gyps himalayensis*) and Saker Falcon (*Falco cherrug*).

Local Communities

The nearest town is Karakol located on the south shore of Lake Issyk-kul, some 300 km away from the Reserve's northern border. The Reserve's headquarters is located in Barskoon village, also on the south shore of Lake Issyk-kul and some 220km from the Reserve's northern border.



The nearest village is Ak-Shyirak situated some 18 km eastward of Koyenduu on the southern border of the Reserve. The village residents include a number of the Reserve's rangers and their families and a local population of approximately 30-40 people.

Engilchek village is located to the east of the Reserve along the Uch-Kul River (the place of confluence with the Sary-Jaz River). Engilchek is some 145km from Karakol town.

To the west, the border of the Reserve adjoins the territory of the Kumtor gold mine. The mine is located some 160 km from Karakol town and 80 km from the Reserve's headquarters.

Sacred Sites

Cultural sites

There are many burial sites on the territory of the Reserve. These consist of ruined mazars and graveyards from various historical periods and belonging to various ethnic groups. Tashtar-Ata, a place of local people's worship, is located in the buffer zone of the Reserve, some 12 km from Koenduu. Kalmyk burial grounds and historical kumbezts also attract the interest of visitors. A number of sites where Kyrgyz who revolted against the Tsar were shot are places of pilgrimage. Rock paintings such as the petroglyphs portraying animals and hunting scenes found at Saimaluu-Tash are known and visited by Kyrgyz.

Natural sites

The destructive-constructive actions of Mountain Rivers and moving glaciers create numerous glacial lakes such as Bash-Kel, Achy-Kel and Kyzyl and natural springs such as those at Eshek-Art, Koiluu, Koenduu and Uch-Kel all of which are worshiped and considered sacred.

The presence of a number of sacred places and mazars on the land adjacent the Reserve, and efforts to foster caring attitudes towards them, provides an opportunity for the Reserve to raise awareness and to conduct education activities amongst the local population and visitors.

Infrastructure: Buildings, Roads, Bridges, Power/telephone Lines and other Communications

There are 7 rangers' posts (5 former shepherds' houses and 2 cabins) on the territory of the Reserve. The road leading to the Reserve is an earth road leading from Barskoon village through the Barskoon gorge to the Suez pass (4000 m). The road then goes onto to Karasai and then to a mountain road leading to Ak-Shyirak.

Electricity, telephone line and communication means are absent on the territory of the Reserve and between the rangers' houses. A telephone is available in Ak-Shyirak and Enilchek villages. The Reserve team also has radios stationed at Ak-shirak and Barscoon and two mobile units operating between the two.

Tourism

No tourism is allowed in the Reserve. However, the Reserve's authorities believe that development of ecotourism in the buffer zone could bring benefits in the form of alternative source of income for the Reserve and the neighbouring local communities.

1.8 Evaluation of the State of the Reserve

The Reserve has a well motivated and capable staff. However, the lack of operational budget and limited resources and equipment limits effective activity. The lack of budget also results in the reserve being understaffed and provides no scope for improving the knowledge and skills of existing staff through training.

A project funded by the European Bank for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC) has improved staff skills, facilitated community outreach, made further resources available and produced a park management and biodiversity monitoring and anti-poaching strategies. However, further investment and support is required to implement these and to avoid further compromising field and anti-poaching activities, particularly at this time when pressures from hunting, tourism and mining are increasing. In addition, there is little scope for following up on recent community outreach activities and for improving awareness-raising, education and outreach activities.

Currently the reserve conducts limited survey and monitoring work focused on snow leopards and their prey species. There is a need for a comprehensive and thorough baseline survey of the reserve's habitats and biodiversity. At present, there is no data available on the distribution of certain species including entomological, herpetological composition and micromammalia. There is also a lack of information about species composition, migration routes and ecological corridors linked with adjacent territories. The Reserve suffers from insufficient financing, lack of resources and specialist qualifications to achieve this work.

Data on the distribution and number of species such as argali, ibex and snow leopard, and the ecological corridors these species use is available. The main ecosystems have also been identified. However, there is lack of data on the floristic composition within the main ecosystems and the high altitude ecosystem of the Central Tien Shan that lies within the territory of the Reserve has not been studied sufficiently. For this reason, the Reserve's Management Plan include research actions aimed at filling gaps in data and providing information necessary for the successful work of the Reserve in future.

To facilitate all of the above it would also be useful to develop a Park wide GIS mapping system.

Pressures on the reserve include the poaching of snow leopards, mountain ungulates and marmots. Unlawful hunting of mountain ungulates also allegedly occurs where hunting concessions overlap the reserve's southern buffer zone. These impacts are compounded by the ongoing practice of poisoning marmots as part of an anti-plague campaign. The reserve needs to maintain a high field presence to manage these issues. However, they lack the resources to do so.

Climate change is considered to be both a current and future threat to the reserve and it is imperative that a full baseline survey be conducted and a biodiversity monitoring strategy be put in place to allow the team to understand and monitor changes taking place, and to ensure the appropriate management of the reserve and its biodiversity. Other future threats include a possible loss of security on the Reserve's North-west flank once the Kumtor mine has closed. There are also concerns that future economic considerations will outweigh conservation priorities as Chinese mining companies are already reportedly exploring areas bordering the reserve.

2. The Goal of the Reserve

While developing the **Goal** questions regarding the use of terms such as **biodiversity, landscapes, ecosystem, complex of species**, were raised. This is because each document relating to the Reserve (e.g. national and international laws, the management plan, etc) uses each of these words in a different way.

To clarify in this management plan, the Goal refers to the word “**ecosystem**” because it has broader meaning than just “**biodiversity**”. Specifically, conducting experiments on all major directions and objectives? can provide specific examples of the state of the **ecosystem** as a whole because the Reserve is a scientific laboratory with its staff of researchers and rangers.

Goal: *The goal of the Reserve is to study and preserve the unique high altitude ecosystem of the Central Tien Shan, support cultural heritage and improve socio-economic conditions of local communities on possibly expanded territory of the SCEZ.*

3. Themes of the plan

The mountains of Central Asia contain a rich and diverse flora and fauna and the area have been recognized as one of the Global 200 Ecoregions by WWF, a centre of plant diversity by IUCN/WWF, and a biodiversity hotspot by Conservation International.

The choice of themes is conditioned by the Goal of the Reserve (see Provision on the Sarychat-Ertash State Reserve), the Status of the Reserve in the World Network of Bio-Reserves (UNESCO) and the National Strategy and Action Plan on Biological and Landscape Diversity Conservation of the Kyrgyz Republic. These highlight the international, national and regional importance of the Reserve territory and the great importance of the conservation of the area and its biodiversity.

Five themes have been selected for the Plan. These reflect the main areas of activity in setting objectives and delivering actions. They are:

- Biodiversity Conservation
- Scientific Research and Information Technology
- Local Communities and Improving Conditions in High Altitude Rural Areas
- Public Relations and Education
- Administration and Organisational Management

3.1 Biodiversity Conservation theme

Biodiversity conservation is the main theme within the management plan as it is the main focus of the Reserve's activities and provides the framework for all work conducted by the Reserve in the other 4 themes identified within this plan.

Biological Diversity

A number of the regionally and globally threatened species such as Snow Leopard *Uncia uncia*, argali *Ovis ammon* and Saker Falcon *Falco cherrug*, and; near-extinct species: Manul *Otocolobus manul*, Bearded Vulture *Gypaetus barbatus*, Himalayan Vulture *Gyps himalayensis*, Golden Eagle *Aquila chrysaetus*, Tian Shan Apollo *Parnassius tianshanicus*, Swallowtail *Papilio machaon*, *Falco* and Snowcocks – *Tetraogallus*, are found in the Reserve, emphasizing the necessity of actions to conserve the territory, its habitats and species. As the diversity of such groups as invertebrates, bats and rodents on the Reserve are unknown it is necessary to conduct preliminary (literature) taxonomic inventories and baseline surveys in the Reserve.

Threats to Biodiversity

The following threats are noted:

1. Poaching of snow leopard, argali, ibex, marmot and other animals.
2. Lack of resources for study and conservation of biodiversity.
3. Global climatic changes.
4. Mining explorations – anticipated threat in future.
5. Impact of the Kumtor Gold Mine.
6. Tourism – anticipated threat in future.
7. Overgrazing in the buffer zone and on the border with adjoining territories – anticipated threat in future.
8. Increase in the number of hunting agencies along the border with the Reserve.

Based on the requirements of conserving the territory, its habitat and species, and taking into account current and anticipated threats, the following objectives and activities have been identified:

Objective

Indicator of success

Objective 1.1: By 2010 conduct baseline survey of habitats and inventory of key species with the aim of obtaining necessary information, and implement management activities to conserve ecosystems.

Indicator: Completion of a baseline survey and management.

Subject Area 1: Survey of Habitats

The 4 vertical ecological belts with the Reserve are the main starting point for study of the whole ecosystem. All high altitude belts should be covered by surveys (transects, monitoring plots for plants and animals, track surveys, etc.) because only together they determine the character or appearance of the Reserve.

Activity 1: Identification and survey of the 4 zones of vertical zoning

Partner organizations: National Academy of Sciences of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, higher education institutions on nature conservation, Biosphere Reserve Territory "Issyk-Kul"

Priority Level – 1

Activity 2: Identification of vegetation communities

Partner organizations: National Academy of Sciences of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, higher education institutions on nature conservation, Biosphere Reserve Territory “Issyk-Kul”

Priority Level – 1

Activity 3: Identification and survey of priority vegetation communities

Partner organizations: National Academy of Sciences of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, higher education institutions on nature conservation, Biosphere Reserve Territory “Issyk-Kul”

Priority Level – 1

Activity 4: Buffer zone: conducting baseline surveys to identify the state of pastures in buffer areas

Partner organizations: National Academy of Science of the Kyrgyz Republic, agencies, higher education institutions

Priority Level – 1

Summary and timeable of activities:

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Identification and survey of 4 zones of vertical zoning					X	X	X	X				
2. Identification of vegetation communities					X	X	X	X				
3. Identification of priority and conducting of vegetation communities' surveys					X	X	X	X				
4. Buffer zone: conducting baseline surveys for identification of the state of pastures in buffer zones	X	X	X	X	X	X	X	X	X	X	X	X

Subject Area 2: Provision of Security and Management of Habitats

The specially appointed staff of the Security Department of the Reserve include: a Head of Security, 2 Senior Rangers and 17 Rangers. Their main task is the conservation of the entire natural complex in its natural state. The Security Department works according to an approved annual work plan. There are a total of 14 ranger's sectors in the Reserve. The 3 main sectors cover access points to the Reserve. Each of these sectors has 2 rangers appointed to them to enhance control of access.

The organization of 7-day patrolling in the 3 main sectors is planned every month; however, due to lack of financing, these are not always conducted on time. On a monthly basis, rangers conduct patrols and survey fauna and flora in each sector. This work is carried out in accordance with established routes and survey methodologies. Rangers are trained in the suppression of illegal activity in the Reserve and conducted this work in accordance with prescribed protocol and legislation. All rangers have been trained in the field on arresting lawbreakers, the use of GPS, maps, binoculars and compass, and provision of first aid.

Activity 1: Control and prevention of access to the core zone with the aim of conserving the ecosystem

Partner organizations: National Academy of Science of the Kyrgyz Republic, agencies, higher education institutions

Priority Level – 1

Activity 2: Conducting anti-poaching patrolling with intensified patrolling in spring and fall seasons

Partner organizations: agencies, programmes, communities

Priority Level – 1

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Control access to the core zone with the aim of conserving the ecosystem	X	X	X	X	X	X	X	X	X	X	X	X
2. Conduct anti-poaching patrolling with increased intensity in spring and fall seasons	X	X	X	X	X	X	X	X	X	X	X	X

Subject Area 3: Monitoring the State of the Ecosystems'

Monitoring Strategy

A baseline survey is planned for summer 2008. Any gaps in data within the monitoring strategy will be filled, based on the baseline survey results.

The Reserve's monitoring strategy is drafted. The strategy covers all aspects of biodiversity of the Reserve, including representative data and communities, and those considered rare or threatened. It is the Reserve's intention to make the recording of climatic data part of the monitoring programme. The main attention is directed towards monitoring a suite of habitats, vegetation communities and species that are relatively well-known and representative of the high-altitude biota of SCEZ:

- Snow leopards
- Mountain ungulates (argali and ibex)
- Marmots
- Large raptors
- Himalayan snowcock
- Threatened species of flora (eg *Berberis kashgarica*)
- Birds identified as indicators of main habitat types (high altitude zone; cliffs/screes; wetlands; birch forest; shrubs)

Two invertebrate groups – butterflies and mollusks – and lichens are also included in the monitoring strategy. Timing of monitoring is dependent on completion and availability of baseline data and production of monitoring identification materials.

Rare and threatened plant species such as *Berberis kashgarica* can have small-scale monitoring schemes designed for them at known locations where they occur.

The following steps are essential in implementing the monitoring strategy

- Completion of baseline survey
- Extend SLIMS transects to all appropriate parts of the Reserve.
- Produce identification guides to main groups.
- Refine analysis of rangers' patrol data.
- Develop a large raptor monitoring scheme.
- Trial transects on Eshek-Art Pass, Koyonduu valley.

Habitat or Ecosystem Monitoring

The monitoring strategy is based on the monitoring programme used in the West Tien Shan. This involves running a 3-5-km transects through each of three major habitat types: high-altitude slopes, middle-elevation slopes and riverine woodland. This will be repeated in the 3 principal sectors of the Reserve, giving a total of 9 transects to monitor ecosystem condition. These transects would be ridden on horseback, with a list of selected indicator species to be identified. It is doubtful whether the Reserve contains enough riverine woodland to provide transects of sufficient length, but the riverine woodland can be combined with shrub habitats along streams to make this viable. A more detailed scheme with smaller plots to monitor critical species and communities will be used for vegetation. Ideally this will include climate and soil data.

The Reserve is characterized by island (mosaic) and belt distribution of bushes and trees along the main riverbed of the Sarychat River, starting from the left tributary of the Bordu River, as well as in gorges and dry riverbeds of side tributaries. Birch and willow groves are distributed in the lower course of the Sarychat. It would be possible to design transects that incorporate both these aspects (i.e. longer-distance habitat condition monitoring and smaller plots targeted at priority species or communities). However, further identification of critical and representative habitats and vegetation communities is required before they can be included in the monitoring strategy and this activity should be a research and survey priority.

Activity 1: Data collection from automated equipment with the aim of tracking state of climate in different parts of the Reserve

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions)

Priority Level – 1

Activity 2: Conducting surveys of habitats and separate groups of plants and animals each season

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 1

Activity 3: Establishing a 3-5 km transect in each one of the three types of habitats

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, ISLT, FFI)

Priority Level – 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Data collection from automated equipment with the aim of tracking state of climate in different parts of the Reserve	X	X	X	X	X	X	X	X	X	X	X	X
2. Conducting surveys of habitats and separate groups of plants and animals each season			X			X			X			X
3. Establishing a 3-5 km transect in each one of the three types of habitats					X	X	X	X				

Objective

Indicator of success

Objective 1.2: By 2010 provide for study of all populations of key species of fauna and flora with the aim of obtaining necessary information about the state of the Reserve by means of conducting a baseline survey and monitoring.

Indicator: Completion of a baseline survey and start of monitoring work.

Subject Area 1: Survey of Flora and Fauna Populations

Activity 1: Conducting series of expeditions to conduct an inventory of flora and fauna of the Reserve (4 expeditions per year over two year period)

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, ISLT, FFI)

Priority Level – 1

Activity 2: Data analysis and development of lists of key species based on the results of expedition work for further monitoring activities

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions)

Priority Level – 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Conducting series of expeditions on doing an inventory of flora and fauna of the Reserve (4 expeditions per year over two year period)					X	X	X	X				
2. Data analysis and development of lists of key species based on the results of expedition work for further monitoring activities											X	X

Subject Area 2: Monitoring of Species and Indicator Species

Snow leopards are already monitored through the SLIMS process. As one of the two top predators in the Reserve, they have some ‘keystone’ effect in that a viable population reflects in part a healthy high-altitude ecosystem. Expansion of SLIMS monitoring into new areas is planned and will greatly increase its value.

Prey species are also monitored as part of the SLIMS process. Ibex, Argali, Marmots and Snowcock are also recorded throughout the Reserve by the rangers on a regular basis. With some refinement of the current system and more detailed analysis this could fulfill an important role in the monitoring strategy.

Large birds of prey can be monitored in part by calculating the encounter rate over distance traveled or number of patrol-days. A supplementary method is to monitor known nest sites twice annually for presence of breeding pairs, and breeding success, depending on the accessibility of such sites. Training in raptor identification is needed to ensure correct identification of target species.

Monitoring of species will be carried out on transects, experimental plots and others based on the species and generally accepted methods stated above. Key species of animals and plants have not

all been identified. However, they are more related to objective №1. It is necessary to agree on this with specialists.

At present, we do not consider these objectives in detail because for Themes №1 and №2 objects of survey have not been determined and territorial direction of survey with determined tracks, transects and monitoring plots have not been agreed.

Activity 1: Conducting expeditions on snow leopard survey on a seasonal basis (4 times per year) based on SLIMS methodology
 (Partner organizations: ISLT, FFI)
Priority Level – 1

Activity 2: Conducting research of prey species of snow leopard on a monthly basis and continuously (argali, ibex, marmot) based on SLIMS methodology
 (Partner organizations: ISLT, FFI)
Priority Level – 1

Activity 3: Develop monitoring system of key species based on the inventory data
 (Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions)
Priority Level – 1

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Conducting expeditions on snow leopard survey on a seasonal basis (4 times per year) based on SLIMS methodology			X			X			X			X
2. Conducting research of prey species of snow leopard on a monthly basis and continuously (argali, ibex, marmot) based on SLIMS methodology					X	X	X	X	X	X		
3. Develop monitoring system of key species based on the inventory data											X	X

3.2 Scientific Research and Information Technology

The Scientific Department of the Reserve consists of 5 people. Scientific research work is directed towards the study of the high altitude ecosystem of the Central Tien Shan.

The main direction of work is the study of snow leopard and its prey species. This work started in 2002. The second research direction is the study of avifauna including the determination of species composition (82 species) and their distribution on the Reserve territory. The Scientific Department cooperates with a number of higher education institutions, the National Academy of Science, the International Snow Leopard Trust and many leading Kyrgyz and international specialists and biologists.

All scientific research should by necessity be conducted to international standards and based on computer technologies (GPS, digital photo and video equipment, computer, printer, scanner, VCR and electronic map, satellite communication and satellite monitoring). All processed information should be stored in an electronic Data Base and contacts with partners should be maintained through Internet and website.

Overall, the Scientific Department is facing the following problems:

1. Lack of programmes in many necessary research areas.
2. Lack of resources to conduct research and field work.
3. Lack of appropriately qualified specialists.

Objective

Indicator of success

Objective 2.1: To develop a programme of scientific research (based on computer technology) that supports improved biodiversity management in the Reserve and adjacent areas.	The number of programmes available. Presence of technology.
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Subject Area 1: Biodiversity Research

Current Recording and Data Collection

Data of various kinds are collected by science section staff and the rangers. The science section has responsibility for conducting research and surveys. Rangers record observations while carrying out their regular patrols. Activities of all staff are greatly hampered by chronic lack of funding and equipment. Data are collated to some extent at Reserve HQ but currently only snow leopard records are entered onto the computer (as an MS Word file). The Reserve does not possess any computer database software.

Science Section

The science section personnel have been trained by ISLT in the use of SLIMS snow leopard transects. At present a small number of regular transects are monitored and there are plans to expand the number to intensify coverage and extend it to other parts of the Reserve. Recording of prey numbers is an integral part of SLIMS monitoring.

The science section has also established 5 fenced plots in the buffer zone near Koyon-Duu to calculate biomass and assess the effects of grazing on different vegetation types. This activity falls under the heading of research rather than monitoring.

Rangers

Rangers patrol each sector once a month. They are equipped with a hand-drawn plan of the sector, copied from 1:100,000 maps and a recording sheet with a list of wildlife, numbered 1-23. This includes all the larger and medium-sized mammals, birds of prey, game birds and pigeons. Ibex and argali are subdivided into males, females and young. The approximate site of each observation and number of animals are entered on the map and the recording sheet, with additional details entered into a patrol diary. The data are collated at Reserve HQ by species and by sector. This recording system was devised by the Reserve staff and has subsequently been adopted by the forest authority nationwide. It is well-designed, simple and robust, and produces a lot of valuable information.

The division of the Reserve into management sectors provides a very sound basis for current and future recording and habitat mapping. The cartographic grid on the map originals allows locations where taxa were recorded to be plotted with relative accuracy and these can be later plotted on GIS if desired.

Taking into consideration the complex socio-economic conditions of Kyrgyzstan at the present time, we should be more flexible about the issue of attracting highly qualified specialists to work in the Reserve because it requires significant financial means. Thus, we should restructure the work of both scientific and security departments. The Collection of field material and monitoring survey could be successfully done by rangers and scientific staff themselves after their education and training in the skills required to deliver these activities. Furthermore, rangers are responsible for observation work after animate and abiotic nature for the Chronicles of the nature of the Reserve. For this reason, all staff members should be trained in basic computer use, and then we will have a united solid staff, which will be able to implement the management plan. Whereas highly qualified specialists will consult and process field material.

Activity 1: Develop a programme for survey of numbers and distribution of key species
 (Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)
 Priority Level – 1

Activity 2: Continue work on evaluation of livestock grazing impact on various types of vegetation on fenced plots (2 times per year continuously)
 (Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)
 Priority Level – 1

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Develop a programme for survey of numbers and distribution of key species				X	X							
2. Continue work on evaluation of cattle grazing impact on various types of vegetation on fenced plots (2 times per year continuously)					X				X			

Subject Area 2: Survey on Abiotic Factors

The uniqueness of the high altitude ecosystem of the Central Tien Shan is due to a combination of abiotic factors. Rising up to an altitude of 5000m the glacial massif Ak-Shyirak has the harshest climatic conditions in this region. The massif is the start of 3 river systems and influences the economic activity of the population of this region, as well as all ecological zones situated below.

Key abiotic factors of this region are relief, climate, glaciers, water network (lakes and rivers) and soils. The glaciers influence the water system and local climatic conditions. These together with

relief (altitude, exposition of slopes) determine the landscape forms and biodiversity to be found.. Research of glaciers and climate must form a key part of the Reserve’s research programme.

Programme of ecosystems and landscapes survey:

1. Programme of climate survey (including the automated station)
2. Programme of glaciers survey (including the automated station)
3. Programme of water resources survey (rivers and lakes)
4. Programme of soil survey
5. Programme of relief survey

Activity 1: Develop new research programmes on:

- a. Programme of climate survey
- b. Programme of glaciers survey
- c. Programme of water resources survey (rivers and lakes)
- d. Programme of soil and relief survey for collection of basis data for further monitoring activities

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions)

Priority Level – 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Develop new research programmes on:												
a. Programme of climate survey			X	X								
b. Programme of glaciers survey			X	X	X	X	X	X	X	X	X	
c. Programme of water resources survey (rivers and lakes)			X	X	X							
d. Programme of soil and relief survey for collection of basis data for further monitoring activities			X	X	X							

Subject Areas 3: Data Management

The Reserve team plans, in addition to collecting data on flora and fauna, to collect data on abiotic factors on the territory of the Reserve. The data collected will be recorded on a data base that will also be used for monitoring activities. The database will be made available to other scientific research and nature conservation institutions. Thus, it is necessary to develop and apply the following programmes:

1. Programme of collection, processing and storing of information on biodiversity
2. Programme of collection, processing and storing of information on abiotic factors

Activity 1: Develop computer programme for processing information on biodiversity

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 2

Activity 2: Develop computer programme for processing and storing of information on abiotic factors

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 2

ACTION	2007											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Develop computer programme for processing information on biodiversity											X	X
2. Develop computer programme for processing and storing of information on abiotic factors											X	X

3.3 Local Communities and Improving Conditions in High Altitude Rural Areas

The conservation of the Reserve is directly linked to the socio-economic / living conditions of local populations in rural areas. At present, over 60% of the rural population in Kyrgyzstan lives below the poverty line. Lack of employment and opportunity to maintain even a basic standard of living, combined with a reduction in literacy levels in rural areas, has led to the overexploitation of natural resources, e.g. poaching, cutting of trees and shrubbery, and increased negative impact on wildlife.

In the past the conservation of the Reserve has placed restrictions on the economic use of land, pastures and wildlife products by local residents. Whilst many restrictions need to stay in place the promotion of the appropriate sustainable use of natural resources could bring benefits both to the Reserve and the local residents.

Without a normal natural environment, problems facing society will multiply. Without sustainability of the socio-economic environment, none of the achievements in the field of nature conservation will be long-term and lasting.

Population

There are two inhabited localities in the immediate proximity of the Reserve: Ak-Shyirak and Enigilchek. There are 40 families residing in Ak-Shyirak village, including the Reserve staff, shepherds and other local residents. There is a school in the village. There are 23-24 families in Enigilchek and several thousand people work at the Kumtor mine. The border patrol camps located near the Reserve are situated in Kara-Sai, Ak-Shyirak and Enigilchek.

There are also 7 hunting agencies adjoining to and surrounding the Reserve. These private hunting agencies have security service staff on site on a year round basis, as well as guides during a hunt, besides foreign clients-hunters (August – October and March). The security service staff of local hunting agencies is hired for seasonal work from Karakol town and rayons located near the lake.

Threat Assessment

Current and future threats to the Reserve were evaluated using a standard FFI procedure. Current threats to biodiversity were seen as: poaching of snow leopards and mountain ungulates; ‘unlawful’ hunting’ of mountain ungulates by local people; poaching of marmots; poisoning of marmots; lack of resources, and global climate change. Future threats were considered to be: cessation of mining operations at Kumtor; mining exploration; and unregulated tourism.

At present foreign hunting concessions situated adjacent the Reserve present one of the main threats to the Reserve. These hunting concessions do not make any contribution to the protection and/or development of the Reserve, although ungulates found on the territory of the Reserve are the object of hunting. Hunting concessions have violated the Reserve’s protected territory and the Reserve

authorities' suggestion of closing down or moving hunting concessions to a safe distance from the Reserve's borders have received no reaction from higher authorities.

Stakeholder Identification

Stakeholders are individuals or groups who are impacted by the key species/groups, and conservation actions aimed at these species/groups, or have special interests in Snow Leopard and its major prey species (Argali, Ibex and Marmot) and supporting habitats. A set of ten broad groups of people who cause threats to these key species/groups, the *negative stakeholders*, were identified (Table 1). Individuals or groups, who can help mitigate or reduce the impacts of the negative stakeholders, were identified as *positive stakeholders* (Table 2).

Local residents of Ak-Shyirak, Enilchek and Karakolka villages, as well as the Naryn Region were identified as the key stakeholders and have taken active part in the development of the management plan through participation in the seminar for stakeholders (August 2005) and the seminar for representatives of local communities (September 2006). Their opinions and advice have proved very useful in the development of the goal and objectives of the management plan, in particular, for the writing of the section on local communities.

Table 1. Key negative stakeholders in the SCEZ identified by workshop participants

Code	Name	When?
1	Local people - Ak-Shyirak	Year-round
2	Local people – Engilchek	Year-round
3	Outsiders - Shepherds	June-Oct
4	Outsiders – hunting agencies (staff)	June-Oct
5	Outsiders – hunting agencies (clients)	June-Oct
6	Outsiders - Kyrgyzstan (illegal hunters)	June-Oct
7	Outsiders - Kyrgyzstan (legal hunters)	June-Oct
8	Local border patrol (national security)	Year-round
9	Higher officials (local and national)	June-Oct
10	Reserve staff	Year-round

Table 2. Key positive stakeholders in the SCEZ identified by workshop participants

Code	Name	Who can they directly influence? *
1	Village councils	1,2,8
2	Village elders	1,2,8
3	Future village leaders	1,2,8
4	Local people – participants in SLE programme	1,2,8,10
5	Border Patrol, Chairman (Bishkek)	8,9
6	Border Patrol, Regional Commander (Kara Kol)	8,9
7	Border Patrol, Local commanders (4)	1,2,3,4,5,6,7,8,10
8	State Forest Service, Hunting Control, Director	4,5,7
9	State Forest Service, Service for Control of Protection of Wildlife and Plants, District level officers	1,2,3,4,5,6,7
10	State Forest Service, Regional Inspection for Hunting	4,5,7
11	State Forest Service, Forestry Fund, Director	?
12	Ecological Prosecutors Office	4,5,6,7
13	Owners of hunting agencies (7)	4,5
14	Sarychat Ertash Reserve, Director	1,2,3,10
15	Sarychat Ertash Reserve, Reserve staff	1,2,3,4,5,6,7
16	Local & International NGOs	1,2,7,9,10
17	Hunters & Fishers Society	7

* Indicates code for negative stakeholder individual or group (from Table 1).

Achieving Compliance with Laws

In order to provide for compliance with the regime of protection of the Reserve and limit of hunting on ungulates beyond its borders, it is necessary to persuade the local people living close to the Reserve. Village council, elders and future leaders might have influence on local people. The village council consists of a chairman, a secretary, a representative of the elders, along with border patrol, local or district police. Unfortunately because most members of the Ak-Shyirak and Enilchek councils live in Barskon, and because local or district police are not present all the time, it is unlikely that village councils would be of much influence in stopping poaching.



Since 2002, the Reserve has worked on the programme of snow leopard conservation. Based on a joint initiative within the framework of this programme NGOs were established in Ak-Shyirak and Enilchek villages to provide local residents, namely unemployed women, with jobs. They produce various products from felt, sell them and gain income that they use to provide for their families. In case of no poaching and negative impact on nature by local residents, local communities receive a bonus of 30%

on top of total income sum gained from selling felt products.

Because of this work, there is a fundamental basis for snow leopard conservation in Ak-Shyirak village since people there no longer consider it important to have a snow leopard trophy. Added to this, in this community, the families who are able to participate are realizing benefits from snow leopard conservation through an incentive scheme involving support for the production and marketing of handicrafts. Women influence their husbands (the rangers) not to hunt. It is not possible to say whether there has been a decrease in hunting but there has been an interest in making anti-poaching activities work. Also, an important aspect of the community programme is that it has provided jobs to local people. When the Reserve started, it hired former poachers and shepherds as rangers. The salary is not great but it is a full-time job so there is an incentive not to poach. If people are busy with their jobs there is less time to poach.

Enilchek is more accessible from the outside e.g via paved road from Karakol¹, so there is more movement of people in and out of the village during the year. For example, the area was known as a paradise for poachers even during Soviet times. The road there closes as early as October and opens again in May. Like Ak-Shyirak, village heads don't spend much time there, and there is only small number of people who stay the winter. It is the winter-time when snow leopards are more likely to be poached since this is when the fur is in its best condition. So it is likely locals are poaching to supply orders from Karakol and beyond.



Rangers have made efforts to raise awareness in this village, and to get people in this village to help anti-poaching efforts. Although some local hunters have agreed not to hunt, so far there has not been much interest in anti-poaching activities. Added to this, there is a hunting agency called Han-Tengri Tour which promotes hunting and likely provides jobs for locals. Reserve staff have collaborated with this organization to do scientific research (SLIMS) in 2001-2. But local people should see clear benefits to maintain interest in conservation.

¹ The population of Karakol is estimated at 60-70,000 people.

At the same time if locals see that law enforcement is applied effectively and fairly to all groups, they are more likely to respect its application in their community.

Objective

Indicator of success

Objective 3.1: To improve living conditions of local people in order to reduce exploitation of the Reserve

The number of people and villages attracted. The types of activities

Subject Area 1: Development of Traditional Activities for Improved Economic Conditions.

Based on the current state of economy in Kyrgyzstan and preliminary experience of working with local communities in Ak-Shyirak village, the following types of activities for the local population are possible to improve their economic conditions:

- a. Restore traditional methods of cattle breeding and restore local breeds of domestic animals: yaks, horses, cows and sheep.
- b. Restore traditional folk arts and crafts (felt, leather, etc.).
- c. Create and develop tourist infrastructure in Ak-Shyirak and Engilchek villages.

All these activities to be performed on a self-financed basis.

Activity 1: Together with local communities develop a programme and find a donor to revive traditional methods of cattle breeding and regenerate local breeds of animals: yaks, horses, cows, sheep, dogs

(Partner organizations: international organizations)

Priority Level – 2

Activity 2: Develop a programme on revival of traditional crafts (felt, leather, etc.)

(Partner organizations: Academy of Fine Arts)

Priority Level - 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Together with local communities develop a programme and find a donor to revive traditional methods of cattle breeding and regenerate local breeds of animals: yaks, horses, cows, sheep, dogs				X	X	X	X	X	X	X	X	X
2. Develop a programme on revival of traditional crafts (felt, leather, etc.)				X	X							

Subject Area 2: Development of Ecotourism Infrastructure

Rapid growth of tourist business in the Kyrgyz Republic and expanding market of tourist services is increasing the number of visitors to areas close to the Reserve, creating contradictions between the existing level of tourism development and the environment. In order to minimize negative impact of “accidental” visitors to specially protected territories, and to attract the support of local populations for nature conservation activities, to increase income to the Reserve and local communities and to create new jobs, it is necessary to plan and development of ecotourism based on the minimal use of natural resources. The role of the Reserve in managing the stream of visitors and their behavior in

the regime of specially protected nature territories increases; issues of territorial zoning, analysis of current situation and potential development of ecotourism, development of guiding principles for tour operators becomes pressing.

Activity 1: Identification of positive and negative impact of ecotourism on the SCEZ’s ecosystem
(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations)

Priority Level - 1

Activity 2: Conducting zoning for tourism activity

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations)

Priority Level - 1

Activity 3: Conducting research on maximum permissible load of visitors’ number per territorial unit with the use of modern methods

(Partner organizations: National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations)

Priority Level - 2

Activity 4: Development and approval of an ecotourist route with higher authorities

(Partner organizations: State Agency for Environmental Protection and Forestry, Bashat (CBF))

Priority Level - 1

Activity 5: Planning and development of ecotourism strategy

(Partner organizations: Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations)

Priority Level - 1

Activity 6: Establishing partnership relations on ecotourism development

(Partner organizations: Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations, tourist agencies)

Priority Level - 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Identification of positive and negative impact of ecotourism on the SCEZ’s ecosystem		X			X			X			X	
2. Conducting zoning					X	X						
3. Conducting research on maximum permissible load of visitors’ number per territorial unit with the use of modern methods	X	X	X	X	X	X	X	X	X	X	X	
4. Development and approval of an ecotourist route with higher authorities	X	X										
5. Planning and development of ecotourism strategy	X	X	X	X								
6. Establishing partnership relations on ecotourism development	X	X	X	X	X	X	X	X	X	X	X	X

Objective

Indicator of success

Objective 3.2: To increase the participation of local communities in nature conservation activities.

Indicator: The number of people employed. The types of activities. Income generated.

In addition to its immediate functional responsibilities the Reserve team also conducts active work with local communities, border patrols and the mining enterprise “Kumtor Operating Company”. In summer time, on the shore of the lake Issyk-Kul, summer ecological camps are organized through the joint efforts of the Reserve’s staff and sponsors’. The Reserve support community work through the promotion of improvement of livelihoods of the population through organizing and supporting non-governmental organizations.

“Kumtor” also financial supports some of the conservation actions implemented by the Reserve.

The location of the Reserve close to the border zone promotes cooperation with the border patrol service, which is manifested through joint training and patrolling. Many of the Reserve’s rangers are volunteer border guards.

The Reserve plans to actively continue cooperation with the institutions listed below and engage them in nature conservation:

1. Local aiyl okmotu (village governments)
2. NGOs
3. Frontier guards
4. Hunting agencies
5. Mining companies (Kumtor, Enilchek, Togolok)
6. Schools

Subject Area 1: Working with Local NGO and Community Organisations to Increase Local Participation in Nature Conservation Activities

Activity 1: Attraction of local community and border patrol representatives for joint patrolling
(Partner organizations: local communities, border patrol guards)
Priority Level – 2

Activity 2: Joint organization of social and cultural activities with local communities on nature conservation activities
(Partner organizations: local communities)
Priority Level – 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Attraction of local community and border patrol representatives for joint patrolling	X	X	X	X	X	X	X	X	X	X	X	X
2. Joint organization of social and cultural activities with local communities on nature conservation activities				X	X	X	X	X	X	X	X	X

3.4 Public Relations and Education

Information about Environmental Conservation

As surveys and conversations with the population of the Issyk-Kul Oblast demonstrate the population is not well informed about the activities of the Reserve, its purpose and role in nature conservation. The level of ecological knowledge of the population is also extremely low.

One of the most important objectives of the Reserve is to foster the support of the local population for and their collaboration in nature conservation activities. The Reserve has worked closely with a number of organizations, supported through the EBRD/IFC Reserve capacity building project, to raise the awareness of local people on the reserve and biodiversity conservation. However, the Reserve lacks some of basic infrastructure it requires for conducting such work in the longer term. For example, the Reserve lacks literature and materials on working with local communities and has no information/ecological department that could carry out work with the population and visitors on a regular basis. Meetings can be held using community facilities but the Reserve lacks any space for meetings with the the local population at its headquarters.

It is necessary to create an ecological-educational department with a museum and a library. This will help to improve contact with the population and the Reserve will secure support for its activities.

Education of school children in Ak-Shyirak village is carried out during lessons on Natural History, Biology and Geography. There is a “Nature Corner” with posters, photographs and information about the Reserve in Barskoon village.

Education of local residents is carried out through conversations with the Reserve’s staff. The system of ecological education as such is absent and dissemination of information through mass media is not developed in the region. For ecological education of the population and school children it is necessary to establish an ecological-educational department.

Harsh living conditions have led to the situation when double standard of thinking for the majority of the residents in the republic, that is people who were taught the rules of solicitous attitude towards nature violate laws and feel no necessity to obey these laws under good opportunity. For this reason, under such circumstances, there is need for continuous ecological-educational work; otherwise the Reserve will not be able to stand against various claimants to the Reserve’s biodiversity.

Attract mass media in oblast, republic, the CIS countries and the world to the issue of public awareness about the Reserve, its problems and needs. Efforts of the Reserve staff, some governmental structures, local self-government, mass media, entrepreneurial structures, NGO, and international organizations on providing public support and practical assistance to the Reserve will be united.

Objective

Objective 4.1: To raise awareness of the threats to the Reserve, increase public appreciation and engender public support for its protection and management.

Indicator of success

Indicator: The number of people and organizations contacted/with whom positive relations were established. The types of activities and programmes.

Subject Area 1: Educational programmes

A number of educational programmes implemented by the Reserve were oriented on secondary school students. Substantial attention in educational programmes was paid to habitats of rare and threatened species, mainly snow leopard.

Annual action “March of Parks and Reserves” starts with half-hour lectures about the work of the Reserve, other Reserves and national parks of Kyrgyzstan, environmental legislation, etc.

The programme of annual summer ecological camps provides for daily classes on ecology, zoology and botany. In addition to the Reserve’s staff, secondary school teachers and higher education institution lecturers (Issyk-Kul State University) were attracted to teaching classes.

Expansion of students’ age categories for which subsequent programmes will be oriented is planned to be developed.

The Reserve plans to:

1. Conduct trainings and seminars with local residents
2. Work with the local population with consideration of age and professional peculiarities
3. Work on the programme with “visitors” (guests, hunters, shepherds, tourists, representatives of state, rayon and republic level), who present a potential threat to the biodiversity
4. Collaborate with leading higher education institutions of the republic, CIS and abroad
5. Develop a programme to work with all categories of the population and community and attract them to joint patrolling of the protected and adjacent territories of the Reserve.

Activity 1: Develop a programme of trainings and seminars for work

(Partner organizations: State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 2

Activity 2: Conducting seminars and trainings 4 times per year with the public

(Partner organizations: State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 2

Activity 3: Open a new staff unit on education and public relations

(Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 1

Activity 4: Development of educational information materials about Reserve and nature conservation work in general

(Partner organizations: State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 2

Activity 5: Continuous work on increasing the level of awareness on environmental protection among local population

(Partner organizations: State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, schools)

Priority Level – 1

Activity 6: Signing agreements with leading higher education institutions of the republic, CIS for:
a. conducting scientific research activities
b. conducting educational programmes of nature conservation character
(Partner organizations: higher education institutions)
Priority Level – 3

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Develop a programme of trainings and seminars for work				X	X				X	X	X	X
2. Conducting seminars and trainings 4 times per year with public	X				X					X	X	
3. Open new staff unit on education and public relations				X	X	X						
4. Development of educational information materials about Sarychat-Ertash State Reserve and nature conservation work in general										X	X	X
5. Continuous work on increasing the level of awareness on environmental protection among local population	X	X	X	X	X	X	X	X	X	X	X	X
6. Signing agreements with leading higher education institutions of the republic, CIS for: a) conducting scientific research activities b) conducting educational programmes of nature	X	X	X	X	X	X	X	X	X	X	X	X

Subject Area 2: Public relations and mass media

The main activities in this direction are oriented towards nature conservation advocacy among local residents (discussions, lectures, trainings, seminars). Annually, the Reserve takes part in the international action “March of Parks and Reserves” during which games, quizzes and competitions are conducted in schools in villages neighboring the Reserve.

The main reason for threat to the Reserve arising from the local population is extremely low level of awareness. Until recently residents of villages situated close to the Reserve were unaware of the Reserve’s existence. For broader coverage of the Reserve’s activities, publications about the Reserve’s work in mass media are needed (articles, video films, etc.) at local, regional and state level. Since 2003, the Sarychat-Ertash Reserve has conducted active work with the public at large. Articles in regional periodicals (“Ak-Kuu”, “Vesti Issyk-Kulya”) have been published on a regular basis. Articles in the republican newspaper “Slovo Kyrgyzstana” and scholarly papers of the Reserve’s staff have been published. A video film about the Reserve was demonstrated on the regional television.

Executive staff of the Reserve plans in its work to give more attention to the work of raising awareness about nature conservation among the population. Local communities, state agencies of local self government, schools and higher education institutions will be attracted to this work.

Activity 1: Establish environmental educational departments with museum and library about Reserve in Ak-Shyirak, Enilchek and Barskoon villages
(Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”, international organizations)
Priority Level – 1

Activity 2: Continuous work with mass media and organizations to attract attention and raising awareness with the aim of increasing the level of knowledge about nature conservation work
(Partner organizations: mass media of oblast and republic level)
Priority Level – 1

Activity 3: Create a series of videos about the Sarychat-Ertash corridor (2 films per year over 20 year period)
(Partner organizations: mass media, Bashat (CBF))
Priority Level – 2

Activity 4: Organization of a series of TV programmes about nature of the Reserve (quarterly on a continuous basis)
(Partner organizations: TV of oblast and republic level, higher education institutions, National Academy of Science of the Kyrgyz Republic, FFI, ISLT)
Priority Level – 2

Activity 5: Publication of articles in scientific journals and newspapers at oblast and republic level (6 times per year)
(Partner organizations: newspapers of oblast and republic level, higher education institutions, National Academy of Science of the Kyrgyz Republic)
Priority Level – 2

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Establish environmental educational departments with museum and library about Reserve in Ak-Shyirak, Enilchek and Barskoon villages	X	X	X	X	X	X	X	X	X	X	X	X
2. Continuous work with mass media and organization to attract attention and raising awareness with the aim of increasing the level of knowledge about nature conservation work	X	X	X	X	X	X	X	X	X	X	X	X
3. Create a series of videos about the Sarychat-Ertash corridor (2 films per year over 20 year period)											X	X
4. Organization of a series of TV programmes about nature of the Reserve (quarterly on a continuous basis)		X			X			X			X	
5. Publication of articles in scientific journals and newspapers at oblast and republic level (6 times per year)	X	X	X	X	X	X	X	X	X	X	X	X

3.5 Administration and Organisational Management

All budgets allocated to the Reserve are spent on payment of salaries. Staff salaries fail to reach even the subsistence wage. No infrastructure support work is conducted. There is no office space corresponding to the volume of work. Scientific research and biotechnical activities have not been financed for the past four years. For successful work in administration and management, it is necessary to carefully determine the priority for all projects.

Threats

1. Lack of appropriate financing due to extremely difficult socio-economic situation in the Republic.
2. Lack of Management Plan for administration.
3. Lack of interest to problems of the Reserve from rayon, oblast and state authority figures, as well as public organizations.

Organizational activities should be directed towards solving the following issues:

1. Equipping the scientific base (facilities)
2. Repairing old and equipping new cordons
3. Establishing ecological-educational center and its two branches
4. Solving the problem of communications, illumination, heating and transportation (car, motorbike and horses).

Training Needs Assessment

Lack of baseline inventory data is a severe impediment that should be remedied where possible. A high priority is an agreed system of habitat classification supported by an illustrated key and training sessions. Inventories of flora and faunal groups are also essential with production of illustrated keys and appropriate training.

Objective

Indicator of success

Objective 5.1: To ensure that management and administration of the organisation maximises efficiency and ensures the Reserve has all resources necessary to implement all of the priority 1 projects, 80% of priority 2 and 60% of priority 3 Management Plan projects

Indicator: 100% performance on priority 1 projects. 80% performance on priority 2 projects. 60% on priority 3 projects.

Subject Area 1: Staff Management

Sustainability of the management plan will directly depend on financial interest of the staff in their work, availability of good material-technical basis with modern equipment, as well as prospects for growth of each staff member's professional level. The Reserve's authorities believe that it is necessary to accomplish the following:

- a. Increase of salary up to appropriate level
- b. Full computerization of all activities of the Reserve
- c. Continuous education and improvement of qualifications of all staff

Implementation of these items will serve as the basis for successful and quality work on the Management Plan of the Reserve.

It is also necessary to attract highly qualified staff to the Reserve.

Activity 1: Keep staff units and possibly increase the staff number of the Reserve
 (Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)
 Priority Level – 1

Activity 2: Purchase necessary equipment over 3 year period
 (Partner organizations: donor organizations)
 Priority Level – 1

Activity 3: Purchase alternative sources of energy over 2 year period:
 a) wind
 b) solar
 (Partner organizations: donor organizations)
 Priority Level – 2

Activity 4: Organization of appropriate trainings amount staff of the Reserve over 3 year period
 (Partner organizations: FFI, ISLT, other international organizations)
 Priority Level – 1

Activity 5: Construction or purchase of an office for the Reserve in Barskoon village over 3 year period
 (Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)
 Priority Level – 2

Activity 6: Repair of old and setting of new rangers’ posts over 2 year period
 (Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)
 Priority Level – 2

Activity 7: Establishment and equipment of a new scientific laboratory
 (Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”, donor organizations)
 Priority Level – 3

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Keep staff units and possibly increase the staff number of the Reserve									X	X	X	X
2. Purchase necessary equipment listed in Table 3 over 3 year period	X	X	X	X	X	X	X	X	X	X	X	X
3. Purchase alternative sources of energy over 2 year period: <ul style="list-style-type: none"> • wind • solar 	X	X	X	X	X	X	X	X	X	X	X	X
4. Organization of appropriate trainings amount staff of the Reserve listed in Tables 4 and 5 over 3 year period			X			X			X			X
5. Construction or purchase of an office for the Reserve in Barskoon village over 3 year period	X	X	X	X	X	X	X	X	X	X	X	X
6. Repair of old and setting of new rangers’ posts over 2 year period						X	X	X	X	X		

7. Establishment and equipment of a new scientific laboratory														
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Subject Area 2: Fundraising and sustainability

The main attention should be directed towards finding financial means (fundraising) for implementation of Themes № 1-5 in accordance with priority and necessity for creating material-technical basis.

The Reserve is a state institution. The Reserve is financed from the republican budget and partially from the fund of the Biosphere Territory “Issyk-Kul”. These means are enough for paying staff salaries and office rent only. Donor funds are attracted with the aim of improving the quality of the Reserve’s work. In the last years, at the expense of grants gained, stock and equipment have been acquired; however, financial means from grants and sponsor organizations do not come on a regular basis.

Due to reasons stated above, implementation of many planned activities on time is hampered or becomes unrealizable. For more productive work the Reserve needs permanent and stable source of income. Subsidiary farming economy under the Reserve in Ak-Shyirak village could become a source of finances. The majority of rangers live in the high pasture zone. Surroundings of high altitude villages are natural pastures. In these conditions organization and maintenance of a subsidiary farming economy on breeding of meat and dairy strains of livestock and small cattle could bring stable income aimed at financing functional responsibilities of the Reserve.

Activity 1: Continuous search for financial sources and relations with donor organizations

(Partner organizations: donor organizations)

Priority Level – 1

Activity 2: Development of joint projects wit international nature conservation organizations on a continuous basis

(Partner organizations: donor organizations)

Priority Level – 1

Activity 3: Establishment of a farming economy under the Reserve in Ak-Shyirak village (over 2 year period)

Priority Level – 1

ACTION	2008											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Continuous search for financial sources and relations with donor organizations	X	X	X	X	X	X	X	X	X	X	X	X
1. Development of joint projects wit international nature conservation organizations on a continuous basis	X	X	X	X	X	X	X	X	X	X	X	X
1. Establishment of a farming economy in the Reserve over 2 year period)	X	X	X	X	X	X	X	X	X	X	X	X

Objective

Indicator of success

Objective 5.2: Expansion of the Reserve’s territory with the aim of conservation of rare and threatened species of fauna and flora due to human caused activities. **Indicator:** state of ecosystems.

Subject Area 1: Increase of the area of the Reserve

At present, massive development of high altitude regions of the Tien Shan (development of animal husbandry, mining industry, energy sector, mass and hunting tourism) is taking place. At the same time, many species of large animals (snow leopard, argali, and bear) require large natural habitats. However, due to development of mountainous territories, these animals’ habitats are decreasing rapidly, and there are not even corridors left between them. For this reason, it is necessary to take urgent measures on expanding the territory of the specially protected nature territory of the Reserve, in particular, including the tract Jangart. After research of this territory (70,000 ha) on determining signs of snow leopard’s and its prey species’ presence (ibex, argali) within the framework of the programme using trap cameras, the highest signs of snow leopard’s presence were found in this region.

Activity 1: Study of the state of habitats of rare and threatened species of fauna and flora on the certain territories

(Partner organizations: National Academy of Science of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 1

Activity 2: Writing of a substantiation for increasing the territory of the Reserve upon necessity

(Partner organizations: National Academy of Science of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)

Priority Level – 1

ACTION	2007											
	J	F	M	A	M	J	J	A	S	O	N	D
1. Study of the state of habitats of rare and threatened species on the certain territories												
a) fauna			X			X			X			X
b) flora					X	X	X	X				
3. Writing of a substantiation for increasing the territory of the Reserve upon necessity				X	X	X						

4. Five-year Work plan

No.	Activity	Duration	Est. Budget (\$)	Outputs
<p>Goal: <i>The Reserve will conserve high-altitude ecosystem in favourable condition. Cultural heritage will be preserved and socio-economic conditions of local communities will develop within an expanded Reserve area.</i></p>				
<p align="center">Theme 1: Biodiveristy Conservation</p>				
<p>Objective 1.1: By 2015, to restore all ecosystems to favourable-stable condition and to maintain them thereafter. <i>Indicator:</i> Favourable conditions.</p>				
<p>Subject Area 1: Survey of Habitats</p>				
Activity 1	<p>Identification and survey of 5 zones of vertical zoning. (Partner organizations: National Academy of Sciences of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, higher education institutions on nature conservation, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i></p>	Year 1	\$7950	Expedition and report on vertical zoning
Activity 2	<p>Identification of landscapes. (Partner organizations: National Academy of Sciences of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, higher education institutions on nature conservation, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i></p>	Year 1	\$7950	Expedition and report
Activity 3	<p>Identification of priority and conducting of landscape surveys. (Partner organizations: National Academy of Sciences of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, higher education institutions on nature conservation, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i></p>	Year 1	\$7950	Expedition and report
Activity 4	<p>Buffer zone: conducting surveys for identification of favorable state of pastures in buffer zones. (Partner organizations: National Academy of Science of the Kyrgyz Republic, agencies, higher education institutions) <i>Priority Level – 1</i></p>	On a continous basis	\$3300	4 expeditions and a monitoring plot

Subject Area 2: Management of Habitats				
Activity 1	Control after access to the core zone with the aim of conserving ecosystem. (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, agencies, higher education institutions) <i>Priority Level – 1</i>	On a continuous basis	\$3300	3 stationary cordons and control over the cordons' work
Activity 2	Conducting antipoaching patrolling with strengthening in spring and fall seasons. (<u>Partner organizations:</u> agencies, programmes, communities) <i>Priority Level – 1</i>	On a continuous basis	\$3300	Monthly patrolling – permanent mobile group
Subject Area 3: Monitoring of the Ecosystems' State				
Activity 1	Data collection from automated equipment with the aim of tracking state of climate in different parts of the Reserve (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions) <i>Priority Level – 1</i>	On a continuous basis	\$1800	Monthly collection of data and reporting data on climatic conditions
Activity 2	Conducting surveys of habitats and separate groups of plants and animals each season (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i>	On a continuous basis	\$2400	Quarterly expeditions; identification of species' composition and maps of habitats
Activity 3	Establishing a 3-5 km transect in each one of the three types of habitats (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, ISLT, FFI) <i>Priority Level – 2</i>	Year 2	\$2400	Continuous monitoring research; monitoring data

Objective 1.2: To ensure that, by 2025, all populations of key animal and plant species are in favourable-stable condition. <i>Indicator:</i> Key populations' increase up to 60% - 100% depending on the existing number of key species.				
Subject Area 1: Survey of Flora and Fauna Populations				
Activity 1	Conducting series of expeditions on doing an inventory of flora and fauna of the Reserve (4 expeditions per year over two year period) (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory "Issyk-Kul", ISLT, FFI) <i>Priority Level – 1</i>	Years 2-3	\$3000	4 expeditions; list of species' composition
Activity 2	Data analysis and development of lists of key species based on the results of expedition work for further monitoring activities (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions) <i>Priority Level – 2</i>	Years 2-3	\$4000	Seasonal expeditions; list of key species
Subject Area 2: Management of Species – No Activities				
Subject Area 3: Monitoring of Species and Indicator Species				
Activity 1:	Conducting expeditions on snow leopard survey on a seasonal basis (4 times per year) based on SLIMS methodology (<u>Partner organizations:</u> ISLT, FFI) <i>Priority Level – 1</i>	On a continuous basis	\$3500	Seasonal expeditions; continuous monitoring
Activity 2	Conducting research of prey species of snow leopard on a monthly basis and continuously (argali, ibex, marmot) based on SLIMS methodology (<u>Partner organizations:</u> ISLT, FFI) <i>Priority Level – 1</i>	On a continuous basis	\$3500	Seasonal expeditions; continuous monitoring
Activity 3	Develop monitoring system of key species based on the inventory data (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions) <i>Priority Level – 1</i>	Year 1	\$2000	Developed programme

Theme 2: Scientific Research and Information Technology				
Objective 2.1: To develop a programme of scientific research (based on computer technology) that supports improved biodiversity management in the Reserve and adjacent areas. <i>Indicator:</i> The number of programmes available. Presence of technology.				
Subject Area 1: Biodiversity Research				
Activity 1	Develop a programme for survey of numbers and distribution of key species (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i>	Year 1	\$1000	Developed programme
Activity 2	Continue work on evaluation of cattle grazing impact on various types of vegetation on fenced plots (2 times per year continuously) (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i>	On a continuous basis	\$1000	2 expeditions per year
Subject Area 2: Survey on Abiotic Factors				
Activity 1	Develop new research programmes on: a. Programme of climate survey b. Programme of glaciers survey c. Programme of water resources survey (rivers and lakes) d. Programme of soil and relief survey for collection of basis data for further monitoring activities	Years 1-2	\$1500	Developed and approved programmes
Subject Areas 3: Data Management				
Activity 1	Develop computer programme for processing information on biodiversity (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 2</i>	Year 1	\$2000	Developed programme
Activity 2	Develop computer programme for processing and storing of information on abiotic factors (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 2</i>	Year 1	\$2000	Developed programme

Theme 3: Local Communities and Improving Rural Conditions

Objective 3.1: To improve living conditions of local people in order to reduce exploitation of the Reserve. *Indicator:* The number of people and villages attracted. The types of activities.

Subject Area 1: Development of Traditional Activities for Improved Economic Conditions.

Activity 1	Together with local communities develop a programme and find a donor to revive traditional methods of cattle breeding and regenerate local breeds of animals: yaks, horses, cows, sheep, dogs (<u>Partner organizations:</u> international organizations) <i>Priority Level – 2</i>	Year 1	\$500	Developed programme and attraction of investors
Activity 2	Develop a programme on revival of traditional crafts (felt, leather, etc.) (<u>Partner organizations:</u> Academy of Fine Arts) <i>Priority Level - 2</i>	Year 1	\$1000	Developed programme

Subject Area 2: Development of Ecotourism Infrastructure.

Activity 1	Identification of positive and negative impact of ecotourism on the SCEZ's ecosystem (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory "Issyk-Kul", Bashat (CBF), donor organizations) <i>Priority Level - 1</i>	Year 2		Identification of all factors of ecotourism's impact on nature
Activity 2	Conducting zoning (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic, higher education institutions, Biosphere Reserve Territory "Issyk-Kul", Bashat (CBF), donor organizations) <i>Priority Level – 1</i>	Year 1		Identification of zones and development of maps in the SCEZ by zones
Activity 3	Conducting research on maximum permissible load of visitors' number per territorial unit with the use of modern methods (<u>Partner organizations:</u> National Academy of Science of the Kyrgyz Republic,	Year 2		Obtaining data on visiting norms

	higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations) <i>Priority Level - 2</i>			
Activity 4	Development and approval of an ecotourist route with higher authorities (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, Bashat (CBF)) <i>Priority Level - 1</i>	Year 3		Developed and described routes on the territory of the SCEZ
Activity 5	Planning and development of ecotourism strategy (<u>Partner organizations:</u> Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations) <i>Priority Level - 1</i>	Year 2		Development of ecotourism development concept
Activity 6	Establishing partnership relations on ecotourism development (<u>Partner organizations:</u> Biosphere Reserve Territory “Issyk-Kul”, Bashat (CBF), donor organizations, tourist agencies) <i>Priority Level - 2</i>	Year 3		Signing of agreements on receiving ecotourists

Objective 3.2: To increase the participation of local communities in nature conservation activities. *Indicator:* The number of people employed. The types of activities. Income generated.

Subject Area 1: Working with Local NGO and Community Organisations to Increase Local Participation in Nature Conservation Activities

Activity 1	Attraction of local community and border patrol representatives for joint patrolling (<u>Partner organizations:</u> local communities, border patrol guards) <i>Priority Level – 2</i>	On a continuous basis	\$2000	Establishing a group of community inspectors
Activity 2	Joint organization of social and cultural activities with local communities on nature conservation activities (<u>Partner organizations:</u> local communities) <i>Priority Level – 2</i>	On a continuous basis	\$3000	Development of activities plan and their implementation

Theme 4: Public Relations and Education

Objective 4.1: To raise awareness of the threats to the Reserve, increase public appreciation and engender public support for its protection and management.
Indicator: The number of people and organizations contacted/with whom positive relations were established. The types of activities and programmes.

Subject Area 1: Educational programmes

Activity 1	Develop a programme of trainings and seminars for work (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 2</i>	Year 1	\$1800	Developed programmes for 6 trainings and 4 seminars
Activity 2	Conducting seminars and trainings 4 times per year with public (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 2</i>	On a continuous basis	\$1000	Conducting 4 trainings and seminars
Activity 3	Open new staff unit on education and public relations (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i>	Year 1-2	\$500	Hiring one staff unit to work on public relations
Activity 4	Development of educational information materials about the Reserve and nature conservation work in general (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 2</i>	Year 5	\$500	Publishing brochures-manuals
Activity 5	Continuous work on increasing the level of awareness on environmental protection among local population (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, higher education institutions, Biosphere Reserve Territory “Issyk-Kul”, schools) <i>Priority Level – 1</i>	On a continuous basis	\$1500	Publications in mass media, discussions, seminars
Activity 6	Signing agreements with leading higher education institutions of the republic, CIS for:	Years 1-2	\$600	Signing of agreements with higher education

	<p>c. conducting scientific research activities d. conducting educational programmes of nature conservation character (Partner organizations: higher education institutions) Priority Level – 3</p>			institutions, Academy of Science of the Kyrgyz Republic
Subject Area 2: Public relations and mass media				
Activity 1	<p>Establish environmental educational departments with museum and library about the Reserve in Ak-Shyirak, Enilchek and Barskoon villages (Partner organizations: State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”, international organizations) Priority Level – 1</p>	Years 3-4	\$8000	Establishing 4 museums; mounting and equipping of premises
Activity 2	<p>Continuous work with mass media and organization to attract attention and raising awareness with the aim of increasing the level of knowledge about nature conservation work (Partner organizations: mass media of oblast and republic level) Priority Level – 1</p>	On a continuous basis	\$2000	Published articles in regional and republican mass media – 2 times per year
Activity 3	<p>Create a series of videos about the Sarychat-Ertash corridor (2 films per year over 20 year period) (Partner organizations: mass media, Bashat (CBF)) Priority Level – 2</p>	On a continuous basis	\$4000	Producing 2 video films per year
Activity 4	<p>Organization of a series of TV programmes about nature of the Reserve (quarterly on a continuous basis) (Partner organizations: TV of oblast and republic level, higher education institutions, National Academy of Science of the Kyrgyz Republic, FFI, ISLT) Priority Level – 2</p>	On a continuous basis	\$4000	Organization of a series of TV programmes quarterly
Activity 5	<p>Publication of articles in scientific journals and newspapers at oblast and republic level (6 times per year) (Partner organizations: newspapers of oblast and republic level, higher education institutions, National Academy of Science of the Kyrgyz Republic) Priority Level – 2</p>	On a continuous basis	\$300	Published articles

Theme 5: Administration and Organisational Management

Objective 5.1: To ensure that management and administration of the organisation maximises efficiency and ensures the Reserve has all resources necessary to implement all of the priority 1 projects, 80% of priority 2 and 60% of priority 3 Management Plan projects. *Indicator:* 100% performance on priority 1 projects. 80% performance on priority 2 projects. 60% on priority 3 projects.

Subject Area 1: Staff management

Activity 1	Keep staff units and possibly increase the staff number of the Reserve (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i>	On a continuous basis		Maintaining staff number and hiring a staff unit for laboratory assistance
Activity 2	Purchase necessary equipment listed in Table 3 over 3 year period (<u>Partner organizations:</u> donor organizations) <i>Priority Level – 1</i>	Years 1-3	\$4300	Purchasing necessary equipment
Activity 3	Purchase alternative sources of energy over 2 year period: c) wind d) solar (<u>Partner organizations:</u> donor organizations) <i>Priority Level – 2</i>	Years 1-2	\$12000	Purchasing 8 sets of batteries
Activity 4	Organization of appropriate trainings amount staff of the listed in Tables 4 and 5 over 3 year period (<u>Partner organizations:</u> FFI, ISLT, other international organizations) <i>Priority Level – 1</i>	Years 1-3	\$2500	Conducting 6 trainings
Activity 5	Construction or purchase of an office for the Reserve in Barskoon village over 3 year period (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 2</i>	Years 1-3	\$30000	Purchasing office for the Reserve
Activity 6	Repair of old and setting of new rangers’ posts over 2 year period (<u>Partner organizations:</u> State Agency for Environmental Protection and Forestry,	Years 1-3	\$10000	Repair of 6 cordons and mounting of 1 new

	Biosphere Reserve Territory “Issyk-Kul” <i>Priority Level – 2</i>			cordon (Kumtor)
Activity 7	Establishment and equipment of a new scientific laboratory (<u>Partner organizations</u> : State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”, donor organizations) <i>Priority Level – 3</i>	Years 1-2	\$15000	Establishing and equipping scientific laboratory
Subject Area 2: Fundraising and sustainability				
Activity 1	Continuous search for financial sources and relations with donor organizations (<u>Partner organizations</u> : donor organizations) <i>Priority Level – 1</i>	On a continuous basis		
Activity 2	Development of joint projects with international nature conservation organizations on a continuous basis (<u>Partner organizations</u> : donor organizations) <i>Priority Level – 1</i>	On a continuous basis		Establishing relations with international nature conservation organizations; joint implementation of projects
Activity 3	Establishment of a farming economy in the Reserve over 2 year period) <i>Priority Level – 1</i>	Years 1-4	\$40000	

Objective 5.2: Expansion of the Reserve’s territory with the aim of conservation of rare and threatened species of fauna and flora due to human caused activities.
Indicator: state of ecosystems.

Subject Area 1: Increase of the area of the Reserve

Activity 1	Study of the state of habitats of rare and threatened species on the certain territories 1.1 fauna 1.2 flora (<u>Partner organizations</u> : National Academy of Science of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”)	On a continuous basis	\$6000	Conducting expeditions and reporting
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	<i>Priority Level – 1</i>			
Activity 2	<p>Writing of a substantiation for increasing the territory of the Reserve upon necessity (Partner organizations: National Academy of Science of the Kyrgyz Republic, State Agency for Environmental Protection and Forestry, Biosphere Reserve Territory “Issyk-Kul”) <i>Priority Level – 1</i></p>	On a continuous basis	\$600	Writing of justification for expanding the Reserve’s territory to Jangart area

5. Summary of budget requirements 2008 to 2012

Budget tables

		Priority	Total cost in plan	Breakdown of annual costs (USD)				
				2008	2009	2010	2011	2012
Objective 1.1: Restore all ecosystems to favourable condition and maintain them thereafter								
Subject Area 1	Habitat Surveys							
	Activity 1	1	7950	7950	0	0	0	0
	Activity 2	1	7950	7950	0	0	0	0
	Activity 3	1	7950	7950	0	0	0	0
	Activity 4	1	3304	610	634	660	686	714
			27154	24460	634	660	686	714
Subject Area 2	Habitat management							
	Activity 1	1	3304	610	634	660	686	714
	Activity 2	1	3304	610	634	660	686	714
			6608	1220	1268	1320	1372	1428
Subject Area 3	Ecosystem monitoring							
	Activity 1	1	1804	333	346	360	375	390
	Activity 2	1	2437	450	468	487	506	526
	Activity 3	2	2437	450	468	487	506	526
			6678	1233	1282	1334	1387	1442
	Objective total		40,440	26913	3186	3313	3445	3583
Objective 1.2 Ensure all species are in favourable condition								
Subject Area 1	Species survey							
	Activity 1	1	3000	0	1450	1550	0	0
	Activity 2	2	4333	832	865	900	900	936
			7333	832	2315	2450	900	936
Subject Area 2	Species management							
	No Activities		0	0	0	0	0	0
Subject Area 3	Species monitoring							
	Activity 1	1	3791	700	728	757	787	819
	Activity 2	1	3791	700	728	737	787	819
	Activity 3	1	2167	400	416	433	450	468
			9749	1800	1872	1927	2024	2106
	Objective total		17082	2600	4154	4362	2925	3042
Objective 2.1 Programme of scientific research supporting biodiversity management								
Subject Area 1	Biodiversity research							
	Activity 1	1	1000	1000	0	0	0	0
	Activity 2	1	1083	200	208	216	225	234
			2083	1200	208	216	225	234
Subject Area 2	Survey abiotic environment							
	Activity 1	2	1500	700	800	0	0	0
			1500	700	800	0	0	0
Subject Area 3	Data management							
	Activity 1	2	2000	2000	0	0	0	0
	Activity 2	2	2000	2000	0	0	0	0
			4000	4000	0	0	0	0
	Objective total		7583	5900	1008	216	225	234

Objective 3.1 Reduce exploitation of reserve through improvements in local living conditions								
Subject Area 1	Develop traditional activities							
	Activity 1	2	542	100	104	108	112	117
	Activity 2	2	1083	200	208	216	225	234
			1625	300	312	324	337	351
Subject Area 2	Ecotourism infrastructure							
	Activity 1	1	0	0	0	0	0	0
	Activity 2	1	0	0	0	0	0	0
	Activity 3	2	0	0	0	0	0	0
	Activity 4	1	0	0	0	0	0	0
	Activity 5	1	0	0	0	0	0	0
	Activity 6	2	0	0	0	0	0	0
			0	0	0	0	0	0
	Objective total		1625	300	312	324	337	351
Objective 3.2: Increase community participation in conservation								
Subject Area 1	Working with stakeholders							
	Activity 1	2	2167	400	416	433	450	468
	Activity 2	2	3033	560	582	606	630	655
			5200	960	998	1039	1080	1123
	Objective total		5200	960	998	439	1080	1123
Objective 4.1: Raise awareness and education								
Subject Area	Educational programmes							
	Activity 1	2	1873	600	624	649	0	0
	Activity 2	2	1083	200	208	216	225	234
	Activity 3	1	500	0	500	0	0	0
	Activity 4	2	499	0	0	160	166	173
	Activity 5	1	1517	280	291	303	315	328
	Activity 6	3	612	300	312	0	0	0
			6084	1128	1935	1328	706	735
Subject Area 2	Public relations & media							
	Activity 1	1	8000	0	0	5000	3000	0
	Activity 2	1	2167	400	416	433	450	468
	Activity 3	2	4062	750	780	811	844	877
	Activity 4	2	4116	760	790	822	855	889
	Activity 5	2	325	60	62	65	67	70
			18670	1970	2048	7131	5216	2304
	Objective total		24754	3350	3984	8459	5922	3039
Objective 5.1: Ensure efficient management and administration								
Subject Area	Staff management							
	Activity 1	1	0	0	0	0	0	0
	Activity 2	1	4300	0	0	0	0	0
	Activity 3	2	12000	0	0	0	0	0
	Activity 4	1	2497	0	0	0	0	0
	Activity 5	2	29967	0	9600	9984	10383	0
	Activity 6	2	9942	3185	3312	3445	0	0
	Activity 7	3	15000	7500	7500	0	0	0
			113624	10685	20412	13429	10383	0
Subject Area 2	Fundraising & sustainability							
	Activity 1	1	0	0	0	0	0	0
	Activity 2	1	0	0	0	0	0	0
	Activity 3	1	39917	9400	9776	10167	10574	0
	Objective total		113624	22385	38520	31761	20957	0
Objective 5.2: Expansion of Reserve territory								
Subject Area	Increase in Reserve area							
	Activity 1	1	6066	1120	1165	1211	1260	1310
	Activity 2	1	623	115	120	124	129	135
	Objective total		6689	1235	1284	1336	1389	1445

5.2 Summary of budget figures (USD)

			Plan	2008	2009	2010	2011	2012
	Overall totals		216,998	63,643	53,447	50,810	36,281	12,817

The total anticipated budget – excluding basic staff salaries and office costs – is \$216,998 for the 5 year period of the management plan.

These costs are broken down into annual figures in the table above. The total budget required to deliver priority 1 activities only is \$118,422 for the 5 year period of the management plan.

Priority two and three activities require a further \$82,964 and \$15,612 respectively for the 5 year period of the management plan.