



**Biodiversity Conservation in Afghanistan,  
A Program of the Wildlife Conservation  
Society supported by USAID**

**Life of Project Workplan**  
January 2006 – January 2009

**PROGRAM GOAL: TO ASSIST AFGHANISTAN IN THE CONSERVATION OF ITS BIOLOGICAL DIVERSITY.**

USAID's Afghanistan Country Strategic Plan for 2005-2009 for Biological Diversity and Natural Resources highlights that despite years of conflict and drought, Afghanistan's terrestrial and aquatic habitats still support significant biodiversity, of both plant and animal species, despite two decades of war and conflict. The last two decades have seen deterioration in the institutions and financing for conservation management. An increase in poverty combined with a breakdown in law and order led to pressure on natural resources in many areas, from poaching and illegal logging to overgrazing. Deterioration of structures for water management has also contributed to degradation of wetlands and loss of wildlife.

Natural resource conservation is a critical component of reconstruction and development in Afghanistan. With over 80% of Afghans dependent on the country's natural resource base, long-term stability will be directly dependent on sustainable management of natural resources. And despite the isolation of rural communities in Afghanistan, issues here are not just a matter of local concern. Afghanistan plays a critical role on the global political stage, especially given the existence of nearby borders with China, Pakistan, Kashmir India, and the Central Asian states. This is a volatile region, and cultural dissolution can have regional and even global repercussions. If environmental conditions continue to degrade, people will no longer be able to carve a living out of the fragile steppe, desert, and mountains as they have for centuries. Poverty will spread, communities and cultural practices will dissolve, and rural migration will further dissolve cultural connections and negatively affect neighboring communities and regions.

Unfortunately, Afghanistan's resource base has been dramatically and negatively affected over the course of the last quarter century from near-constant conflict and associated pressures related to the destruction of infrastructure, movements of large numbers of internally displaced people, an influx of modern weaponry, extreme poverty, and an almost total lack of law enforcement. Coupled with severe drought, the results have been deteriorated rangelands, felled forests, and heavily hunted wildlife. Because of the importance of Afghanistan in relation to US national and global security, and because of Afghanistan's dependence on its deteriorating natural resource base for recovery and stability, environmental conservation must become a major theme in reconstruction efforts in Afghanistan.

The Wildlife Conservation Society believes that protected areas must be the core of all nations' biodiversity conservation plans. These areas typically contain a higher diversity and abundance of plants and animals than landscapes managed primarily for economic use. Yet parks and reserves are always embedded in larger, human-dominated landscapes and are seldom sacrosanct. Regardless of how large or small a protected area may be, the plants and animals it contains are often threatened either directly or indirectly by human resource use activities.

Management of parks and reserves cannot, therefore, occur in isolation from the surrounding human-dominated landscape, but must take into account where and how human activities conflict with biodiversity conservation, and where conservation adversely impacts human welfare. As human populations continue to expand over the next 50 years, the incentive for over-exploiting

natural resources within and outside of protected areas will likely increase and the need for biodiversity conservation tools that address human-wildlife conflict will become even more important.

## IMPLEMENTATION STRATEGY

WCS Biodiversity Conservation Program in Afghanistan, funded through a cooperative agreement with USAID, seeks to preserve biological diversity, and through that preservation, meet USAID's Afghanistan's Strategic Goals, 2005-2010, and its FY2007 Afghanistan Operational Plan for increasing biological diversity, preserving Afghanistan's natural resources, and achieving USAID's Strategic Objective SO 5: A Thriving *Licit* Economy Led by the Private Sector and Intermediate Result 5.1. Accelerated Growth in the Rural Economy, Sub IR 5.1.3. Natural Resources Management Improved. To achieve these goals, WCS is implementing a multi-pronged strategy in three areas in Afghanistan: the Wakhan Corridor, the Hazarajat Plateau, and the Eastern Forest complex. The Wakhan has some of the last relatively pristine wildlife habitats and wildlife populations left in Afghanistan; the Hazarajat Plateau has some of the most important existing natural and cultural protected areas in Afghanistan; and the Eastern Forests complex has the last remaining arid conifer woodlands remaining in the country, a critically important component for both biodiversity conservation and economic development.

These initiatives involve four interwoven categories:

- (1) **Surveys and Analyses of Baseline Data of Wildlife and Wildlands.** WCS is carrying out an assessment of the current status of Afghanistan's biodiversity through extensive wildlife surveys of both fauna and flora in the three key regions identified by USAID through its Strategic Plan, the Wakhan Corridor, the Eastern Forests Complex, and the Hazarajat Plateau. Data collection includes wildlife, rangelands, livestock, forest cover, ecosystem health, data on indicator species, and socioeconomic factors. Collecting this baseline data is a necessary threshold for carrying out effective biodiversity conservation as there have been no comprehensive scientific surveys of Afghanistan's flora and fauna for the last two decades. These surveys are an important part of WCS' activities during the first year.

WCS scientists, based on the extensive scientific data to be collected, will analyze the threats to biodiversity through remote sensing change detection and GIS analysis, survey data analysis, reviews of existing Afghan government policies and biodiversity conservation legislation, analysis of economic factors driving the use of those resources, and surveys of local communities. As many of these threats include emerging infectious diseases, many of which are shared between humans, their domestic animals, and migratory wildlife, we will implement an extensive ecosystem health program to assess the threats to all three groups, including seeking to understand the role that the illegal trade in wildlife may play in Afghanistan.

- (2) **Strengthening Laws, Policies, and Institutions.** WCS is working with the Afghan government to draft effective laws and implementing regulations, develop effective policies, and coordinate support for Afghanistan's fledgling biodiversity institutions. Economic development through natural resource management and biodiversity conservation depends on the creation of effective institutions and policies that will mitigate existing threats and increase opportunities for conservation through better governance, enforcement, and support for the rule of law. This also supports the US government's objectives for Afghanistan. WCS will review biodiversity laws, and develop regulations (and build internal capacity to develop those regulations at the Ministry of Agriculture and the National Environmental Protection Agency) to implement these laws. Further, the legal framework is not yet complete – WCS will work at the request of the Ministry of Agriculture to draft a law on rangelands, and will continue working on completion of the Forestry law. There is significant need for developing implementing regulations, as well as supporting the enforcement of these laws. WCS' goal is to do this through active cooperation with Afghanistan's government institutions and the donor and NGO community, and active coordination through informal mechanisms, such as the Biodiversity Conservation Working Group, as well as formal ones, such as the Cross-Cutting Thematic Group on the Environment.

Furthermore, WCS will be developing recommendations for new and expanded protected areas based on data collected, developing future training programs for park rangers, designing a Marco Polo sheep (and Markhor) trophy hunting program, and other relevant government-led conservation actions. This includes promoting transboundary cooperation on ecosystem management. As many important species in Afghanistan are migratory, there is an increasing need for a regional approach to biodiversity conservation. Transboundary cooperation – through the creation of a Peace Park in the Pamir Mountains - is a means to broader international cooperation in other areas of Afghanistan's foreign policy and plays an important role in strengthening the ties between the fledgling Afghan government and its neighbors. In this way, transboundary cooperation provides a forum for track II diplomacy at the working level, as well as a way to directly address sensitive issues on border security that have hampered Afghanistan's relations with its neighbors. WCS will facilitate three four-party workshops on the Transboundary Peace Park, and follow-up activities including through its representative offices in these countries.

- (3) **Community-based initiatives.** WCS is contributing to USAID and the Government of Afghanistan's goals of poverty reduction and economic development by promoting community conservation, effective management of Afghanistan's natural resources by those who utilize them, and ecotourism. Biodiversity conservation underpins sustainable economic development: It helps address social needs by benefiting health (both human and livestock), increasing access to arable lands and water resources, and safeguarding environmental services. Further, most Afghans are dependent on biodiversity, either directly or indirectly, for their survival. Effective use of natural resources preserves rural stability, and contributes to economic growth and prosperity in regions that may not have effectively benefited from Afghanistan's revitalization. This in turn provides direct benefits to security.

- (4) **Building Capacity within Afghanistan's Environmental Sector.** Finally, WCS seeks to increase Afghan capacity to manage its biological resources. To do so, it has implemented an intensive program of capacity building and training of both government counterparts as well as scientists in research and academic institutions. This capacity building is woven into all other project activities, and it is also specific to focused short course training and study/travel tours to relevant international sites. Throughout this project, activities are designed to raise Afghanistan's capacity for self-management of their natural resource base through education, workshops, and training. This program includes extensive opportunities for government officials, university professors and researchers, and graduate students to benefit from classroom training, attendance at international conferences and other WCS programs, and extensive practical fieldwork to learn modern methodologies and techniques for assessing biodiversity, and its threats.

## IMPLEMENTATION PLAN

Total Anticipated Level of Effort FY06-FY08: \$6,975,773 (Budget Attachment A)

### OBJECTIVE 1: SURVEY AND MONITOR WILDLIFE AND WILDLANDS IN AFGHANISTAN IN THE LANDSCAPE CONTEXT

**Level of Effort (Total Objective 1): \$1,520,055**

#### **Threats Addressed:**

A diversity of wildlife can be found in the Wakhan Corridor of Afghanistan. There are a number of highly endangered species of global conservation concern, including Marco Polo sheep (*Ovis ammon polii*) and snow leopard (*Uncia uncia*). These species, and the rangelands they depend on, are under tremendous pressure from a variety of human-related threats; yet virtually nothing is known about status, distribution, or trends of any species, information that is critical to evaluate and determine appropriate management strategies. **WCS scientists will extensively assess the status of key indicator species and the ecosystems.** This includes surveys of large ungulates and carnivore species, small mammals (rodents and bats), rangeland status, and diseases shared by domestic animals and wildlife, and that threaten both, as well as the human inhabitants in the region. No extensive, long-term biological work has been conducted in the Afghan Pamirs since 1971-75 when Petocz performed surveys of Marco Polo sheep and other wildlife. Although there were two recent short term “visits” to the region (UNEP 2002, WCS 2004), WCS’ surveys will be the first comprehensive work in 30 years. This baseline data is necessary for all activities carried out for biodiversity conservation as the means to understand the challenges confronting effective natural resource management, and identifying the appropriate steps needed to meet those challenges.

Marco Polo Sheep are an important flagship species in the Pamir region and will be an important element of our assessments. They are especially sensitive to human activity, particularly the proximity of herders, and the impact of overgrazing. Marco Polo Sheep are also extremely shy from being hunted that when disturbed they move into an adjacent valley or into Tajikistan; and the sheep move extensively across borders and within the Pamir region itself. Without an accurate understanding of status and movements of Marco Polo Sheep (and of other species in the Wakhan), no sensible and sustainable management initiatives (including community based efforts and protected area delineation) can be undertaken, and these species will continue to remain under threat from hunting, disturbance, and other anthropogenic factors.

The seasonal shifts in grass productivity across the Pamirs, and resulting movements of traditional pastoralists and migratory behavior of Marco Polo sheep, requires that the region be managed on a landscape scale, not as a series of important but undoubtedly insufficient protected areas. The lack of knowledge regarding wildlife and human land use patterns both in the Wakhan and in the Hazarajat Plateau region makes sensible and informed management decisions impossible. To promote sustainable natural resource management and conserve wildlife across the vast landscape of Afghanistan, there is a need to focus threat reduction activities where human land-uses and wildlife habitat uses conflict with one another. Understanding where the

needs of people and of wildlife clash requires sound ecological and socio-economic information and analysis. **By promoting threat assessment as a critical tool for adaptive management strategies within institutions, this activity will strengthen community based resource management and the protected areas administration's efforts to determine appropriate park boundaries. This activity will also promote appropriate land-use practices and assist in avoiding potential land-use conflicts.**

Finally, there is growing international recognition of the importance of integrating the traditionally separate fields of livestock, wildlife and human health management. Such an approach is urgently needed in Afghanistan, where a large percentage of the populace is directly dependent on livestock health for their livelihood, where virtually nothing is presently known about transmission of disease between livestock and wildlife, and where poor human medical care makes zoonotic disease issues especially dangerous. An example of the importance and complexity of this problem can be found just over the border in Northern Pakistan, where in 1996 blue sheep were found to be dying from an unidentified disease; a recent WCS-sponsored expedition to the Shimshal region identified *Sarcoptes scabiei* as the cause of the blue sheep deaths, and livestock as the likely vector. Timely veterinary interventions can prevent widespread die-offs, and minimize false diagnosis of disease origins that place wildlife at risk. Outbreak response plans as well as local herd management would be greatly improved with epidemiological information about disease dynamics and economic information about regional trading patterns and regulations. There is, however, currently no mechanism within Afghanistan's current policy and planning process to address such issues.

Environmental change may directly result in an increase in the spread of infectious diseases by changing underlying ecological and evolutionary dynamics of an ecosystem away from an equilibrium state. More than 70% of emerging infectious diseases are zoonotic – shared between humans and animals. It is therefore important to understand the dynamics where wild and domestic populations come into contact and how this may directly or indirectly affect health of humans, livestock, and wildlife.

### **Activity 1.1. Wildlife Surveys in the Wakhan Corridor region**

While presence/absence information does exist on some species of wildlife found in the Wakhan, most data are meager and often entirely lacking, even for conspicuous and economically important species such as Marco Polo sheep. It is critical to collect baseline information on diversity, abundance, distribution, and movements of wildlife to serve as a basis for proposing measures to protect and manage the wildlife (and by extension the landscape) of the Pamir region. This activity will focus on surveys of large mammals for the Big Pamir Wildlife Reserve area (the focus of 2006), the eastern end of the Little Pamir (2007), and the eastern tip of the Waghjir Valley (2008).

While the focus of these surveys will be on Marco Polo sheep and other large mammals, information will be collected on all species of wildlife seen during these surveys. WCS will also be surveying wildlife trade and hunting practices in Afghanistan to understand independent threats on wildlife. Historical data on wildlife population abundance and incidence will also be collected from natural history museums and other surveys around the world. Wildlife surveys

will include members of government agencies responsible for wildlife and/or park management, as well as university personnel and local community members who will be trained in international best practice survey methodologies so that these surveys can be replicated in future years to determine trends in wildlife.

WCS will also be surveying small mammal populations in the Big Pamir and Wakhan Valley in 2007, and Little Pamir in 2008. Small and medium-sized mammals are important indicators of biodiversity but have been significantly overlooked in favor of more charismatic species. Small mammals can also serve as indicator species, and the status of their populations may influence higher trophic levels, particularly the carnivores that depend on them. **This will be the first survey of small mammals ever conducted of the Wakhan region, and the most recent survey of Afghanistan's small mammals since the Field Museum of Natural History Street Expedition in the 1960's and Russian and Czech surveys of bats in the 1970's.** This study will include an elevation gradient of Rodentia (rodents) and Chiroptera (bats) up the Wakhan Valley and Pamirs. This particular assemblage of mammal species may be important indicators of ecological health in the region, and the nestedness of the species may also determine sensitivity to habitat disturbance through local extinction. We will consider collecting type specimens for US and Afghan collections. These collections will serve as the basis for future training and as a library of biodiversity in Afghanistan.

**Level of Effort (FY06-08): \$429,240**

**Expected Accomplishments:**

- Collection of georeferenced, presence/absence data, basic demographic data on group size, and population density of important indicator species in birds and mammals in the Wakhan Valley, Big and Little Pamirs, and the Waghjir Valley that will serve as the basis for assessments of biodiversity in the Wakhan after 30 years of warfare.
- Field and classroom training of government counterparts and academic researchers in methodologies for surveys.
- Developing opportunities for further research outside of Afghanistan for select researchers.
- Integration of the data with remote sensing imagery.
- Comparison of historical species richness and distributions with present levels.
- Greater understanding of wildlife trade and hunting practices in Afghanistan.

**Activity 1.2. Marco Polo Sheep Research and Monitoring**

Marco Polo sheep may serve as keystone species for the Wakhan: The state of the Marco Polo sheep populations greatly affects other species within the ecosystem, including the snow leopard. Marco Polo Sheep are also good indicators of the extent of environmental degradation. The number and distribution of Marco Polo sheep in the Afghan Pamir depends on the following factors:

- 1) Marco Polo sheep are greatly affected by the proximity of herders, e.g., when households move from the summer range on the south side of the Little Pamir to the north side for

the winter, many Marco Polo sheep shift their range, some to the south side and others apparently into Tajikistan; similarly, south-facing slopes exposed to sun and almost snow-free in winter are favored by Marco Polo sheep but are taken over by livestock at critical times;

- 2) Marco Polo sheep are so shy from being hunted that when disturbed they move into an adjacent valley or into Tajikistan;
- 3) Female herds tend to be relatively sedentary, whereas males may travel extensively, especially during the late November-December rut, entering and leaving from Tajikistan and China;
- 4) Marco Polo sheep may move between Tajikistan and the Little Pamir depending on the season. Understanding issues such as these are critical to developing and achieving management objectives for this species, which is globally important from a conservation perspective and locally important from an economic perspective.

In particular, this activity will focus on satellite collaring adult and young Marco Polo sheep in the Big Pamir, Little Pamir, and Waghjir Valley to determine distribution, trends, habitat use, feeding ecology, migratory movements, survivorship, and causes of mortality. Observational data will be recorded, fecal samples collected and analyzed to study diet, tissue samples taken for genetic analysis, and blood samples taken to assess disease ecology and health status of wild. Graduate students from Afghanistan will be identified, trained, and mentored to take lead roles for advanced degrees on as many of these studies as possible.

**Level of Effort (FY06-08): \$366,423**

**Expected Accomplishments:**

- Collecting behavioral, demographic, and health data on key indicator species for biodiversity within the Wakhan Corridor.
- Developing satellite monitoring system, and collaring Marco Polo sheep for data collection.
- Analysis of geospatial data, and monitoring sheep in real time via satellite. Health data on Marco Polo sheep populations, and estimates of disease transmission.
- Training of Afghan veterinarian postgraduates and government counterparts in monitoring disease ecology and health status in the wild.

**Activity 1.3. Assessment of Rangelands in the Wakhan Corridor**

A full-scale rangeland assessment of all relevant regions of the Wakhan Corridor in Afghanistan will be performed. The assessment will develop an initial set of indicators and quality standards and adopt a standardized and consistent definition of rangeland health and of measurable indicators of change. Collection of data will be standardized on the basis of a statistically valid sampling scheme to enable the data to be combined on a national level and to allow for periodic and consistent repetition of sampling to detect trends in the measures used to evaluate rangeland health. Data will be incorporated into a spatially explicit GIS database for analysis and to allow for coupling with data collected from other studies such as the ones described below.

**Level of Effort (FY06-08): \$228,760**

**Expected Accomplishments:**

- Understanding of the effects of grazing practices on the health of the rangelands in the Wakhan.
- Development and standardization of rangeland health indicators to be replicated on a national scale.
- Creation of a reference book of rangeland plant species of the Wakhan.
- Training of Afghan scientists to continue rangeland monitoring.

**Activity 1.4. Health Assessment of Livestock and Marco Polo Sheep**

This component will focus on establishing research and policy initiatives focused on the livestock/wildlife/human health interface. Although USAID has funded work on surveys of domestic livestock for disease, these surveys have not extended into the Wakhan, nor have they looked at diseases that may be shared between domestic live stock and wildlife. There will also be elements of technology integration through applying and transferring expertise in GIS, spatial analysis, simulation modeling and stakeholder communication with regard to disease surveillance and dynamics. This activity will improve the understanding of disease at the ecological and landscape level in the Wakhan. Disease dynamics can then be incorporated into livestock agriculture policy and planning. For example, forage monitoring systems could be enhanced by coupling them with a disease surveillance protocol. WCS will partner with national and provincial governments, international organizations such as the FAO, and professional societies, including the Afghanistan Veterinarian Association, to collect initial technical data. By building capacity for technology integration in GIS, etc., WCS' government partners can incorporate the information into policy and planning. Thereafter, a key objective of rangeland management might be reducing the risk of disease transmission among and between domestic and wildlife species. Early warning of predisposing conditions for disease outbreaks would allow for more strategic use of tools such as livestock vaccination by practitioners, with consequent benefits for both livestock production and wildlife conservation.

This activity will focus on data collection on disease issues related to livestock management in the Wakhan. We will also collect data on disease issues related to Marco Polo sheep during research efforts in order to assess the existence or likelihood of disease transmission between these two critical elements of the Pamir ecosystem and economy. Information collected will be developed into a disease-specific database that is spatially explicit and that can be integrated into a Geographical Information System (GIS) to identify risk factors for disease emergence and help predict future disease outbreaks. This database will then enable both local stakeholders and government agencies to make informed management decisions to limit or control disease interactions within livestock populations and between livestock and wildlife.

Finally, WCS will also conduct opportunistic surveys of wildlife trade patterns both in the Wakhan and in markets for wildlife. Legal and illicit wildlife trade is an important influence on the spread of infectious disease and a potential threat that affects wildlife conservation issues.

Through the WCS Field Veterinary Program, WCS will also make opportunistic surveys of Avian Influenza and other diseases carried in wild bird populations in protected areas.

**Level of Effort (FY06-08): \$279,150**

**Expected Accomplishments:**

- Identify livestock and herd composition and the effect on disease dynamics,
- Understand herding system and seasonal movements and potential interactions or impact on wildlife;
- Evaluate overall livestock mortality rate; understand and learn local and traditional veterinary practices; analyze data to explore potential effects on disease transmission;
- Survey the Kabul Zoo, local wildlife product merchants, and the Bird Market to understand wildlife trade patterns.

**Activity 1.5. Wildlife and Livestock Health Training**

Recent work by the USAID/DCA Nationwide Livestock Health Project (NLHP) to train veterinarians and para-veterinarians has improved access to veterinary care for domestic animals in many parts of Afghanistan. However, the remoteness of the Wakhan limits access to veterinary care and these programs do not operate in this region. This has dramatic consequences for the health of livestock and consequently the livelihoods of herders, and increases the likelihood of disease transmission between livestock and wildlife such as Marco Polo sheep. We propose to collaborate with the NLHP, and other NGO's, to conduct community-based livestock health training in the Wakhan to improve veterinary care that can be provided by herders to their own animals. Further, WCS will train and mentor Afghan vets to be able to survey and treat wildlife through our capacity building and training program.

**Level of Effort (FY06-08): \$30,000**

**Expected Accomplishments:**

- Increased productivity in livestock,
- Reduced potential for disease transmission between livestock and wildlife, and
- Buy-in of local herders to other conservation initiatives described herein.

**Activity 1.6. Landscape Assessments and GIS Program**

Landscape-level assessments will allow us to integrate remote sensing data, topographic features, species distribution, ecosystem health and disease patterns, and human dynamics to determine process from patterns. WCS will use GIS analysis to integrate the complex social and ecological dynamics of the Wakhan; all data WCS scientists are collecting will be spatially-tagged.

*Activity 1.4.1. Landscape Assessment of Pastoralist and Livestock Movement Patterns*

Wakhi communities inhabit the western Pamirs and extend down the Wakhan Corridor. They are

basically agriculturalists, but they also have livestock, most of which they graze during summer, and now often all winter, in the Pamirs. The Kyrgyz are primarily livestock herders, keeping sheep, goats, yaks, horses, and a few Bactrian camels and donkeys. They shift these seasonally 2-3 times a year between summer and winter pastures. Although traditionally, the Kyrgyz were traditionally the wealthier community, and the Wakhi the more impoverished, this relationship may have now switched. These changes may be having an effect on the sustainability of the landscape.

To ensure sustainable rangeland practices there is a need to collect data on local movements and seasonal use patterns of local pastoralists and their livestock. Information on migratory patterns and livestock numbers will be derived from socioeconomic surveys, through the ecosystem health program, and other means. Data will then be incorporated into a spatial GIS database and combined with data from the rangeland assessment described above to assess carrying capacity and determine other management needs and objectives.

#### *Activity 1.4.2. Landscape Assessment of Marco Polo Sheep Migratory Patterns*

Marco Polo sheep are highly migratory. Herds of these animals move back and forth within Afghanistan and across the borders of all four countries in the Pamirs – Afghanistan, Pakistan, China, and Tajikistan. These movements are primarily seasonal, but may also be triggered by human or livestock disturbance. It is critical to any management initiative that the migratory patterns, both in terms of seasonal timing and migratory corridor routes be identified and mapped in a spatial GIS database. This information can then be combined with rangeland data and human-livestock migratory patterns to help in determining areas of potential or existing human/wildlife conflict as well as areas of critical conservation importance, including areas that may be appropriate for gazetting as protected areas, in some cases at an appropriate multiple-use level. Information for this assessment will be collected from wildlife surveys and satellite collar tracking data. This project will integrate data collected in Activity 1.2 (Marco Polo Sheep Research and Monitoring) and several other pertinent components (for example, Activity 3: Ecosystem Health; Activity 2.1 Rangelands Assessment; Activity 1.1 Wildlife Surveys), into GIS databases. This integration is essential to analyze and completely understand sheep migratory patterns and population threats.

#### *Activity 1.4.3. Assessments for Landscape Management*

The WCS Living Landscapes Program provides a mechanism for developing, testing and disseminating wildlife focused tools for effective site-based conservation of wildlife and wild places at a landscape scale. Biological and human land-use information will be collected through the processes described above and assembled as data-layers in a Geographic Information System. This information will be incorporated within the framework provided by the WCS Living Landscapes Approach to create biological and human landscapes that, when overlaid, will provide a spatially explicit representation of where, within the vast regions under consideration, the key needs of humans and of wildlife conflict with one another. With this as a basis, the project teams will identify and prioritize needs and interventions and review and refine management plans currently under development to reduce obstacles to their successful implementation. In addition, by working with local communities and officials responsible for distribution of grazing rights and other resource access privileges, the project will be able to incorporate the analysis from the Living Landscapes Approach to collaboratively develop zoned

management plans to secure the protected areas, extend their conservation impact, guide development plans, and ensure that traditional grazing practices can remain productive.

**Level of Effort (FY06-08): \$186,482**

**Expected Accomplishments:**

- Collection and integration of remote sensing data with data on forestry, ecosystem health, rangeland, and human movement data to better understand and analyze threats to biodiversity conservation and the human communities that depend on these natural resources, and
- Development of efficacious solutions based on this data.

**OBJECTIVE 2: STRENGTHENING LAWS, POLICIES, AND INSTITUTIONS**

**Level of Effort (Total Objective 2): 1,041,536**

**Threats Addressed in Objective 2:**

Three decades of war, changing legal regimes, and intermittent power vacuums have resulted in an inadequate and sometimes conflicting system of environmental laws, regulations, and policies. Further, enforcement of these policies (such as the Presidential decree banning hunting) has been intermittent, sporadic, and weak. The failure of an effective regulatory system has resulted in wide spread and illicit hunting of wildlife, significant deforestation of remaining forests in Afghanistan, and the erosion of the natural resource base. In this objective, we discuss our plans to:

- 1) Create institutions for biodiversity conservation, including parks in the Wakhan, the Hazarajat plateau, and in the Eastern Forest Complex,
- 2) Strengthen Afghan laws and to help Afghan Ministries and Agencies create appropriate implementing regulations,
- 3) Support the rule of law through the enforcement of these codes and regulations and the creation of regulatory mechanisms with sufficient technical skills (ranger training)
- 4) Create economically viable policies for management based on current data on the value of natural resources.

**Activity 2.1. Update Wakhan Protected Areas**

Protected areas are critical to the conservation of biological diversity in the Wakhan, yet protected areas still need to be appropriately identified through stakeholder input and biological analyses. At the same time, protected areas in the Wakhan are likely to be ‘paper parks’ unless proper stakeholder involvement is encouraged and appropriate enforcement mechanisms are put into place.

*Activity 2.1.1. Update Big Pamir Wildlife Reserve Management Plan*

The Big Pamir extends over about 5,500 km<sup>2</sup>. The Wakhi occupy the western Big Pamir, a considerable part of which was once included in the so-called Big Pamir Wildlife Reserve encompassing about 679 km<sup>2</sup>. Although designated a reserve, it has never been legally established, and between 1968 and 1977 has functioned as a hunting reserve for foreigners, managed by the Afghan Tourist Organization. Before that, part of the area (the Tulibai Valley) was a royal hunting reserve of the former King Muhammad Zahir Shah. In 1978, Dr. Ron Petocz prepared a management plan for the reserve, which could still be used as a basis for conservation efforts today.

Except for a UNEP-sponsored week-long visit to the Big Pamir by Anthony Fitzherbert and Charadutt Mishra in 2002 and a more recent visit by WCS scientist Dr. George Schaller in 2004, no biological work had been conducted in the Afghan Pamirs since 1971-75 when Petocz performed surveys of Marco Polo sheep and other wildlife. There is a significant need to survey the region as a prerequisite to the creation of the protected area. Therefore, this project will review the existing and proposed legal status and plans for the Big Pamir protected area, and make specific recommendations for management and gazetting at appropriate levels for appropriate parts of the area. These recommendations will be informed by wildlife surveys that will make a thorough status survey of large mammals, including snow leopard, Marco Polo sheep, and ibex, a detailed socio-economic survey to determine number of people and livestock and levels of resource use, an initial business plan to determine the costs involved in managing the area, and other relevant information needed in management (see survey activities above). Recommendations will also be made related to ranger training needs, tourism potential, and options for trophy hunting. The field data collection portions of this activity will be the focus of FY06 efforts, and tie into all other project activities in the region.

*Activity 2.1.2. Update Little Pamir Protected Area Designation*

Dr. George Schaller, in a recent (2004) survey of wildlife in the Wakhan, recommended that the eastern tip of the Little Pamir, east of 74°40'E, should be designated a strictly protected area (about 250 km<sup>2</sup>). This area is at present not used by the Kyrgyz, and thus the habitat is in excellent condition and does not conflict with human use patterns. There is also no barrier between it and the proposed Shaymak Reserve in Tajikistan, enabling Marco Polo sheep to move freely back and forth. Further wildlife and sociological studies will lead to recommendations based on Dr. Schaller's suggestion. This activity will be the focus of FY07 efforts, but existing data will be collected and discussions will be held with the government (and appropriate NGO's) on gazetting a protected area in this region as part of the FY06 effort of work.

*Activity 2.1.3. Update Waghjir Protected Area Designation*

The eastern tip of the Waghjir Valley (about 300 km<sup>2</sup>), east of 74°20'E, is uninhabited and used only for yak grazing in winter. Marco Polo sheep cross the Yuli Pass between China and Afghanistan at this point in winter. Dr. George Schaller has recommended that this area should be designated a reserve with yak grazing allowed to continue but other activities prohibited. Further wildlife and socioeconomic surveys will lead to recommendations based on this suggestion. This activity will be the focus of FY08 efforts, but existing data will be collected and discussions will be held with the government (and appropriate NGOs) on gazetting a protected

area in this region as part of the FY06 effort of work.

**Level of Effort (FY06-08): \$164,580**

**Expected Accomplishments:**

- Analysis of collected biological and socioecological data to update existing protected area boundaries in the Big Pamir,
- Initiate discussions on gazetting in the Waghjir and Little Pamir Protected Area designation.
- Collection and analysis of GIS and remote sensing data for these protected areas for landcover classification.

**Activity 2.2 Assessment and Development of a Transboundary Peace Park**

The Pamirs, flanked by the Hindu Kush, Himalayan, Karakoram, and Kunlun ranges, are one of the most spectacular mountain regions on earth. The borders of four countries—Afghanistan, Pakistan, China, and Tajikistan — meet at this knot of mountains. The spectacular and endangered Marco Polo sheep and snow leopard wander across the borders from one country to another. Marco Polo sheep, and the species tied directly or indirectly to its fate, therefore can only be effectively protected and managed through trans-frontier cooperation and “the creation of one large reserve” that encompasses the four countries. With fences, uncontrolled poaching, and differing levels of protection between countries, there is a critical need to have the four contiguous countries develop agreements for standardized and coordinated conservation efforts to ensure that transboundary migrations of Marco Polo sheep and other wildlife continue to be a critical part of the behavioral repertoire of these species.

A major ongoing initiative is world-renowned WCS conservation biologist Dr. George Schaller’s effort to create a four-country International Peace Park to manage joint resources on a solid scientific foundation, facilitate cooperation for mutual benefit, and encourage positive relations – an International Peace Park that, in the words of the IUCN, is “formally dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources, and to the promotion of peace and cooperation.” The establishment of this International Peace Park would, as has been shown elsewhere, stimulate cooperation between countries and thus help improve regional stability, and increase assistance from the international donor community for long-term management of the associated protected areas.

Much of the area under consideration for a transboundary peace park is already or may soon be in reserves and needs only minor additions and adjustments to become a formal and functional entity. The trans-frontier program began in 1975 when Pakistan established the Khunjerab National Park (6,150 km<sup>2</sup>) and in 1984 when China set up the contiguous Taxkorgan Nature Reserve (about 14,000 km<sup>2</sup>). Other reserves with Marco Polo sheep in this border region are the Zorkul Strictly Protected Area (870 km<sup>2</sup>) in Tajikistan and the Big Pamir Wildlife Reserve (679 km<sup>2</sup>) in Afghanistan. In addition, there are two trophy hunting areas for Marco Polo sheep, one in Tajikistan and one in China, with a measure of protection. China is considering another reserve along the Tajik border, and recent WCS surveys in Tajikistan and Afghanistan suggested

further additions to the system.

Data from existing protected areas analyses coupled with information collected from this and associated programs (e.g., human and livestock use patterns, wildlife migration patterns, existing park boundaries) will be incorporated into a spatially explicit database for the Transboundary Peace Park. This database can then be used to create best-fit analyses of potential reserve structures and management options and regimes based on wildlife and human/livestock spatiotemporal use patterns, and thus generate specific recommendations for establishment and management of the park that would satisfy all stakeholders from government agencies to local communities.

Formal endorsement of the International Peace Park initiative is needed from all four governments. To initiate contact between countries about the establishment and management of this International Peace Park, WCS will hold a series of workshops with participants drawn from relevant government departments and institutions, as well as from non-governmental and donor organizations with an interest in the region. The purpose of these workshops would be to share information, discuss problems and opportunities, have a policy dialogue, establish a cooperation structure, set priorities, and develop plans and mutual agreement on principles and action. Specific subjects may include the state of knowledge of wildlife and research needs, state of legislation and policy concerning reserves and other lands, management of wildlife and reserves, eco-tourism potential and development, trophy hunting, environmental education, community participation in resource management, community development, the identification and establishment of new or expanded reserves and buffer zones, and finally to achieve memoranda of understanding between governments for transboundary cooperation in management of a system of reserves dedicated to conservation of the greater Pamir region. The first international workshop will be held in Urumchi in NW China, on September 27-30<sup>th</sup>, 2006.

**Level of Effort (FY06-08): \$142,068**

**Expected Accomplishments:**

- Formal endorsement of a Transboundary Peace Park between China, Pakistan, Tajikistan, and Afghanistan
- Development of a spatially-explicit database to manage biological, social, and topographic information and to determine potential reserve structures and management options.

**Activity 2.3 Hazarajat Plateau Initiative**

Band-e-Amir and Ajar are two of the greatest opportunities for Afghanistan to benefit from ecotourism, given the sites' central location and their inherent beauty and uniqueness. However, both sites suffer from a variety of problems that threaten their integrity and suitability for tourism. Threats to Band-e-Amir include uncontrolled tourism that is damaging the site's fragile land forms, uncontrolled fishing that may be impacting native fish populations (including use of explosives that threatens the integrity of the natural dams), and overhunting that may have already resulted in the loss of urial and ibex from surrounding hills. Threats to Ajar include

uncontrolled poaching that has caused apparent dramatic declines in wildlife species. Combining local community work with official gazetting of protected areas (that benefit local communities) will help to alleviate these threats.

### *2.3.1 Band-e-Amir National Park Assessment*

Band-e-Amir is often described, and appropriately so, as one of the great wonders of the world. Consisting of six crystal blue lakes separated by a series of natural white travertine dams in a unique step-like lock system, Band-e-Amir deserves protection as a major source of future revenue from international ecotourism for the country of Afghanistan. Even today Band-e-Amir is regularly visited by groups of Afghans on holiday. Alongside the natural beauty of the lakes of Band-e-Amir there is also a shrine dedicated to the Caliph Ali, son-in-law to the prophet Mohammad. Band-e-Amir has been identified as containing appropriate components to qualify as a UNESCO World Heritage Site (UNEP 2003), yet while it was identified as a National Park in 1973 it still has no formal legal status for protection.

This project component will work to:

- 1) Finalize the status of Band-e-Amir within the Afghanistan protected areas system;
- 2) Develop recommendations for management to eliminate threats;
- 3) Develop appropriate tourism controls and strategies to generate sustainable funding for protected area management as well as identify business and investment opportunities so that resident communities around the lakes gain financial benefits from tourism; and
- 4) Investigate the potential for international recognition for the area under World Heritage Site status (or other formal categories) to bring greater international attention to this globally unique area (and increase funding for improved and long-term management).

### *Activity 2.3.2 Ajar Valley Wildlife Sanctuary Assessment*

Ajar Valley is a spectacular long gorge created by the Ajar River and the sheer-sided Jawzari Canyon. The area has long been known as a location containing good populations of ibex, urial, Bactrian deer and other wildlife, and for many years it was a royal hunting reserve. Unfortunately, recent conflict-related events have resulted in a lack of protection for the area, with the result that wildlife populations have suffered dramatically – Bactrian deer may now be locally extinct, while ibex and urial numbers have certainly declined. Although Ajar was gazetted as a wildlife reserve in 1977, there is only a preliminary management plan that has never been implemented, and no recent accurate border assessment, wildlife surveys, socioeconomic surveys, or enforcement has taken place. There are also claims to lands in the reserve by the former King.

There is a critical need to undertake a rapid on-the-ground assessment of wildlife populations and rangeland conditions, impacts of farmland expansion and grazing, and community organization and support for environmental protection. If protective measures are considered to be politically, socially and biologically feasible, this project will then develop a management plan in consultation with both government agencies and local inhabitants to ensure adequate protection and stakeholder participation in management of the Ajar Valley and its associated natural resources.

**Level of Effort (FY06-08): \$238,662.**

**Expected Accomplishments.**

- Assessments of wildlife populations, human pressures, and social and economic conditions in Ajar Valley;
- Gazetting of proposed national park boundaries and development of management plan for Ajar Valley (depending on results of wildlife and economic surveys)
- Assessments of wildlife populations in Band-e-Amir; coordination of NGO's and donors working on Band-e-Amir, including review of current development plans;
- Gazetting of national park boundaries for Band-e-Amir; development and management of tourism.

**Activity 2.4. Forest and Wildlife Assessments in the Eastern Forest Complex**

The Eastern Forests Complex in Afghanistan contains some of the last remaining arid conifer forest in the Greater Himalayan mountain chain. This habitat, a Global 2000 Ecoregion (Western Himalayan Temperate Forest), is critical to biodiversity and ecosystem function in the region. Unfortunately, Afghanistan also has one of the highest rates of deforestation in the world. Extensive logging is quickly reducing the forest cover wherever deodar cedar, pine, spruce, or juniper still exists. A UNEP (2003) Landsat analysis found that forest cover in Nuristan has decreased by 53 per cent and in Kunar by 29 per cent. Residents predict similar losses for the forested regions in the provinces of Paktia, Khowst and Paktika. If this rate of deforestation continues, estimates suggest that most of the remaining forested valleys could be completely stripped of trees within five to ten years. This has already occurred in the western dry forests of Afghanistan.

Externally driven logging enterprises (locally known as “timber mafia”) are devastating the conifer forests in many of the valleys and have an enormous negative effect on wildlife. Logging also provides little economic return to local communities, and they threaten the ability of communities to survive over the long term from loss of this important resource and subsequent soil erosion and aridification. Besides negative effects on wildlife and communities, deforestation in this area may also be having a profound negative effect on ecosystem services and economies over a wide region – for example, in Pakistan the Tarbela Dam, located downstream on the Indus River, has had its functional life decreased due to siltation from upstream deforestation.

Deforestation is only one threat to the integrity of the ecosystem of southeastern Afghanistan. Extensive hunting is also a major problem, especially with the recent influx of modern weapons from two decades of conflict. Populations of spectacular and globally threatened large mammals of this region, including markhor (*Capra falconeri*), urial (*Ovis orientalis*), Asiatic black bear (*Ursus thibetanus*), and snow leopard (*Uncia uncia*) have likely declined precipitously in recent years. The combination of hunting and habitat loss is also likely to be decimating populations of other species, such as leopard cat (*Prionailurus bengalensis*), stone marten (*Martes foina*), and flying squirrels (*Petaurista petaurista* and *Eoglaucomys fimbriatus*), as well as game birds such as monal and koklass pheasants (*Lophophorus impejanus* and *Pucrasia maculosa*) and a host

of smaller forest-dependent birds such as woodpeckers, tits, nuthatches, warblers, thrushes, chats, and flycatchers, a variety of invertebrates, and understory plants, some of which (e.g., mushrooms, medicinal herbs) are economically important in their own right.

Local communities in the Eastern Forest Complex of Afghanistan are concerned by this loss of wildlife and forests, and are looking for solutions. There is an urgent need to address this issue through surveys of forests and wildlife to determine the extent and speed of loss as well as identify those locations under greatest threat and those with the most extensive forest remaining. There is also an urgent need to initiate community based conservation efforts such as the creation of local resource committees that can develop hunting and logging regulations and enact enforcement. Only then can local communities begin to derive fair market benefits for both timber products and for non-timber income opportunities (e.g., pine nuts, mushrooms, markhor trophy hunting).

The Eastern Forest Complex is not only a globally important ecosystem, it is also a politically critical region at both the regional and global level. Fiercely independent for centuries, the communities in this region continue to defy Afghanistan's government, and fighting is still flaring up along the border region with Pakistan. This may make serious on-ground surveys and conservation initiatives impossible in many locales, and there is the very real possibility that this set of activities may have to be postponed if security issues make it impossible to guarantee safety of project personnel.

However, these conditions also highlight the importance of developing mechanisms for sustainable resource development in this area. Regional stability in an area where people are directly dependent upon natural resources cannot occur without sustainable resource use, and helping these communities achieve a measure of control over their resources, and an equitable return in their resource investment, may go a long way toward helping the region achieve some measure of stability while helping to maintain their unique environment and cultural identity.

**Level of Effort (FY06-08): \$122,770**

**Expected Accomplishments:**

- WCS will identify, hire, and train local community members, government scientists working in this region, and scholars from nearby Nangarhar University in Jalalabad, to conduct wildlife surveys for determining species incidence, and if possible, population size of indicator species (Asian Black Bear, Markhor, Snow Leopard, Leopard Cat, Flying Squirrels).
- WCS will collect social and natural resource use data, draft recommendations on current logging and forest management practices, forestry legislation and policies, and on wildlife and biodiversity conservation in the region.
- Through our GIS team (Activity 1.6), WCS will collect existing remote sensing data to estimate current rates of forest loss, classify remaining forest cover, and determine sample areas for wildlife surveys.

### **Activity 2.5 Ranger Training**

The success of parks depends on effective agreements between local communities and the national government that these common areas will be used for a particular purpose. Individuals that violate that agreement do so at the detriment of the entire community. Accordingly, rangers can play an important role in maintaining the benefits of Parks for the larger community.

WCS will identify individuals for training as park rangers and tourism guides during fieldwork, and through local consultations with committee conservation committees, local shuras, and other leaders (*see* Activity 4). WCS will draw most of the ranger-trainees from the local communities where the Parks will be established.

WCS will train rangers to (a) survey and monitor wildlife populations; (b) build proficiency with navigation tools and maps; (c) to serve as community conservation agents to work with local communities; and (d) to learn skills as ecotourism guides. First, surveying and monitoring wildlife requires making accurate identification of wildlife species and sign, implementing proper survey methodologies, and effectively recording and analyzing the data. WCS will train rangers on natural history of Afghanistan's wildlife, methods for surveying these species, and basic measure of monitoring their status. At selected times, these wildlife rangers will go into the field with WCS scientists and survey wildlife species, focusing on species of concern such as Marco Polo sheep but also collecting ancillary data on any other wildlife seen during the surveys.

In the future, the parks may use this data to assess wildlife patterns and trends and develop recommendations for local and government-led management initiatives.

Rangers' duties will also be to deter illegal hunting by frequent patrols that cover much of the region, and by reporting their observations during the patrols. Such patrols would require basic proficiency with navigation skills. WCS will build expertise in reading maps and using compasses and GPS for navigation. Although field staff may be familiar with the terrain in and around their normal areas of work, knowing how to interpret landforms and terrain from maps, and how to match terrain in the field with what is on a map are important skills for long-distance field patrolling and wildlife monitoring activities. Rangers will also need to be trained to write their observations down and fill in datasheets after each patrol, and determine what information is important to report.

Finally, rangers can also be trained to use conservation education materials to further understanding and acceptance of the protected areas within local communities. Trainees will also learn to function as ecotourism or (potentially) hunting guides as Afghanistan opens up to foreign tourists interested in experiencing the mountainous vistas and captivating culture of this long-isolated country, and to draw increased revenue to local communities from their natural resources. Developing multiple economic alternatives for trainees is necessary to ensure the maximum benefit of such training. The ranger training program ties into all project activities, and will be developed through integration with the wildlife surveys and education activities. As this activity is partially dependent on the creation of the parks, most activities will occur after we have had the opportunity to analyze baseline data, meet with local and regional governments and other stakeholders, and define park boundaries

**Level of Effort (FY06-08): \$155,400**

## **Expected Accomplishments:**

- Development of a cadre of potential trainees that would help protect Afghanistan's nascent park systems, and contribute to the development of ecotourism in this region.

## **Activity 2.6 Review of Wildlife and Protected Areas Legislation and Policies**

### *Activity 2.6.1. Legislative and Regulatory Review*

Because of the long series of armed conflicts over the past quarter century, Afghanistan has never had the benefit of implementing and updating international best-practice environmental policies and legislation. In the 1970s, Afghanistan began the process with help from UNDP and FAO, including developing a strategy for conservation and management of wildlife and other natural resources. Progress was also made on a protected area system, but all of these efforts were halted with the Soviet invasion in 1979. After the new government was in place in 2002, a number of initiatives were begun to review environmental legislation and policies, including UNEP's review in 2002 and ministerial structure analyses and capacity building efforts that continue today.

Despite initial efforts by UNEP and other organizations, there is still a strong need for focused review and international best-practice recommendations for improvement of environmental policies and legislation, especially in relation to the legal framework affecting biodiversity. This includes laws and regulations affecting wildlife, critical habitats, landuse practices directly affecting biodiversity, and protected areas. A complete review of these issues is critical given the challenges this project faces in the areas of endangered species, protected areas, forestry, conservation education, and community based conservation initiatives. This review and its recommendations will also directly inform project activities described herein, and will also help the Government of Afghanistan better manage its resource base.

### *Activity 2.6.2 Trophy Hunting Program*

There has been growing recognition from the international conservation community that conservation-hunting programs can provide the basis for successful sustainable use conservation. Programs based in an ecosystem context can provide significant support for community based wildlife management if they are transparent and return a significant percentage of revenues to local communities for sustainable resource management. Trophy hunting can also be a strong economic incentive to protect wildlife and promote conservation. Such hunting generates a great deal of income for a country at little cost, while the killing of a few animals does not need to adversely affect a large population if the program is tightly controlled and scientifically managed, in conjunction with wildlife surveys to assess population size and growth rates.

Through a properly designed and managed trophy hunting program with a clear and transparent reimbursement mechanism, local communities can link conservation with development of their villages and recognize that the sustainable use of wild species has potential to pay for both the local costs of conservation initiatives and socio-economic development. Such community-based incentive measures can be effective for inducing local community involvement in wildlife conservation efforts, and they provide a simple and cost-effective way of conserving wildlife

populations. The project will work with local communities to develop program parameters, carry out the necessary feasibility and planning studies, develop appropriate institutional linkages, and undertake the training necessary to ensure that the trophy hunting business operates optimally. While the initial program will be designed for Marco Polo sheep, the structure of the program can be easily adapted for ibex (*Capra ibex sibirica*) and markhor (*Capra falconeri*), the last of which is also a highly sought-after trophy species that is found in the eastern forest complex and offers great economic potential to local communities.

In particular, this activity will attempt to meet the following critical conditions:

- 1) The species should have a clear legal status in a country, and legislation and policy should define all aspects concerning hunting concessions, hunting in protected areas, hunting by local peoples, community participation in hunting programs, distribution of trophy funds, and so forth;
- 2) The species should be managed sustainably, and this can only be done on the basis of solid and accurate scientific knowledge. Information on each population should include: size of population; adult sex ratio; percent of trophy-sized males; and female-young ratios to determine survival. Populations should be monitored regularly to detect changes due to disease, starvation, and illegal hunting. This research needs to be done by trained persons, and the number of animals that may be shot must be based on such data – it is impossible to establish reliable kill quotas otherwise;
- 3) Hunting concessions should be required to submit accurate information to a government committee concerning the location, name and nationality of hunter, and size, age, and other details concerning each trophy animal shot;
- 4) The species cannot be managed unless it is well protected against illegal killing by local people and outsiders; this requires an active, well paid, and well-equipped ranger force, one that should be recruited from local communities;
- 5) A considerable percentage of the fees derived by government from trophy hunts should be devoted to improving the livelihood of communities in the area where the animal was shot; therefore, a method must be found to distribute such money directly to community committees rather than through several layers of government;
- 6) In return for receiving funds, communities should agree to help protect wildlife within their area; this means protecting all species and their habitat, not just the trophy animal, i.e., ecosystem management, which requires not only an economic incentive but also education about conservation values;
- 7) Trophy hunting issues should be open, transparent, and accountable to the public.

We expect this program to avoid many of the issues in Africa (Campfire) by working through our community conservation committees to ensure that income is equally distributed through communities and used as well for funding rangers and guards to preclude illegal hunting, maintain park boundaries, and ensure hunting regulations are followed. As the Wakhi communities that will benefit from this program are insular, closely-knit, and take direction from Ismail Khan and his representatives (with whom WCS currently works closely), and entry into the Wakhan Corridor is limited, we expect the Wakhis to maintain control over hunting. There is previous success with limited hunting programs in the Wakhan corridor under the Afghan Tourist Organization in the 1970's and under the monarchy. We expect these programs to work

efficaciously since more of the income is designed to return to local communities. Obviously, the trophy hunting program must work in close coordination with other WCS activities.

#### *Activity 2.6.3 Snow Leopard Kill Reimbursement Scheme Study*

Finally, WCS will research and design a pilot program to help compensate farmers for the market value of livestock losses that the farmer can demonstrate were due to snow leopards. Farmers would, in exchange for participating in this program, agree to ban all killing of snow leopards. This program will be based on similar initiatives taken in Yellowstone National Park and southern Africa. The basis for the program is to provide economic incentives to prevent the significant losses of snow leopards when they descend to the valley floor in the winter. A potential pilot program – which will be carried out in 2-3 villages that have suffered from previous predation of livestock by snow leopards – will initially study the numbers of snow leopards lost to hunting due to livestock takings and how to set up this program.

**Level of Effort (FY06-08): \$108,050**

#### **Expected Accomplishments:**

- Development of recommendations of needed laws, and regulations support for legal institutions, and the rule of law to ensure that these laws are enforced.
- Completion of the Forestry Law, and revision of the Rangeland's Law at the request of the Afghan government (with UNEP and FAO).
- Draft recommendations on current logging and forest management practices, and forestry legislation and policies.
- Collection of information related to historic, current, and planned initiatives related to trophy hunting coupled with data collected from other project activities related to Marco Polo sheep population and distribution, and a review of international best practice on the subject to create a set of recommendations for Afghanistan.
- Design a reimbursement program for winter snow leopard kills that may be used as a model of direct payments for conservation in other parts of Afghanistan.

#### **Activity 2.7 Environmental Services Valuation**

It is not enough to know that ecosystems are valuable – we also need to know how valuable they are, and how that value is affected by different forms of management. However, the issue of environmental valuation is a difficult one. Assigning a value to an ecosystem can be done in a variety of ways (e.g., current vs. future values, conservation vs. conversion, replacement cost, willingness to pay, etc.), and also depends upon who is valuing the system (e.g. local users, distant users, private sector firm, country-wide population, global community).

This activity will create an Afghanistan Environmental Valuation Advisors Group (WCS staff, environmental economists in academia, and others) consisting of a set of international experts in the field of environmental valuation. This group will meet once to create a set of guidelines for approaching the issue of developing a framework for valuation of environmental services. To model valuation of environmental services, we will focus on one of the three priority areas for biodiversity conservation. A Ph.D. graduate student will then be chosen and directly supervised

by a subset of the Advisors Group to complete the valuation framework and collect and interpret data to determine the potential benefits and costs of various management schemes at each of the biodiversity project sites. The Advisors Group will continue to meet either physically or electronically on a regular basis, at least twice a year, through the life of the project, to review work to date and determine next steps.

**Level of Effort (FY06-08): \$109,576**

**Expected Accomplishments:**

- Permit the Government of Afghanistan to estimate the contribution of ecosystem services in the selected region to the national economy, and serve as a model for other regions in Afghanistan, as well as Afghanistan's neighbors, to incorporate ecosystem values into their national system of accounting.

**OBJECTIVE 3: FACILITATE COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT IN THE WAKHAN**

**Level of Effort (Total Objective 3): \$379,080**

**Threats Addressed by Objective 3:**

Conservation is as much a social and economic issue as a scientific one. Unless the culture, insights, livelihoods, participation, and aspirations of the local peoples are known and considered, any long-term conservation activities are likely to fail. Because of this it is vital to build broad-based constituencies for conservation and foster diverse actor participation in threats abatement to ensure effective conservation.

**Community-based natural resource management projects are critical for the long-term conservation of biodiversity within the landscape, as they promote the concept of natural resource conflict mediation at a local scale, improve the capacity of local people to design and execute natural resource management projects and, most critically, promote community-based decision-making processes, with internal regulations and controls for natural resource management - including wildlife.**

Environmental degradation in the Pamirs will have more than just an effect on wildlife and soils. A vast majority of the people in this region depend directly on environmental benefits from local ecosystem processes for their very survival. As altitudinal migrants and agro-pastoralists, the people of these mountains take livestock up into high pastures in the spring, moving back down to lower elevation villages before the snows of winter. In some locations they grow crops on tiny farm plots hewn from the sides of mountains and terraced with rock walls. This local food production is critical, as the mountains make transport of products expensive or, when rains or frequent earthquakes block the few roads with landslides, impossible. Therefore, ensuring that local communities have the tools (effective use of NSP decision-making bodies for organizing and implementing community management schemes coupled with the scientific knowledge of the

regional ecosystem) to successfully manage their resources is critical to the long-term survival of Wakhan communities and the sustainability of the entire Pamir environment. These tools are the regional decision-making bodies, coupled with the knowledge of the status of the ecosystem, to develop community-based solutions for natural resource management.

For many rural communities, natural resources represent the greatest hope for economic growth. However, community members generally realize only a small percentage of the total resource value, and use schemes are frequently not sustainable. This can alienate communities from biodiversity resources, leading to unsustainable resource use practices, and eventually culminating in a loss of biodiversity and deterioration of the community's environmental and social well-being. Further, current economic trends are concentrating wealth (in the form of livestock) in these local communities into the hands of fewer individuals; the incentives to effectively manage natural resources are no longer present as fewer members of the community benefit from natural resource management. WCS seeks to redirect the flow of benefits of the natural resources to a broader base of community members in order to alleviate poverty and promote conservation by strengthening and diversifying rural economies.

The situation in Afghanistan is fluid and unpredictable and control has fluctuated between a centralized, national government and regional entities over the past fifty years. There is no clear delineation of authority between the different levels of government, including ambiguous status of legal ownership of the lands. In preparing for the long term, WCS will work with all of the stakeholders in conservation, from a national government with variable degrees of power to the local community members who are most affected by improper resource management to help delineate control and ownership over natural resources in Afghanistan. This delineation will occur by setting up enabling policy, legislative, and regulatory frameworks on the national level, as well as technical and institutional capability in the Ministries, and to empower local communities to manage their natural resources effectively.

### **Activity 3.1. Socioeconomic Surveys of the Wakhan**

It is critical to identify local communities and understand their structure, political units, needs, wants, and insights, and to gain their complete cooperation in any conservation initiatives. A socioeconomic survey will be performed to determine aspects of civil society in the Wakhan region and to inform future conservation initiatives. Surveys will include questions related to specific management issues such as attitudes and perceptions toward wildlife, hunting practices (presently illegal under a Presidential decree), and other relevant issues. In all cases, survey teams, through socioeconomic surveys, will investigate gender roles and differences to help inform future conservation, management, and sustainable use recommendations and to ensure that women's voices and concerns are heard and acted upon throughout the project's efforts and initiatives. For FY06, efforts will focus on the Big Pamir region. An assessment will also be made of the use of natural resources in this region by local populations, including as possible, illegal hunting, and the extent of local population dependence on these resources. Surveys will also discuss questions of ownership and access to natural resources as allocated to the people by the national government.

**Level of Effort (FY06-08): \$92,895**

**Expected Accomplishments:**

- Better understanding of local community use of the natural resource base through survey data.

**Activity 3.2 Conservation Awareness Workshops and Environment Education**

WCS believes that local communities are the key stockholders for any conservation initiative, and seeks their involvement from the beginning of the project through conservation awareness workshops and environmental education initiatives. Through these activities, WCS seeks to encourage wider discussion within the community regarding the crucial rangeland and wildlife resources of Wakhan, their economic, cultural and spiritual significance for the community, the current status of these resources, and to co-identify threats to these resources. The goal will be to encourage dialogue on these issues and organize the communities to take steps to resolve the challenges facing them.

WCS scientists will organize conservation awareness workshops that will be held in each village within the lower and upper Wakhan. As education can and should be a two-way street – there is often as much to learn from local stakeholders as there is to learn from education ‘experts.’ Therefore, the workshops and education program will be designed to have two results: to further develop and focus community interest in resources and sustainable resource use through targeted messages related to specific issues of importance to the Pamirs; and to collect information from local stakeholders that can be used to develop sensible resource management plans for each region based on traditional resource knowledge, uses, and rights.

WCS is also working in partnership with Afghan Conservation Corps and UNEP to design supplemental materials with a conservation and environmental message to be used and distributed by the Ministry of Education to schools all over Afghanistan, including the Wakhan to ensure that ecology, conservation and environmental topics have a place within the national curricula. Specific materials will be developed and activities designed for Wakhan, and taught through lectures and activities in local village schools. One school in Wakhan will be initially selected as a pilot to implement environmental education materials. The education program will be funded through supply of materials by WCS and training opportunities in situ.

**Level of Effort (FY06-08): \$102,895**

**Expected Accomplishments:**

- Development of a conservation ethics and awareness among Afghans, particularly those in areas of conservation concern, development and distribution of supplemental materials, insertion of environmental topics, especially as it relates to ecology and conservation in Class 7-12 textbooks.

### **Activity 3.3 Facilitate Community Conservation Committees**

Community based natural resource management shifts natural resource tenure systems towards community management. Communities are provided opportunities to realize greater security over natural resources, actively contribute to natural resource management, and sustainably use community held natural resource rights to create community wide benefits. Finally, helping local communities initiate and maintain reforms for environmental sustainability and stability will help them maintain their unique environment and identity.

The goal of this project component is to create community resource committees throughout the Wakhan Corridor region through the existing structures set up by the National Solidarity Programme (NSP), as well as traditional centers of power, such as district shuras (pursuant to Chapter 6 of Agricultural Master Plan, subsection 7.1.3). The creation of resource committees will enable communities to achieve consensus on changes in resource use and sustainable management options. In creating the committees, WCS will consult with provincial authorities, members of the Border Security Patrol, council heads, influentials, local people and NGOs to enable the committees to represent and act with due authority. The project will also work with communities to develop bylaws for resource committees and wildlife rangers. Bylaws will create an enabling environment for training and government collaboration.

Once committees are set up, the project will work with the committees to arrange and facilitate agreements between government officials and resource committees to enable government agencies to provide assistance on many levels, including training. WCS will support the committees in terms of training, travel and logistics, but will not pay the committee members a salary for their involvement. Finally, the project will assist in the creation of collaborative resource management plans. Management plans will enable communities to identify, develop and enact long-term goals for the sustainable use of rangelands, wildlife, and other resources of importance to their long-term survival. For example, committee members will agree on a cooperative method for grazing their livestock so as not to overexploit rangelands and allow unhealthy rangelands an opportunity to recover. WCS will provide technical information and facilitation support to aid in this process.

**Level of Effort (FY06-08): \$87,895**

#### **Expected Accomplishments:**

- Develop local institutions with sufficient authority and community input to manage natural resources effectively for the entire community and without detriment to conservation goals.

### **Activity 3.4. Eco-Tourism Enterprise Development**

Community conservation initiatives also must be closely linked with economic benefits in order to be sustained. Wakhan has immense potential for adventure, culture, and eco-tourism. To ensure that the benefits of our conservation efforts flow directly to local communities, and to diversify and broaden the economic base, WCS will encourage and facilitate responsible tourism to Wakhan. Ecotourism, defined as “responsible travel to

natural areas that conserves the environment and sustains the well-being of local people” (The Ecotourism Society) requires a commitment to conservation on the part of all stakeholders in tourism. This shared commitment arises from the crucial interdependence between tourism and the environment; tourism has a vested interest in conserving and strengthening the cultural, physical, and biological landscape, and conserving and strengthening cultural and biological diversity holds the key to tourism's success.

WCS will study the ecological and cultural potentials for ecotourism in Wakhan, assist the community in developing and marketing these potentials through an ecotourism enterprise to promote private sector opportunities, build capacity within the community for ecotourism management by training them in natural history of local species and responsible tourism management. WCS will also facilitate the community conservation committees in devising environmental and culturally sensitive self-regulations to ensure the ecological and cultural resources are not stressed by increasing tourism. By providing rural communities with the skills to manage the environment, the Afghanistan Biodiversity Conservation Project intends to involve local communities in tourism development.

Finally, WCS seeks to build close working relationship with organizations, like the Aga Khan Foundation, who are working to achieve similar objectives, and private companies that will play a major role in the development of tourism in the region. WCS will also seek to work with national authorities in the Ministry of Information, Culture, and Tourism, the Afghan Tourist Organization, and the National Environmental Protection Agency to coordinate their actions with local communities to promote ecologically sound tourism that works to benefit and develop the Wakhan. By making clear the direct linkage between the well-being of the environment and the success of tourism, both local communities and private business will realize their direct economic incentive to conserve biodiversity.

**Level of Effort (FY06-08): \$95,395**

**Expected Accomplishments:**

- Development of local mechanisms for tourism regulation that will maintain the benefits of the tourism for further economic development in the region.

## **OBJECTIVE 4: CAPACITY-BUILDING INITIATIVES.**

**Level of Effort (Total Objective 4): \$708,728**

### **Threats Addressed by Objective 4:**

Afghanistan faces serious threats due to a lack of human and institutional capacity to plan, implement and evaluate conservation activities. This is a critical constraint on conservation efforts: **Without increased capacity to manage Afghanistan's natural resources, we will see continued declines in poverty, desertification, health, security, and community stability (due to migration to urban areas from rural communities).** Training and capacity building activities will help build Afghanistan's institutional and technical capacities in a range of subjects related to conservation and management of wildlife and natural resources.

### **Activity 4.1 Afghanistan Training Courses**

WCS is a world-leader in international conservation, with over 2,500 scientists working in over 50 countries on conservation, and over a hundred years of experience in preserving wildlands and wildlife. WCS will use this expertise to assist Afghanistan in training its present and future conservation scientists and managers. These international experts include professors, managers, field scientists, and technical experts across a range of fields, from wildlife fieldwork to rangeland and forestry science to watershed and protected areas management. WCS will use its international expertise, program staff, and WCS scientists to teach from appropriate models from other countries such as India and Pakistan. Further, WCS will also recruit international experts in wildlife, forestry, rangeland, watershed, and protected area management and conservation to teach short courses in these subjects for government officials and to university staff and students. Finally, WCS program staff working in Afghanistan will be required to present short courses in their fields to selected Afghanistan professionals (government counterparts, academics, and post-graduate researchers and professional students) during their stays in-country, coupled with practical experience and training in the field during data collection as appropriate.

**Level of Effort (FY06-08): \$210,120**

### **Expected Accomplishments:**

- Conduct needs assessment, evaluate potential topics and partners,
- Implement 28-36 short courses/seminars to enhance scientific and conservation capacity in Afghanistan.

### **Activity 4.2 Conservation Study Travel Program**

While short courses are an excellent way to bring international best practice methods to Afghanistan's growing environmental sector, direct exposure to how other countries use these methods is crucial to enable Afghan professionals the opportunity to fully understand modern conservation practices. This project will identify teams of Afghan government, academics and students, and NGO staff for exchanges to other countries. It will then identify and arrange for group study tours to other countries for specific training through visits to sites where innovative, site-appropriate practices are being implemented. For four to six weeks, team members will

experience the host country's institutions, observe their own vocations as practiced abroad, develop personal and professional relationships, and exchange ideas. It is expected that not only will team members bring new ideas, ways of thinking, and technical expertise back to Afghanistan, but through connections made in other countries this initiative will create an international network that will foster long-term opportunities for information sharing.

**Level of Effort (FY06-08): \$234,620**

**Expected Accomplishments:**

- Exposure and training to appropriate conservation models in other countries to incubate ideas for new approaches to conservation in Afghanistan.

**Activity 4.3 Field Training and Scientific Mentoring**

Building capacity for scientific research and conservation requires practical training and independent application, in addition to theoretical classroom training. Each component manager will be partnered with an appropriate government counterpart and 1-3 other individuals, who will be provincial government staff, university graduates, or local community members. The teams will spend 1-3 months of intensive training learning scientific methodologies from international experts in the field. This practical training will be followed by short-term small projects that will build upon skills learned in the field, and be independently implemented by each team member. The small projects will also complement other project components and add to data collection. In general, trainees will learn data collection and analysis, computer and reporting skills, technical knowledge, and professional responsibility. WCS scientists will mentor their team for the long-term to develop the skills necessary for these individuals to be professionals in the conservation field.

**Level of Effort (FY06-08): \$159,870**

**Expected Accomplishments:**

- Provide exposure to current international scientific methodologies, equipment, and techniques through active practical training and will provide Afghan scientists and government officials with the ability and opportunity to carry out such activities independently.
- Train 35-45 participants.
- Implement 60-80 small projects
- Increase significantly participant technical capacity.

**Activity 4.4 Public Diplomacy and Outreach**

Awareness in Afghanistan of the status of its flora or fauna is acutely low. Public diplomacy activities, such as working with the Afghan media (television, radio), outreach to schools and children, and through local institutions that should have a conservation focus (such as the Kabul Zoo), increase awareness of conservation problems and increase support and goodwill

for biodiversity conservation activities. Such outreach also benefits USG interests by increasing public support for US activities in Afghanistan. American science and technology has tremendous appeal throughout the Islamic world, despite unfavorable ratings in other categories. A Pew survey of six predominantly Muslim countries, released last month, confirmed that majorities in all the countries surveyed had negative views of the United States. Yet last June, a Zogby International poll of six Arab states found that in all but one, American science and technology were viewed favorably by a majority (often overwhelming) of the population. Just as the United States worked through scientific networks to promote its values during the Cold War, it should be reaching out through science and conservation activities (which are value neutral, or shared values) to promote US interests. These types of activities also build understanding, and therefore, greater capacity on a much broader scale, to understand biodiversity conservation efforts by WCS and USAID.

Conservation awareness must start in the cities as well as in the rural areas. WCS will be working with Tolo television to create a series of programs on wildlife in Afghanistan. This would be useful for tourism, environmental education, and public diplomacy. WCS has also secured the rights for Tolo television to show wildlife films from the archives of the International Film Festival – with hundreds of films available for their use. Through its education programs, WCS will expand the environmental messages in conservation institutions, and educational centers such as school.

**Level of Effort (FY06-08): \$104,120**

**Expected Accomplishments (FY06-09):**

- Assist Afghan media, tourist, and conservation institutions to develop scientific content on Afghanistan's biodiversity and status.