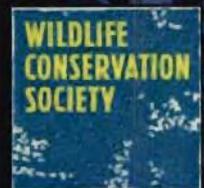


**Wildlife Conservation Society**

**Afghanistan Biodiversity Conservation Program  
December 2006 Technical Report**

**BEST AVAILABLE COPY**



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**Cover Photo: Nuristan, the Land of the Enlightened**

Nuristan is one of the storied places in Afghanistan, and among the most remote and challenging to reach. WCS conducted the first wildlife surveys of Nuristan in nearly 30 years. Pursuant to these surveys, Nuristan's forests continue to hold populations of Asiatic Black Bear, Leopard, Snow Leopards, Markhor, Wolves, Jackals, Red Fox, and Crested Porcupines. WCS will continue these surveys, as well as building infrastructure for community conservation, in 2007.

## LEGISLATIVE AUTHORITY

The Wildlife Conservation Society is implementing the Afghanistan Biodiversity Conservation Program. The activities under this program have the **primary objective** of conserving biological diversity in natural and managed terrestrial ecosystems in Afghanistan pursuant to the USAID Biodiversity Primary Code. The program has four major components. First, WCS is undertaking extensive **Baseline Surveys and Data Analyses of Wildlife and Wildlands** in Afghanistan's three most biologically significant areas (Wakhan, Eastern Forests, and Hazarajat Plateau). These surveys will allow WCS to analyze the status and threats to biodiversity in Afghanistan. Second, WCS is **Strengthening Laws, Policies, and Institutions** to develop effective institutions, protected areas, and policies that will mitigate existing threats and increase opportunities for biodiversity conservation. Third, WCS is developing **Community-Based Initiatives** to better understand local threats to biodiversity, and design strategies for mitigating those threats. Finally, WCS is implementing a program of **Training and Capacity Building** to assist Afghanistan's ability to manage its biodiversity.

## SUMMARY OF ACCOMPLISHMENTS FOR QUARTER 4, FY06

### Baseline Science and Analysis

In Quarter 4, WCS started the first mammal surveys of Nuristan province completed in three decades, and the second in history, with three survey teams assessing the wildlife in the remaining forests of Nuristan. Teams found evidence of markhor, jackals, black bears, Persian leopards, fox, and crested porcupine. Further, WCS continued work on compiling and analyzing data within a GIS framework, and acquisition of remote sensing imagery. WCS' Ecosystem Health Team took more than 400 blood samples from Wakhan livestock, which will be tested for Food and Mouth Disease, Pests-des-Petitis Ruminants Disease (PPR), Mycoplasma conjunctivae, Brucellosis, Tuberculosis, Blue Tongue disease, Q-Fever, Toxoplasmosis, and Chlamydia in the United States and at FAO. This analysis will permit WCS to better understand the reservoirs of disease that may be transmitted between wildlife and livestock. WCS also conducted, with FAO support, the first surveys of Avian Influenza in wild birds as well as poultry in protected areas in Bamiyan.

### Community Conservation & Economics

In Quarter 4, WCS continued its work to build broad-based constituencies for conservation to ensure the conservation of Afghanistan's biodiversity. WCS established a community conservation office, with audiovisual capabilities in the heart of the Wakhan Corridor at the village of Kret. During this period the WCS Community Conservation Program (CCP) also conducted surveys of 54% of all households in Wakhan which utilize Pamir grazing. This data is being gazetted into the GIS database to enable comparison with the Rangeland data as well as the Mammal and Bird Survey data. Besides these surveys WCS also organized community conservation education workshops in the upper and lower Wakhan with the aim of laying the groundwork for Community Conservation Committees and coordination on ecotourism in this area.

### **Laws, Institutions, and Policies.**

Economic development through natural resource management and biodiversity conservation depends on the creation of effective institutions and policies. During FY06 Quarter 4, WCS continued work to increase opportunities for biodiversity conservation and natural resource management through creation of effective institutions and policies to mitigate existing threats and increase opportunities for effective conservation through better governance, enforcement, and support for the rule of law. Specifically, WCS created a legal compendium of environmental laws, and analyzed the laws to determine areas of improvement. WCS also worked to draft protected area regulations and is working with other institutions in Afghanistan to see the distribution of funding between field sites. WCS will continue working with the Afghan government to draft effective laws and implement regulations, to develop effective natural resource management policies, to support Afghanistan's fledgling governance institutions regulating the environment, to create protected areas, and to coordinate activities for biodiversity conservation during 2007. WCS legislative drafting work during 2007 will concentrate mainly on Rangeland Law, Hunting Law, Endangered Species Law, and Trophy Hunting Law.

### **Training and Capacity Building**

WCS continues to implement a comprehensive training and capacity building program for Afghan government officials, and the next generation of Afghan leaders through a series of short courses, practical field training and mentorship, international training opportunities, and broad scale public diplomacy and education activities. During Quarter 4, WCS trained participants from the Department of Forest and Rangelands of the Ministry of Agriculture, the National Environmental Protection Agency, and the Veterinary School at Kabul University, and the Kabul Zoo. A total of 809 training-person days were logged. These were broken up between the field training component, study-travel, and short courses. Afghans trained through our program are also contributing to WCS biodiversity program activities, and working extensively in the field with our scientists. Individuals trained by WCS have done the first known sampling of wild birds for avian flu, have surveyed demand for chukar in the Wakhan region, and have conducted wildlife surveys in the Eastern Forest Complex for the first time in over three decades.

### **Coordination with NGOs and Government**

In Quarter 4, WCS continued developing its close working-relationship with the government on biodiversity conservation, including embedding in the Ministry of Agriculture and NEPA. Encouragingly, the Afghan government recently approached WCS to assist and advise on the status of the Saker Falcon, which is being extensively (and illegally) exported, principally to the voracious falconry markets of the Gulf States, and to start reporting to the government on biodiversity conservation activities. WCS was also asked by the Ministry of Agriculture for assistance in preparing a budget for submission to the Ministry of Finance to start its' own biodiversity activities, complimentary to WCS. WCS intends developing this "trusted advisor" role during 2007. WCS continues to nurture the close working relationship which WCS has developed with the National Environmental Protection Agency (NEPA), the Forests and Rangeland Department of the Ministry of Agriculture, the Ministry of Foreign Affairs, and the Afghan Tourist Organization at the national level. In Badakshan, there are excellent working relationships at provincial level particularly in the local offices of the Ministry of Agriculture, NEPA, Deputy Governor of Badakshan, Badakshan Chief of Police, the Provincial Reconstruction Teams, and local USAID offices. WCS has been coordinating

closely with the Asian Development Bank (especially on proposed conservation areas in Bamiyan where this organization has already done some work), the United Nations Environment Program, the International Crane Foundation, and Save the Environment Afghanistan. The Aga Khan Development Network (AKDN) is of particular interest to WCS as their dominant role in community welfare in Wakhan makes them a key player in the region. On the local level, WCS continues to enjoy a strong working relationship with AKDN and AKF.

#### **Operations, Security, and Logistics**

During FY06 Quarter 4 WCS using the infrastructure established in Q2&Q3, fine-tuned systems and standard operating procedures (SOPs) to ensure the effective running of the office in Kabul, the proposed regional office in Ishakashim, in lower Wakhan and the support necessary for scientific teams operating in the field. Security staff members were subjected to refresher courses to ensure their capabilities and knowledge remained relevant. WCS encourages all staff to remain current with the security situation. To this end, the distribution of the NGO security monitoring committee (ANSO) summaries and warnings prove to be very useful tools. The security director and Director of Ops attended weekly security briefings at ANSO and monthly at the Coalition Forces (NATO) Head Quarters in Kabul. The arrival of 3 new (specialized) vehicles in December alleviated some of the transport problems and expenses associated with the deployment of scientific teams to the field stemming from the necessity of rentals of inadequate vehicles.

## **OBJECTIVE 1: SURVEY AND MONITOR WILDLIFE SPECIES AND THE LANDSCAPE CONTEXT**

### **Applicability to Biodiversity Primary Codes**

There is almost no current data on the status of Afghanistan's biodiversity after three decades of war. Most decisions on the protection of natural resources are based on range maps and animal abundance estimates from research done prior to 1978. Having an accurate understanding of the current distribution and status of wild fauna and flora is a necessary component of the conservation of biodiversity. Accordingly, WCS is undertaking studies of rangelands, mammals, and birds (and opportunistically of other species) to judge the status of major keystone species, and the habitats necessary to support them. This includes the collection of historical baseline data to be able any potential change in animal populations. As wildlife populations may succumb to disease from domestic populations, it is important to look at the health of both wild and domestic populations to survey disease threats to biodiversity. WCS Kabul Staff is working to integrate field data with GIS and remote sensing data, and analyzing the data in light of historical distribution patterns. The development of GIS and remote sensing imagery provides an analytical framework for deciphering pattern from process, and better understand the threats to biodiversity and the relationship to other activities.

### **Activity 1.1. Wildlife Surveys**

In Quarter 3, WCS carried out the first comprehensive surveys of birds and large mammals in the Wakhan region since 1978, outside of WCS scientist Dr. George Schaller's study of Marco Polo Sheep in 2004 and Dr. Anthony Fitzherbert's rapid assessment survey in 2003.

#### *Activity 1.1.1: Mammal Surveys*

In Quarter 4, WCS trained a group of 12 Nuristani government officials, academics, and community members to conduct the first mammal surveys of Nuristan's forests within the



**Figure 1:** WCS Hazarajat team glassing for ibex in Ajar Valley (Photo: Dr. Chris Shank, WCS).

Eastern Forest Complex since Petocz's expedition in 1977. The Nuristani group underwent 2 weeks of intensive theoretical training in basic statistics, population estimation, conceptual frameworks for survey design, relative abundance indices, survey design, distance sampling, capture-recapture sampling, occupancy surveys, and natural history of Afghan mammals. Following the theoretical training, the teams went through another two weeks of practical field training in implementing the methodology (including setting up the surveys with them), as well as in the use of GPS (marking waypoints and tracks,

calculating and averaging GPS error), identifying scats and tracks of Afghan mammals, using compasses, and rangefinders, map-based navigation and reading topographic maps. The group was broken up into three teams. Each team conducted 3-4 weeks of surveys in

Nuristan despite dangerous conditions, and deep snowfall. These surveys will continue through the spring and summer, and as well as potential forest surveys and work with the community.

WCS also conducted surveys of Ibex in Ajar Valley in Quarter 4. In the 1970's, WCS scientist Christopher Shank surveyed Ajar Valley and estimated a population based on those surveys of 5,000 individuals. Current surveys conducted by WCS in October place the Ibex population at close to 100 individuals, a precipitous drop in the number of ungulates in Ajar Valley. In Band-e-Amir, interviews by WCS with local people make it clear that urial and ibex no longer occur in the vicinity of Band-e-Amir. However, wolves and foxes appear to be abundant.

WCS also conducted the first surveys of small mammals in Bamiyan Province in Quarter 4. Small mammals have not apparently been studied at Band-e-Amir and were initially sampled by approximately 100 trap-nights concentrated mostly on the steppe habit. One (1) long-tailed hamster (*Callomyscus bailwardi*) was caught in the rocks above the bazaar, two (2) migratory hamsters (*Cricetelus migratorius*) were caught on the steppe and six (6) *C. migratorius* were caught in the bazaar.

*Activity 1.1.2: Avifauna Surveys in Wakhan and Hazarajat Plateau*

WCS survey teams continued analysis of bird data collected during Quarter 3 in the Wakhan by its Avifauna survey group and made opportunistic winter surveys during its Ecosystem Health work. This is the first survey since the seminal work of Petocz (1978) to record bird species occurring in the region during winter.

Based on the observations the Ecosystem Health team made in summer 2006, the winter survey confirms the status of resident in the region for 19 species: the lammergeier (*Gypaetus barbatus*), the Himalayan griffon (*Gyps himalayensis*), the golden eagle (*Aquila chrysaetos*), the chukar partridge (*Alectoris chukar*), the rock dove (*Columba livia*), the hill pigeon (*Columba rupestris*), the Himalayan woodpecker (*Dendrocopos himalayensis*), the shore lark (*Eremophila alpestris*), the Gldenstdt's redstart (*Phoenicurus erythrogaster*), the dipper (*Cinclus cinclus*), the magpie (*Pica pica*), the red-billed chough (*Pyrrhocorax pyrrhocorax*), the eastern carrion crow (*Corvus corone orientalis*), the raven (*Corvus corax*), the tree sparrow (*Passer montanus*), the Brandt's mountain finch, (*Leucosticte brandti*), the twite (*Carduelis flavirostris*), the crimson-winged finch (*Rodopechys sanguinea*), and the great rosefinch (*Carpodacus rubicilla*). This survey has not yet been integrated with the comprehensive bird survey completed in the summer, so there may be additional confirmations of resident species, as well as additional new species for Wakhan.

Schaller's (2004) and Fitzherbert and Mishra's (2003) expeditions to Wakhan and Pamir were carried out in autumn, and were therefore unlikely to ascertain the residency status of the bird species they encountered. In addition Schaller (2004) reported only the species he observed at higher altitudes. Combined to our earlier report (Ostrowski 2006), this survey clarifies the status (resident, breeder, wintering, migratory) of a number of species that occur in the region. It also highlights the presence of species (i.e. golden eagle, lammergeier, ibisbill) that are known to be attractive to birdwatchers and ecotourists.

In Band-e-Amir, the WCS team added eleven (11) bird species to the known list of species found there. These species include the Gadwall (*Anas strepera*), Great Crested Grebe (*Podiceps cristatus*), Horned Grebe (*Podiceps auritus*), Gray Heron (*Ardea cinerea*), an

unknown Cormorant, Eurasian Sparrowhawk (*Accipiter nisus*), Steppe Eagle (*Aquila nipalensis*), Yellow-billed Cough (*Pyrrhocorax graculus*), Carrion Crow (*Corvus corone*), Eurasian Tree Sparrow (*Passer montanus*), and the Common Rosefinch (*Carpodacus erythrinus*).

*Activity 1.1.3: Other Wildlife Surveys*

Two fish species were collected at Band-e-Amir and identified as *Capoeta capoeta heratensis* (or *C. heratensis*), the Transcaucian Barb and *Triplophysa stoliczkai*, the Tibetan stone loach. Local people say that Band-i-Haibat harbors a 1m predatory fish (qesil-laloi-ragin-kaman) that stays in very deep water, except for one month during the spring. WCS will investigate these reports in 2007.

*Activity 1.1.4: Collection of Baseline Data*

A bibliography on biodiversity publications relevant to the Ajar Valley and Band-e-Amir was developed. Publications are often in obscure international journals or the grey literature, but are being accumulated and distributed to the government.

A series of field maps was developed for Band-e-Amir and the Ajar Valley using TM satellite imagery and topographic details from 1:50,000 Russian maps and 1:100,000 American cartography. During the fourth quarter orders were placed for digital elevation models and high resolution satellite imagery of the areas.

**Progress and Performance Assessment**

WCS completed the majority of its objectives for Activity 1.1 in Quarters 2/3, and surpassed those objectives through the winter survey of Nuristan wildlife. WCS survey teams collected data on occurrence, distribution, and estimated abundance of mammals and birds in the Big Pamir region of Wakhan, central Nuristan's forests, and in Band-e-Amir and Ajar Valley. Initial analysis of the data has been completed and will be reported in the Annual Report. WCS is incorporating this data within the larger GIS database, and are using it to assist us in developing protected areas. Through this research, WCS has developed initial insights into the status of biodiversity within Wakhan through the collection and assessment of geo-referenced, presence/absence data, basic demographic data on group size, and population density, of important indicator species in birds and mammals in Wakhan. Finally, WCS is continuing the acquisition and compilation of historical data on species distributions in Afghanistan, including inputting species location data into GIS.

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

In FY06-FY07, WCS scientists will continue with plans to capture and fit up to 20 adult and young Marco Polo sheep in the Big Pamir with GPS satellite collars to determine distribution, trends, habitat use, feeding ecology, migratory movements, survivorship, and causes of mortality. Progress in this regard is dependent upon the resolving of technical problems relating to the effectiveness of collars and monitoring technology mentioned in report FY06 Q2&Q3 as well as the practical aspects of capturing animals that have been extensively hunted, are very wary of humans and whose habitat at high altitude means that air assets (if used) have to be very specialized and consequently very expensive. Until such time as these problems have been resolved WCS is unlikely to be able to make any assessment of Marco Polo Sheep health issues.

### **Progress and Performance Assessment**

WCS is continuing to focus on setting up the logistics of accessing and darting the sheep until the technical hurdles currently encountered with satellite collars can be resolved.

#### **Activity 1.3 Assessment of Rangelands in Wakhan**

Having a good understanding of the type and conditions of the rangelands is essential for looking at causality between human activities and changes in wildlife abundance as well as for managing natural resources. The rangeland assessment in the summer of 2006 occurred from Goz Khun along the Pamir River and the Wakhan Range (portions of Big Pamir Hunting Reserve) to the Tulibi Valley and then returning to Sargez. The rangeland team next traveled from Sarhad into the Little Pamir and up the Wakjhir River Valley to the China border (See report FY06 Quarters 2/3)

The rangeland team established 42 "monitoring plots" that varied in elevation from 3,474 to 4,718 meters during field work in July and August. The team collected transect data on paper data sheets, and during Quarter 4, transcribed them to an electronic database in Excel. The excel data sheets will be added to a GIS system and added to a base map of LANDSAT ETM+ image and other mapped resources. All pictures will also be hyperlinked to the GIS. During Quarter 4, pictures were renamed with GPS coordinates for ease of adding the photos to the GIS database. Further, training materials were developed for a training exercise on rangeland management, rangeland health assessment, GPS use, and Watershed Management to the *Forestry and Rangeland Department* in Faizabad. The training will be held in Faizabad in January 2007.

### **Progress and Performance Assessment**

In Quarter 4, WCS continues to develop a monitoring protocol based on the first field season, and has been identifying collected voucher specimens for verification and reference. Finally, as the Government of Afghanistan has requested WCS to begin work on a rangelands law for Afghanistan, WCS has sought to bring together the scientific and legal components of its team together in the legal drafting and consultation process. WCS is currently collaborating with UNEP in this process.

#### **Activity 1.4. Promote the Development of Ecosystem Health across the Human/Livestock/Wildlife Interface**

For FY06, WCS focused on data collection on disease issues related to livestock management in the Big Pamir region and the Wakhan Valley. At present, there are no other programs that are surveying wildlife or health of domestic livestock in Wakhan. Subsequently to the summer mission, Dr. Stephane Ostrowski, DVM, PhD led a team of recently graduated Afghan veterinarian from the University of Kabul to survey a subset of Wakhi households via questionnaire interviews and to carry out blood samples on sheep and goats returning from Big Pamir, Wakhan District, from November 2006 until mid December 2006.

During this winter field season, the Ecosystem Health team re-interviewed in Wakhan villages 33 households which utilized Big Pamir pastures in summer 2006. From these duplicate interviews they could assess timing of transhumance, cross-check livestock numbers, assess autumn mortality, and evaluate partitioning of herds between animals left to winter in Big Pamir and those returned to Wakhan valley. Through these questionnaire

investigations, they also documented the major mortality trends in livestock populations during autumn, losses during transhumance and evaluated clinically the occurrence and relative impact of a number of economically important diseases (e.g. Foot and Mouth Disease). The team took 471 blood samples from sheep and goats and a number of other samples from cattle suspected of Foot and Mouth Disease and from goats with clinical signs of contagious keratoconjunctivitis, both diseases known to affect wild mountain ungulates. WCS will assess the potential exposure of livestock to a number of infectious agents reported to affect mountain ungulates via serological screening of blood samples in spring 2007.

During October 2006, members of the Ecosystem Health team accompanied the mission of Dr Christopher Shank, PhD, in the Hindu Kush Plateau and carried out cloacae sampling on 89 healthy, sick or dead domestic and wild birds. Samples were analyzed by the Central Veterinary Laboratory of Kabul and were all negative for H5 subtype avian influenza RNA. In spring 2007 WCS will train Afghan veterinary teams, in collaboration with FAO, for surveying wild bird populations for avian influenza.

The Ecosystem Health team continued to conduct opportunistic surveys of wildlife trade patterns both in Wakhan and in markets for wildlife. Legal and illicit wildlife trade has an important influence on the spread of infectious disease, and may directly threaten wildlife populations. This is combined with complementary and parallel efforts under Activity 2.6.

#### **Progress and Performance Assessment**

The WCS Ecosystem Health team accomplished its goals for Quarter 4, including evaluating autumn mortality of livestock, cross-checking seasonal movements, assessing timing of transhumance, gaining insight into livestock health and mortality especially during transhumance and at winter quarters in Wakhan valley. It carried out the targeted number of blood samples that will contribute to quantify exposure levels of livestock to a number of pathogens dangerous for wild mountain ungulates. WCS has also re-surveyed the Kabul Zoo, local wildlife product merchants and the Kabul Bird Market to understand wildlife trade patterns in conjunction with WCS legal and policy team. Data collected at Kabul Zoo and at Kabul Bird Market have been published in two separate reports. Data collected during Quarters 2, 3, 4 in Wakhan and Big Pamir have been compiled and analyzed and a progress report will be made available in January 2007.

Combined with studies of range-use of wild ungulates (e.g. the Marco Polo sheep), analyses of rangeland status, and Wakhi and Kirghiz grazing patterns, this study will help determine the nature and extent of conflicts between livestock and wildlife, including the possibility of disease spillover from livestock to wildlife. Information collected will be developed into a disease-specific database that is spatially explicit and that will be integrated into a GIS to identify risk factors for disease emergence and help predict future disease outbreaks. This database can help 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.

### Activity 1.5 Community Based Livestock Health Training

Wakhan, due to its remoteness, limited or absent veterinary services and competition for limited pasturage makes the likelihood of disease transmission between wildlife and domestic herds extremely high. This could be catastrophic for both indigent farmers which are entirely dependent on livestock to survive the winter, and wildlife such as the Marco Polo Sheep. In 2007, WCS will provide staff and materials for training local community members to identify broad categories of disease conditions, to describe symptoms to veterinarians, to provide basic wound and lesion care and basic animal husbandry. This training would be designed to complement and facilitate traditional veterinary care and allowing awareness of disease spread through domestic livestock.



**Figure 2:** Women in Big Pamir milking Sheep. In Wakhan, communities are dependent on livestock for survival. WCS ecosystem health activities promote both disease surveillance and disease prevention activities that benefits Wakhi communities as well as wildlife. (Credit: Dr. Don Bedunah)

In Quarter 4, WCS continued the training of two veterinarians, recently graduated from Kabul University, in surveying health status of wild and domestic population, and in learning wildlife capture and immobilization methods. In collaboration with the WCS Community Conservation Team, the Ecosystem health team recruited a Wakhi trainee during winter mission and taught him basic veterinary techniques, including vaccination

procedures. In the spring of 2007, the team aims to evaluate the capacity of a selection of candidates to be trained as paravets in order to serve the Wakhi communities.

### Progress and Performance Assessment

During Quarter 4, WCS achieved its goals to promote an understanding of disease at an ecological and landscape level by Afghan vets as well as to train community members in basic animal care and disease monitoring. This work, which will serve to protect both domestic populations of livestock and through better care and effective monitoring by community members, reduce the possibility of disease spreading to wild populations will continue in 2007 when WCS provides staff and materials for training local community members to identify broad categories of disease conditions, to describe symptoms to veterinarians, to provide wound and lesion care and basic animal husbandry. Training is aimed at complementing and facilitating traditional veterinary care and creating awareness of the methods of disease spread through domestic livestock that may in turn, impact wildlife and lead to declines in biodiversity.

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

During Quarter 4, WCS continued to develop its GIS capabilities by building a fully-fledged GIS unit at program-level. Through this GIS laboratory, WCS has been able to integrate systematically all field activities, data collection and analysis activities and create a large database of remote sensing and topographic data for Afghanistan.

#### *Imagery and Data Acquisition*

WCS' GIS program continued to acquire recent and historical remote sensing imagery for Afghanistan. WCS acquired a 30 meter resolution digital elevation model (DEM) for Band-e-Amir and Ajar Valley, and is requesting programmed high resolution (60 cm) imagery for the spring green-up of these two locals (programmed imagery is created by programming and thus positioning a satellite over these sites at a specific period of time). WCS also acquired lower resolution DEMs from the Shuttle Radar Topography Mission for all three field sites. WCS is currently acquiring 10 meter resolution imagery of central Nuristan to support our current wildlife survey efforts, and to assist with future assessments of deforestation and forest surveys. WCS has also contacted multiple remote sensing providers to acquire multispectral imagery and DEM's for the Wakhan, and digital elevation models for Nuristan.

Working through remote sensing providers, WCS has already acquired basic imagery (Landsat TM and partly Aster) at no cost for the Wakhan Corridor and continues to mine existing data storehouses at USGS and in the academic community. WCS also visited NASA headquarters in Washington, DC, and conferred with USGS staff working on Afghanistan to develop and continue partnerships between the USG government and WCS in Afghanistan. This may yield additional imagery products in near future (Landsat ETM, Aster) to assist in our analysis.

#### *Developing Conservation GIS Expertise*

WCS continued to invest in its Afghan GIS officer, a former UN GIS specialist, training him to become the focal point for conservation GIS in Afghanistan. He will also serve as a mentor to the Ministry of Agriculture (and potentially NEPA) and work with Ministry, at their request, to build their own GIS capabilities in the specialized technical field of conservation GIS. WCS has agreed to work with the Ministry of Agriculture to provide guidance on setting up their GIS laboratory and working to build capacity in its staff for cartographic skills, datasets management, database structure, remote sensing data sources, and spatial analysis.

#### *Data Analysis and Integration*

The GIS unit has been highly productive during 2006, with Quarter 4 providing no exception. Collation of field data collected during summer 2006 is now completed and most of this data (biological and socio-economical) has been made spatially explicit. The winter season will be utilized to aggregate those datasets and file them in an appropriate and manageable database structure which will be expanded as the following survey season commences. In the meantime, it is expected that preliminary analysis will follow suit.

#### *Activity 1.6.1. Landscape Assessment of Pastoralist and Livestock Movement Patterns*

Wakhi communities inhabit the western Pamir and extend down the Wakhan District. 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. Field data on Kyrgyz and Wakhi communities that has been gathered in the Pamirs by the different teams under the ecosystem health program and the community conservation program have been incorporated into the GIS database. This data includes the locations of winter and summer pastures, locations of known Kyrgyz and Wakhi settlements, and perceptions of the seasonal movements occurring in the landscape. The findings have suggested marked shifts between these communities in the Wakhan. The maps and data analysis is provided in the FY2006 Annual Report.

*Activity 1.6.2. Landscape Assessment of Marco Polo Sheep Migratory Patterns*

Through the mammal surveys, WCS have plotted the locations of Marco Polo Sheep found in the Big Pamir and estimated habitat. Further data will take place once Marco Polo Sheep have been collared.

*Activity 1.6.3. Assessments for Landscape Management*

The WCS Living Landscapes Program (LLP) 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. The ongoing effort of collecting data in the field and rendering those data spatially explicit lays the groundwork for building biological and human landscapes following the WCS Living Landscape model. WCS Afghanistan Program applied to become a model program for the Living Landscapes Program and benefit from the intensive analysis that the LLP program applies to its core models.

**Progress and Performance Assessment**

The creation of the GIS laboratory, recruitment of staff, collection of baseline data, purchase of imagery, and integration with data collected in the field, and analysis has allowed us to better understand threats to biodiversity conservation and the human communities dependent on them. WCS has developed the sole conservation GIS laboratory in Afghanistan, created GIS products in support of project activities and integration of data, and started integration of different streams of data that will allow us at the end of project activities to make scientifically-based recommendations to the government for implementing biodiversity conservation strategies in Afghanistan.

## **OBJECTIVE 2: STRENGTHENING LAWS, POLICIES, AND 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. In Quarter 4, WCS continued its active involvement in drafting regulations and laws for natural resource management in close consultation with its partner, the United Nations Environmental Program.

### **Applicability to Biodiversity Primary Codes**

Protected areas and the institutions necessary to support them are critical to the conservation of biological diversity in Afghanistan. WCS activities under Objective 2 have helped create these protected areas, will define them through stakeholder input, scientific research, and appropriate laws and regulations, and maintain them appropriate enforcement mechanisms.

### **Activity 2.1 Update Wakhan Protected Areas**

WCS has continued in Quarter 4 to integrate and analyze data from other program activities and acquire remote sensing data to provide a framework with which to update protected area boundaries. The collection of a substantial body of data on wildlife incidence and distribution, ecosystem health, rangeland status, and the socioeconomics of Wakhan have permitted us to gain a clearer picture of proposed protected area boundaries.

### **Progress and Performance Analysis**

WCS has started analysis of biological and socioecological data for updating the proposed protected area boundaries of the Big Pamir, collected GIS and remote sensing data for the Big Pamir, Little Pamir, and Waghjir Valley for landcover classification and wildlife research, and is developing a high resolution digital elevation model for the region. These activities provide the basis for future protected area designations, including biologically important regions for inclusion in a transboundary peace park.

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

The development of a Transboundary Peace Park that would encompass the Pamirs, as well as sections of the Hindu Kush, Karakoram, Himalayas, Tien Shans, and Kunlun ranges, will create one of the most spectacular mountain region protected areas on earth. The borders of four countries – Afghanistan, Pakistan, China and Tajikistan – meet at this knot of mountains.

The spectacular and threatened Marco Polo sheep (*Ovis ammon polii*) traverse sovereign boundaries of states, as do snow leopards, ibex, and other species. The region is renowned for its diverse cultural traditions and the great variety of plants and animals which, together, create a distinctive and unique landscape. Transboundary cooperation of joint resources through the creation of a trans-frontier reserve or international protected area is necessary to protect and manage these resources.

In Quarter 4, WCS worked on plans to engage the governments of China, Afghanistan, Pakistan, and Tajikistan. WCS also worked to engage the State Department to support the creation of the Peace Park. This included meetings with the Geographer of the US Government and members of the Bureau of Intelligence and Research (INR), the Deputy Assistant Secretary for Science and the Deputy Assistant Secretary for Environment of the

Bureau of Oceans, Environment, and Scientific Affairs, the Deputy Science Advisor to the Secretary, members of the China Desk, the Special Assistant to the Office of the Undersecretary for Public Diplomacy and Public Affairs, and the newly created Bureau of Foreign Assistance, among others.

WCS is planning the second workshop on Pamir transboundary conservation scheduled for the fall of 2007 in Dushanbe, Tajikistan. The second workshop is expected to review the recommendations from the Urumqi workshop, finalize an action plan for the Pamir region, and identify implementing agencies, organizations, and donors for each initiative. The third workshop is expected to be held in the fall of 2008 in Islamabad, Pakistan. This workshop will act as the official launch for transboundary cooperation, and any final agreements between countries are expected to be signed then.

#### **Progress and Performance Assessment**

WCS is making steady progress toward the creation of a Transboundary Peace Park. Part of this process depends on engagement with the four other countries. WCS Vice President for Science and Exploration, Dr. George Schaller, continues to engage the governments of Tajikistan, Pakistan, and China on this issue. WCS has also raised the peace park on the agenda of the US Department of State, given its potential benefits of encourage track II diplomacy and dialogue among nations. WCS is currently organizing the second Transboundary conference that will be held in Tajikistan in fall 2007.

#### **Activity 2.3 Central Hazarajat Plateau Conservation Initiatives.**

Band-e-Amir is a high profile proposed protected area and several agencies are working on developing the area as a national park. The Asian Development Bank (ADB) has been particularly active over the past two years and has completed a variety of park planning reports, public consultations, and on-the-ground projects. WCS activities have focused on conducting baseline science to update research that was now 30 years old, meeting with local communities to better understand their position on the development of the protected area, and building consensus among the Afghan government and international community.

#### *Band-e-Amir Coordination Committee*

WCS created an ad hoc Band-e-Amir Coordination Committee, through its Biodiversity Conservation Working Group, to share information and to coordinate policy, planning and development activities related to Band-e-Amir, and to ensure that existing laws were upheld in the creation of the protected areas. The Committee is comprised of members from Ministry of Agriculture and Irrigation (MoAI), the National Environmental Protection Agency (NEPA), The Afghan Tourist Organization, Save the Environment Afghanistan, UN Environment Programme, SALEH, UN Development Programme Afghan Conservation Corps, USAID, US State Department, ADB and WCS, and is open to all interested organizations. Meetings were held on 28 October at WCS, November 4 at NEPA/UNEP, and 14 November at ADB. A technical subcommittee met on November 7 at the ADB offices.

The Coordinating Committee for Band-e-Amir has been extremely successful in building consensus and spurring accomplishment. The Environment Act was enacted by Parliament in December 2005, but approval of the attached regulations was stalled. The major issue was a disagreement in wording between NEPA and MoAI. The Coordination Committee was

successful in breaking this deadlock and the regulations are currently being considered for approval by the legislation department of the Ministry of Justice. One of the major issues addressed by the Committee was to decide on the best approach to obtain early protected status for Band-e-Amir. It is universally recognized that pressures on Band-e-Amir are mounting and authority to provide interim protection is required as soon as possible. ADB has been pursuing the approach of obtaining a Presidential Decree. The Committee expressed concern that this approach steps outside the legal procedures outlined in the Environment Act. The consensus of the Committee was that a better approach would be to attempt to get an interim management plan approved by NEPA following the requirements of the Environment Act and the draft regulations. WCS was given responsibility to re-draft ADB's land use plan as an interim management plan that conforms to the tenets of the Environment Act.

The Environment Act indicates that protected area management plans must be accompanied by a Collaborative Management Agreement (CMA). A draft CMA was developed jointly by WCS and UNEP. A significant component of the CMA was the draft revenue sharing agreement. WCS worked closely within its legal and Hazarajat components to develop a mechanism to distribute revenue from protected areas to support park operations, management needs of the Ministry of Agriculture and NEPA, and to return part of the funding to local communities to support development. Finally, through the Coordinating Committee, WCS developed an inter-agency plan for developing Band-e-Amir as a legal and functioning protected area

#### *World Heritage Natural Area Status for Band-e-Amir*

In Quarter 4, WCS convened a meeting with the United Nations Educational, Cultural, and Scientific Organization (UNESCO), USAID, The US Embassy, the Ministry of Agriculture, Ministry of Culture and Tourism, and the National Environmental Protection Agency on developing an initial proposal for consideration of Band-e-Amir as Afghanistan's first Natural Heritage listing. Band-e-Amir qualifies under multiple categories for a Natural Heritage listing by providing outstanding universal value under all four listing criteria: (a) Geology; (b) High Scenic Beauty; (c) Cultural Significance; and (d) Biodiversity Value. The travertine dams that contain the five lakes making up Band-e-Amir are rare geological features. Where they have been created in other parts of the world, they have been protected and bestowed World Heritage status. Moreover, Band-e-Amir is a place of tremendous scenic beauty. 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, which holds tremendous cultural significance to all Muslims. Finally, Band-e-Amir may contain species that are universally endangered, and may therefore need protection provided by World Heritage Status.

The benefits of World Heritage status for Band-e-Amir would raise awareness of conservation issues in the park, increase protection, enhance funding, improve management, and harness ecotourism (pursuant to Indicator 3.2). A World Heritage listing for Band-e-Amir would complement the nomination of Bamiyan as a Cultural Heritage site with respect to tourism development, as they are only 75 km apart.

It is clear for Band-e-Amir, WCS, working with its partners, including the Afghan government, that there must be the regulatory environment in place for Band-e-Amir to be nominated successful for inscription on the World Heritage List, including adherence to the

international environmental regime. The nomination process also requires information on boundaries, a management plan, and funding commitment. WCS will be working, on behalf of the Afghan government, to prepare a nomination in February of 2008, with final approval in 2009, and put into place these requirements for the application.

#### *Meetings with Government Officials*

WCS Hazarajat Program held multiple meetings with government officials at the national, provincial, and district levels to make them aware of WCS initiatives at Band-e-Amir and Ajar Valley. WCS also worked closely with a Ministry of Agriculture counterpart, who worked in tandem with the WCS Hazarajat Program Manager, Dr. Chris Shank. On the provincial level, WCS also meet with the Governor of Bamiyan Province, the Deputy Governor, and the Provincial Head for the Ministry of Agriculture for Bamiyan Province. WCS also met with Wolesewa, Afghan tribal elders, and district agricultural officials. To ensure that local communities were aware and supportive of WCS initiatives at Ajar and Band-e-Amir, WCS met with shuras in 4 Ajar villages, Dehganqala, Yelga, Dehe Myana, and Dehe Tajik. All shuras expressed support for the project. Through these interactions, WCS also gained a much better understanding of the community structure at Ajar Valley, and the issues that may confront the development of a future protected area.

#### **Progress and Performance Assessment**

Activities during 2006 created the foundation for future coordination among donor and implementing agencies, scientific surveys of proposed protected areas, gazetting of park boundaries, review and drafting of management plans, and coordination among the Afghan government and international community. Substantial work was put into coordinated the environmental community in Afghanistan, in particular, to support the rule of law and Afghan environmental institutions. This work has led to substantial progress on the development of these protected areas.

#### **Activity 2.4 Eastern Forests Program**

The Eastern Forests Complex in Afghanistan contains some of the last remaining arid conifer forest in the Greater Himalayan mountain chain. The Complex runs from the border of Badakshan in the north to Paktika in the southeast of Afghanistan, and contains birch, mixed oak, juniper, and coniferous forests. Tree cover tends naturally to be more continuous in this region where precipitation is far higher and less erratic than elsewhere. This habitat, a Global 2000 Ecoregion (Western Himalayan Temperate Forest), is rich in biodiversity, including historical populations of snow leopards, leopards, jungle cats, Himalayan lynx, leopard cats, wild cats, Pallas' cats, jackals, striped hyenas, martens, Asiatic black bears, Siberian ibex, markhor, urial sheep, and wild boar. It is under tremendous deforestation pressure (discussed below). Further, its location in the sensitive and conflict-prone border regions between Afghanistan and Pakistan makes monitoring of deforestation difficult, if not impossible.

#### *Wildlife Trade Survey*

WCS has completed the hiring and training of researchers to conduct hunting and wildlife trade surveys. Surveys were conceived as a tool to assess the market and livelihood strategies that put pressure on the resources and will have direct implications for community level work to follow. Training began in August with one week dedicated to classroom instruction, followed by closely monitored field surveys. In August 2006, WCS began two intensive surveys to 1) assess the level of hunting prevalent in Afghan culture, the species

targeted by hunters, and the reasons for hunting and 2) assess the degree of wildlife trade. In an initial phase, both surveys were conducted in Kabul. This has provided some detail on one of the major markets for wildlife. To date, approximately 2,500 interviews have been conducted in the greater Kabul area. Data input is ongoing and preliminary analyses will be available in early FY2007. Using the experience from these surveys, additional surveys methods will be developed and carried out in targeted areas of the eastern forest region.

*Wildlife Surveys and Genetic Analyses*



**Figure 3:** Persian Leopard pelt for sale in a Kabul fur store. WCS canvassed the market for wildlife products as part of its survey to determine the amount of demand on wildlife.

In Quarter 4, WCS started wildlife surveys in Nuristan. These surveys have indicated the continued presence of snow leopards (or potentially the snow leopard/leopard hybrid suggested to exist by scientists at the Field Museum of Natural History during the 1965 Street Expedition) including witnessing a snow leopard attack on livestock, as well as Persian leopards, Asiatic Black Bears, Red Fox, Jackals, Wolves, Markhor, and Crested Porcupine. These observations were made on direct sightings, tracks, signs (such as indicative porcupine scraps on trees), scats, and tracks, when they could be clearly determined. The Nuristan survey teams have collected scat samples, and WCS will send them to the American Museum of Natural History genetics lab for analysis for species identification, population size, and inbreeding.

### *Remote Sensing Analysis of the Eastern Forests*

Through our GIS team (Activity 1.6), WCS has collected, and is continuing to obtain existing remote sensing data to estimate current rates of forest loss, classify remaining forest cover, and determine sample areas for wildlife surveys. New data will be compared against older estimates completed by UNEP and FAO for Nuristan.

### *Timber Trade Surveys*

WCS is investigating current logging practices through a review of existing publications and the use of timber trade surveys. Surveys were designed to assess the species, volumes, types, uses, sources, and values of timber in various open air bazaars located in Afghanistan's major trading centers. For the moment, surveys have first been conducted in Kabul as one of the primary timber markets, and for reasons of convenience and security.

### **Progress and Performance Assessment**

The emphasis in FY 2006 for the Eastern Forests Program has remained, as called for in the project document, a more detailed and accurate assessment of the status of and pressures on the forest resources of the region. All components of the assessment have been initiated with preliminary data for wildlife trade and timber trade already available. Analysis is ongoing and will continue through FY2007.

### **Activity 2.5 Ranger Training**

For FY06, WCS is seeking to identify individuals for training during fieldwork and through local consultations. The majority of ranger training will primarily occur through a series of workshops in 2007-2008 after the demarcation of protected areas and initiation of community conservation activities. WCS intends to draw most of the ranger-trainees from local communities where the Parks will be established; WCS will solicit individuals from the Wakhan, Hazarajat, and the Eastern Forest Complex. Further, through project fieldwork activities (wildlife surveys, community conservation activities), we will attempt to identify candidates based on their level of education, natural history knowledge, and enthusiasm.

In Quarter 4, WCS Afghanistan staff have contacted programs in Cambodia, and India, to identify successful models for ranger training, and to develop protected area models for study. This program ties into all project activities in the Wakhan, Hazarajat, and the Eastern Forests 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.

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

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

In Quarter 4, WCS continued its in-depth review of all compiled legislation. The current state of law in Afghanistan is almost impossibly confused, including laws and regulations spanning three or four separate governmental regimes. Some of these legal acts are still recognized; others have been officially repealed; while the status of many others remains questionable. WCS has completed a compilation of existing national level biodiversity legislation for Afghanistan and will continue to identify national and local legislation as our

review and drafting work continues. It has started filling in the perceived gaps in the legislation by drafting new laws and regulations, in conjunction with its partners at UNEP.

*Environmental Law Compendium and Practice Guide*

WCS has compiled and anticipates publishing, in cooperation with UNEP, the Ministry of Agriculture, and the National Environmental Protection Agency, a compendium of environmental law and practice for Afghanistan. The contents will include descriptions of institutional frameworks for environmental management, legislative promulgation procedures, as well as an analysis and description of identified legislation. Due to the draft status of some of the laws reviewed, our review will necessarily remain preliminary. Still, we will publish a finished product for distribution to interested parties in both Dari and English.

Laws included in the compendium include the newly enacted Environment Law and Mining Law; current drafts of the Forestry Law, Protected Area Regulations; an old version of a Rangeland Law, and current draft of a Rangeland Law. There appear to be few laws or regulations specifically addressing wildlife, wildlife trade, or hunting – although we have been presented with royal edicts from the '60s and '70s granting certain individuals the right to engage in wildlife trade.

All laws (including any related material) have been incorporated into a hard copy and soft copy library at the WCS offices, with translation needs from Dari to English underway. Translations will be completed during the first quarter of FY07. Upon completion of all translations, all identified biodiversity related legislation will be formatted for publication in hard copy, CD and downloadable pdf format.

*Establishment of a Legislative Drafting Group*

In the context of the drafting work, WCS performed on the forestry legislation, a legislative drafting group has formed including individuals from several national and international organizations. Our primary international partner has been UNEP, which maintains an office presence specifically dedicated to environmental legal development. UNEP was instrumental in drafting the Environment Law and participated, along with FAO and WCS, in the drafting of the Forestry Law. From this point forward, UNEP anticipates spending more effort developing legislation for the "brown" sector; i.e., toxic chemicals, waste management, pollution control, etc. They will, however, continue to play a key role in facilitating regular communication between all members of the legislative drafting group and assist with lobbying efforts in parliament.

Other international partners include the Asian Development Bank, World Bank, FAO, NRC, and AREU. This configuration is flexible and will depend, for any given legislative effort, on the interests and capacities of international organizations. National partners currently include in the first instance the National Environmental Protection Agency and Ministry of Agriculture. Members from both agencies have been intimately involved in the development of the Environment Act, Protected Areas Regulations, and the Forestry Law. Priority needs for the group have been identified and cooperative work begun in the development of a new Rangeland Law for the country. Other laws identified by the group include hunting, endangered species, and trophy hunting.

*Drafting of Forestry Law, Rangeland Law, & Amendments to the Protected Area Regulations*  
The third technical draft of the Forest Law was completed in October 2006 with translation of the law completed in late November. It has since been submitted to the taqin and remains there under review. We are waiting for the taqin's approved version before completing a final draft and conducting national stakeholder consultation.

The national stakeholder consultation process will involve two distinct phases. The first phase will consist of field-level consultation with communities and other stakeholders in forested provinces conducted by Forestry Department officials who have received training on the law and non-governmental organizations (NGOs) working at the community level in the forestry sector. The second phase is a national stakeholder consultation workshop in which Afghan stakeholders countrywide will be invited to participate.

Prior to beginning operations in Afghanistan, protected area regulations had already been proposed by the NEPA, with the assistance of Patti Moore, IUCN. In Quarter 4, WCS responded to requests to assist with the amendment of the proposal to refine two important components – 1) revenue sharing between government and local communities; and 2) collaborative management agreements to govern the joint actions of protected area administrations and local community members. Drafts have been completed and submitted for review among members of the Legislative Drafting Group, including the Ministry of Agriculture, NEPA, ADB, and UNEP. Discussions are ongoing. Part of the challenge facing the regulations is that revenue collected by the National Parks, under the Afghan Constitution, must go to the Ministry of Finance, instead of being directly returned for the operations of the protected areas, the ministries that oversee them, and the local communities that must benefit from the protected areas for those areas to be successful.

One of the priority laws to be drafted over the next 8-12 months is a new Rangeland Law. In Quarter 4, WCS has conducted an initial review of existing laws and practices, received input from organizations working on range land at the local level, and will act as the lead organization responsible for drafting. UNEP will assist with coordinating continuing input from the Legislative Drafting Group. One of the primary objectives of this law is the recognition of local community rights to access and use forest and non-timber forest products. Assuming these provisions survive the upcoming debates in parliament, they will form the basis for the further development of local regulations and/or agreements that will help guide local management forest resources. However, because this legislative effort touches on a central livelihood strategy and concerns to a large degree land tenure regimes, rangeland promises to be the single most contentious legislative effort.

Finally, in consultation with UNEP, WCS has reviewed the various training needs relevant to biodiversity legislation. Many courses have already been conducted by other organizations making this a superfluous effort. Instead, it was suggested and agreed that courses designed to instruct national partners and local communities in the implementation of newly promulgated legislation would be more useful. The first law with practical implications for implementation in the field will be the Forestry Law. With its approval imminent, courses on this subject have been delayed until that time.

#### **Progress and Performance Assessment**

Pursuant to Indicator 2.2, WCS has substantially accomplished its objectives for Q4. WCS has drafted protected area regulations, the Forestry Law, and has started efforts on wildlife

laws and revising the Rangeland laws. WCS also anticipates the approval of the Forestry Law sometime in early FY2007. WCS will also conduct training programs on the implementation of the Forestry Law at the local level. Three additional laws will likely form the majority of continuing legislative drafting work for FY2007; including the Rangeland Law, Hunting Law, Endangered Species Law, and Trophy Hunting Law. For all of this work, priority activities will be defined in cooperation with partners in national government and the legislative drafting group.

#### *Activity 2.6.2 Trophy Hunting Program*

WCS has reviewed relevant examples for trophy hunting programs in several countries. The most relevant, reflecting the conditions that exist in Afghanistan, comes from Pakistan's northern border along Afghanistan's eastern forest region. It is too early to say where this review will lead and in part, will depend on the status of wildlife in the proposed protected areas.

For trophy hunting to have any chance of success in Afghanistan, a number of elements outside the control of WCS will need to come together. These include, at a minimum, 1) strong commitment from government agencies to support the initiative, especially from the Ministry of Finance to allow local communities a monetary stake in a potentially lucrative resource use, 2) survey results that show sufficient populations of trophy species (in particular, Marco Polo Sheep, but also markhor, urial sheep, and wild boar), and 3) a security environment that does not deter foreign hunters from coming to Afghanistan, or areas of Afghanistan with trophy hunting potential.

The government has voiced at least some commitment to the concept of local community management of natural resources; all legislation so far drafted or approved explicitly recognizes this approach. However, revenue sharing is a component part for which some concern remains that the national government will not allow sharing at a level that has meaning for the local communities. Surveys of both the Big and Little Pamirs, and Hazarajat Plateau have been conducted and are ongoing. Results will not be available until later in FY2007. The last concern, security, does not appear to be a significant problem for the Wakhan corridor where the Marco Polo Sheep occur. It may, however, present an obstacle in other areas.

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

As previously noted in the Technical Report for Quarters 2/3, WCS has met the goals for Q4 through the formation of an advisory group, selection of a biologically important region to model, collected available data, and started developing survey methodologies. These actions will assist the Government of Afghanistan to begin the process of estimating the contribution of ecosystem services to the national economy that could serve as a model for other nations in the region to incorporate ecosystem values into their national system of accounting.

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

#### **Applicability to Biodiversity Codes**

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. WCS activities are designed to promote community-based decision-making to enable local-scale resource management and conflict resolution. Most actions focus on the communities, but additional stakeholders and government authorities on district, provincial and national levels are also engaged.

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

During 2006, the WCS Community Conservation Program (CCP) concentrated its efforts on identifying all Wakhan villages that utilize grazing resources in the Big Pamir and Little Pamir, and surveyed all Wakhi pasture settlements in the Big Pamir to determine number and type of livestock, the number of households using each pasture area and their village affiliation, and the seasonal migratory pattern of each group of herders.

During Quarter 4, the WCS CCP surveyed 320 households in 21 villages that use Pamir grazing resources. This translated into 54% of all households across 21 villages and which represents more than 3600 individuals. This activity provided data on demographics (age, gender, birth/death, marriage), occupation, education, land ownership, livestock ownership (type, number, age), dairy and wool production, and livestock sales, purchases, consumption and mortality, including causes of loss, that will be provided in the Annual Report. This initial baseline data on Wakhi villages provides focus and direction for future activities. This data is also being gazetted into the GIS database to enable comparison with the Rangeland data as well as the Mammal and Bird Survey data.

#### **Activity 3.2 Conservation Awareness and Environmental Education**

In Quarter 4, the Community Conservation Program completed a series of Conservation Education Workshops in Wakhan. The workshops were held with the close cooperation of the Community Development Councils (CDC) and community notables and involved communities of 16 villages of upper and 5 villages of lower Wakhan. A total of 21 workshops were held in 21 villages with overwhelming participation of both men and women. A total of 1436 community members (945 male and 491 female) attended despite extremely cold weather, very high snowfall, and long travel distances. This represented 26% of the total population of these villages, with 66% male and 33% female participation, including both adults and children. This was the first program to engage men and women on a large scale in the Wakhi community, according to discussions with local Wakhi. As women play an important role in the Wakhi society, their engagement, and trust of the WCS CCP team is crucial to the effective management of natural resources and protection of biodiversity in the Wakhan district.



**Figure 4:** Community Conservation Education Workshop in Kret.

The purpose of these workshops was to introduce the WCS biodiversity conservation program to the local communities by incorporating them within our biodiversity conservation programs at the beginning of the project as an essential element. WCS also seeks to encourage a wider debate within the communities about the fragile rangeland and wildlife resources of Wakhan, their economic, cultural, and spiritual significance for the community, and the current status of and threats to these resources. The response has been overwhelming. During the course of each workshop, WCS asked if the community is willing to take up responsibilities for conservation of their biodiversity resources in their own village territory. One hundred percent (100%) of the villages involved in the workshops unanimously opted for conserving their biodiversity in a close cooperation with the Afghan government and with technical assistance of WCS.

WCS CCP also initiated collaboration with conservation education staff of IUCN's Mountain Areas Conservancy Project that has been working for a decade in the Wakhi communities of Pakistan's Northern Areas. This collaboration is expected to continue and will provide additional conservation education materials and avenues of cooperation for transboundary activities (see Activity 2.2). During FY07, WCS will be developing and adapting these Wakhi language materials on conservation for use by Wakhi villages in Afghanistan.

To facilitate interactions with the Wakhi community, WCS CCP opened a field office in a centrally located village, Kret, in Upper Wakhan. The office is a two-room concrete building, newly constructed, with a traditional Wakhi house nearby. These facilities provide

a residence for WCS field and Kabul-based staff, and a training facility for community activities. Over 200 community members attended the initial meeting.

### **Activity 3.3 Community Organization and Governance**

The WCS Community Conservation Program initially met with 22 village councils (shuras) representing Wakhi villages using Pamir grazing resources during Quarter 3, 2006. In Quarter 4, WCS CPP building on the foundations laid in Quarter 3, met again with the councils. All councils agreed unanimously to take responsibility for biodiversity conservation, and to work with WCS to establish conservation committees and develop a governance structure. Discussion of community-specific conservation activities and responsibilities are the next step. The WCS field office in Khet (discussed above) will be utilized to work with these Wakhan communities throughout 2007 on governance.

### **Activity 3.4 Ecotourism Enterprise Development**

Prior to Quarter 4, the WCS Community Conservation Program identified 14 individuals from 10 villages who had received basic tourism-related training from other NGO stakeholders. WCS worked with 7 of these individuals providing on-the-job training. These individuals will be the focus of our activities over the next two years, as well as others identified from local shuras and the national solidarity program.

In Quarter 4 2006, the WCS CPP continued to work with these individuals to broaden their understanding of the importance of conservation to the community. WCS CPP met with village councils, and 13 village councils nominated 28 individuals as candidates for training as nature guides who can also work as wildlife census takers (see Activity 1.1) and as support personnel for future protected areas (see Activity 2.5). Some of the candidates also received training in basic livestock health (see Activity 1.5), which will continue through 2007.

Finally, WCS organized a meeting with the Aga Khan Foundation, PACTEC, and Shah Ismael, the head of the Wakhi people, to resolve the current barriers to the creation of an airstrip in Qala-Panj, in the heart of the Wakhan, and the initiation of a tourism zone and future protected area for the region. Creation of an airstrip in the area would greatly facilitate tourism, and support the creation of ecotourism enterprises in the region. WCS has been engaging the Afghan Tourism Organization, the Ministry of Culture and Tourism, and private tourism companies in Afghanistan to develop guidelines for ecotourism, local revenue sharing, and protection of local cultures.

### **Performance and Progress Assessment**

WCS has met the targets set up by Indicators 3.1 and 3.2 for Q4. WCS set up and organized 21 out of 24 community conservation awareness workshops and environmental education, and engaged both men and women. WCS helped create interim community conservation committees that will serve to coordinate development activities, regulate hunting, and manage grazing with 13 of 24 villages using Pamir agree to form interim committees, and nominate committee heads, more than predicted. WCS also consulted with CDC's on ecotourism, identified potential ecotourism and rangers from community to be trained by WCS, and has drafted an interim report detailing these activities and its findings. Through these activities, WCS also made progress toward Common Indicators 194 and 203 through activities to increase ecotourism, working with local communities in development of management plans and protected area boundaries, and implementing training and capacity

building programs for development of natural resources management abilities. WCS wildlife and rangeland surveys provided more than 50% of the ecotourism income for the Wakhan, and substantially raised awareness of the role of the Wakhan's biodiversity as a future revenue source.

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

### **Applicability to Biodiversity Codes**

Afghanistan's future ability is threatened by its lack of human and institutional capacity. No where is this more evident than in the sciences, where basic knowledge remains a critical constraint on natural resources management. The lack of institutional and scientific technical capacity is a primary threat to the conservation of biodiversity in Afghanistan. Developing institutional and technical capacity through short courses, field training opportunities, study travel opportunities, and on a larger scale, public education, has the primary objective of conserving biodiversity.

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

In Quarter 4, over 120 people from Afghan government agencies, university staff, graduates and community members were trained in courses ranging in duration from one day to 5-6 weeks.

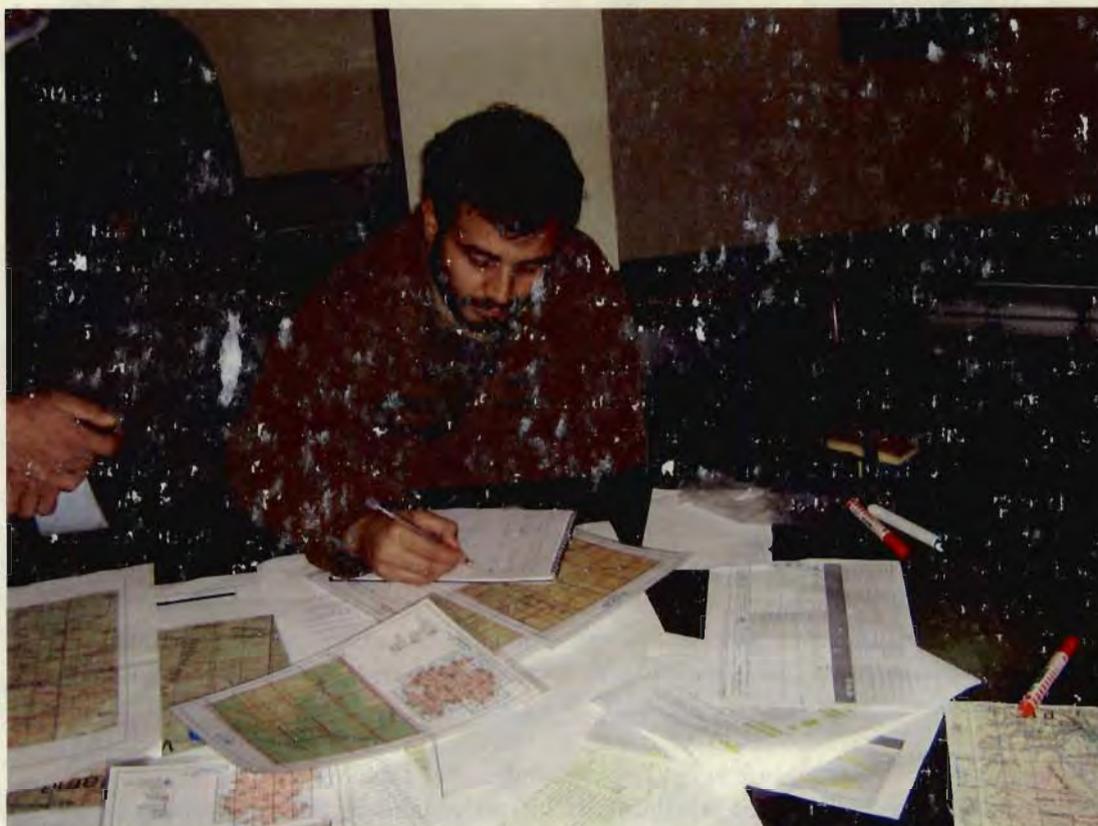
#### *Wildlife Immobilization, Handling, and Sampling*

Dr. Stephane Ostrowski, WCS Ecosystem Health Program Manager, conducted an interactive and informative four day training on wildlife immobilization, handling and sampling. In close partnership with the Kabul Zoo, over 40 members of central government, Kabul Zoo, university professors and students learned how to handle and assess the health condition of wild birds without using tranquilizers. The Kabul Zoo serves as an important conservation and biodiversity education center in Afghanistan. WCS hopes, through training, to decrease mortality rates of Afghan wildlife at the Zoo and at the same time to create a cadre of veterinarians who are well-versed in wildlife health, understand the interrelationship between wildlife and livestock health, and have the capacity for treating both. The training participants took part in calculating proper dosage for tranquilization of Pallas cat, red fox, and wolf, and while under anesthesia assessed the health condition of each of these animals. The audience included vets with decades of experience, but for all participants this was their first exposure to the practice of wildlife veterinary care.

#### *Eastern Forest Wildlife Surveys*

WCS Afghanistan invited two wildlife experts affiliated with the WCS India Program to train a group of 12 individuals from Nuristan to conduct the first wildlife surveys in the Eastern Forest region in over 30 years. The participants included members of the community, provincial Department of Agriculture employees, and recent university graduates. The Nuristani group underwent 2 weeks of intensive theoretical training in basic statistics, population estimation, conceptual frameworks for survey design, relative abundance indices, survey design, distance sampling, capture-recapture sampling, occupancy surveys, and natural history of Afghan mammals. Following the theoretical training, the teams went through another two weeks of practical field training in implementing the methodology (including setting up the surveys with them), as well as in the use of GPS (marking waypoints and tracks, calculating and averaging GPS error), identifying scats and tracks of Afghan mammals, using compasses, and rangefinders, map-based navigation and reading topographic maps. The group was broken up into three teams. The three teams are now conducting surveys in the forested region on the border of Nuristan and Kunar and preliminary reports find markhor, snow leopard and Asiatic black bear. According to the available literature, this will be the first winter survey of wildlife in the region, and one of the few surveys ever

completed of this region.



**Figure 5:** WCS Nuristan team member planning survey routes through the forests of Central Nuristan.

#### *Rangeland Health Management and Monitoring*

A three day training workshop to introduce topics of rangeland health, management, and monitoring to participants from the local Department of Agriculture and Forestry, NEPA and Wakhi community leaders is scheduled for January 2007. Dr. Don Bedunah, WCS Rangeland Manager, will discuss the importance of preventing livestock from overgrazing during crucial stages of plant development, key principles of watershed management and the use of GPS for monitoring rangeland health.

#### *Survey and Identification of Wildlife*

Dr. Chris Shank, WCS Hazarajat Plateau Program Manager, taught a one day introductory birding course to 45 staff from FAO and the Ministry of Agriculture. WCS will build upon this to teach a more comprehensive field course to FAO and government staff in the spring.

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

During Quarter 4, seven members of the Ministry of Agriculture and recent university graduates currently mentored by WCS in conservation science attended a two-week course at Aligarh Muslim University in Aligarh, India. The course included many aspects of wildlife biology, as well as GIS and statistical program applications, field equipment use, and lab work. The participants were exposed to the national park system of India, a top wildlife Master's program and its faculty, and up to date research methodologies for studying

wildlife.

#### **Activity 4.3 Field Training and Scientific Mentoring**

WCS activities in Quarter 4 under Activity 4.3 have focused on the development of independent conservation science skills. This was done through a series of independent field projects under the mentorship of WCS scientists.

##### *Domesticated and Wild Bird Health Survey in Bamiyan:*

During the fourth quarter of 2005, WCS Afghan Vet trainees, Drs. Hafizullah Noori and Ali Madad Rajabi, took part in an independent survey of dead wild birds and sick domesticated birds in several villages in Bamiyan Province. With technical equipment provided by FAO, the veterinarians opportunistically sampled two dead coots and took over 100 samples of domestic poultry. In addition, they presented information on the symptoms and safety precautions for avian flu to hundreds of people in remote villages in Bamiyan Province. The recently graduated vets received training from WCS Field Veterinarian, Dr. Stephane Ostrowski, in the northeast Afghanistan Wakhan region and briefly in Kabul on sampling and objective questioning techniques. The vets successfully performed their first independent field work and gathered novel data for avian flu research in Afghanistan. The samples were turned over to the Kabul Central Vet Clinic and were analyzed by the government in partnership with FAO. Of the 100+ samples, none were positive for H5N1. This project was also supported with funding from the Global Avian Influenza Network for Surveillance.

##### *WCS Independent Research Projects*

Recognizing the low capacity in Afghanistan, WCS has initiated a virtual "graduate" institution for conservation science through its activities in Afghanistan. This program seeks to continuously develop the skills of a core subset of Afghan conservation professionals, and make them aware and provide exposure to current scientific practice over the next three years. One part of this program is the development of analytical scientific skills by recent university graduates (the next generation of Afghan scientists), and government officials. WCS scientists mentored their Afghan counterparts in surveys of small mammals and birds in the Kabul area.

The mammal team, a group of 4 students and Ministry of Agriculture and NEPA counterparts, further developed their field training in the Wakhan by conducting a small mammal trapping project in areas around Kabul. Each individual independently collected data, practiced identifying species, worked with new field equipment, and summarized their results and presented a report to WCS Mammal Program Manager, Mr. Bilal Habib. The two submitting the best reports will accompany Mr. Habib to the Wakhan in February to survey the valley for snow leopard for more intensive mentorship in modern scientific field techniques and methodologies. A similar project was undertaken by the bird team, which consists of 2 students and a Ministry of Agriculture counterpart. With guidance from WCS Bird Program Manager, Mr. Rashid Raza, each person independently conducted a survey in their geographic region, which included the Wakhan, Panjshir Valley, and Kabul. Novel information was collected about chukar and vulture prevalence in these regions, while building the capacity of each team member for data collection, survey techniques, and the use of field equipment.

##### *Fieldwork and Scientific Mentorship*

During Quarter 4, two field teams conducted research in Ajar and Wakhan Valley. Dr. Chris

Shank, WCS Hazarajat Plateau Program Manager was accompanied by a counterpart from the Protected Areas Department at the Ministry of Agriculture to do an ungulate survey in the former royal hunting reserve of Ajar Valley. Training was also undertaken in the field in use of optical equipment, survey techniques, birding, and small mammal capture. Dr. Stephane Ostrowski worked with his field team, including one trained vet from the Wakhi community, to survey livestock health and livestock predation in the lower Wakhan Valley.

#### **Activity 4.4 Public Diplomacy and Outreach**

During Quarter 4, in accordance with the previously stated policy of developing a public diplomacy strategy to increase awareness of conservation problems and increase support and goodwill for biodiversity conservation activities, WCS finalized wildlife education posters that will soon be presented to the Ministry of Education for use in their supplementary education package. These will be distributed to schools all over Afghanistan.

Kara Stevens, Training and Capacity Building Manager, presented information on the wildlife of Afghanistan at Afghan Conservation Corps' seminar on the importance of Khole Hashmat Khan as a refuge for wildlife and migratory birds. The seminar was held at Kabul University for 3<sup>rd</sup> and 4<sup>th</sup> year Faculty of Agriculture students.

At a UNEP-sponsored environmental journalist training, Dr. Alex Dehgan, Country Director, and Kara Stevens, Training and Capacity Building Manager, discussed the status of wildlife of Afghanistan and the importance of biodiversity. The exposure during this dual training (photojournalists and print journalists) gave WCS and USAID a tremendous opportunity to be the "go-to" source for questions related to wildlife, forestry, and biodiversity.

Finally, since expatriates and military personnel are the major consumers of wildlife furs and products in Kabul, WCS has stepped up a campaign to educate them about the threats to wildlife in Afghanistan. At the business card displays found at the most frequented expatriate restaurants, WCS has placed a compelling card that features a snow leopard cub with the caption, "My friends don't buy snow leopard pelts." A similar poster is in the process of being printed that will be distributed to PRTs, military bases, the Kabul Airport, and in other key locations. WCS also sponsored an educational advertisement campaign in the December issue of *Afghan Scene Magazine*, the primary expatriate magazine in Afghanistan, *against* the trade in wildlife products in Afghanistan (currently illegal under Afghan law, US, and European laws, and by international treaty). This campaign was co-sponsored by the Ministry of Agriculture, the National Environmental Protection Agency, and the Afghan Tourism Organization. An article written by Dr. Peter Zahler in the January issue of *Afghan Scene*, raised awareness of the plight of wildlife in Afghanistan among the expatriate community (Figure 6).

Finally, WCS continued negotiations with Tolo Television to collaborate on the creation of two television shows targeted at Afghans. Both would feature wildlife and conservation as their central themes.

#### **Progress and Performance Assessment:**

WCS has accomplished or exceeded its goals for Quarter 4 for Indicators 4.1, and 4.2. WCS successfully arranged and implemented group study tours and intensive training courses for Afghans working in the environmental sector to other countries. WCS also provided

mentorship over small independent research projects to help build independence and analytical scientific skills Afghan government counterparts and recent university graduates, continuing their scientific training in biodiversity conservation. WCS created an advertising campaign for the ex-patriot community in Afghanistan to end negative behavior fueling wildlife trade, and working with its partners at UNEP and UNOPS, created education materials for schools and other educational institutions (Kabul Zoo). Finally, WCS is continuing to work with Tolo Television to create content supporting conservation education and goals.

WCS has collected a plethora of novel information, and most importantly, it has been collected by Afghans we have trained in the field or in the classroom. WCS teams have taken the first known samples of wild birds to be tested for avian flu in Afghanistan, have surveyed demand for Chukar in the Wakhan region, and have conducted wildlife surveys for the first time in over 30 years in the Eastern Forests – the last remaining forests in Afghanistan.

In this quarter, a total of 809 training-person days were accomplished, broken up between the field training component (56 training-person days), the study travel program (98 training-person days), and the short courses (655 training-person days).

Finally, the needs assessment will drive the nature of the training program for the next three years, completion of the assessment allowed WCS to ensure that its training programs would complement existing activities in Afghanistan, and maximize the training environment.

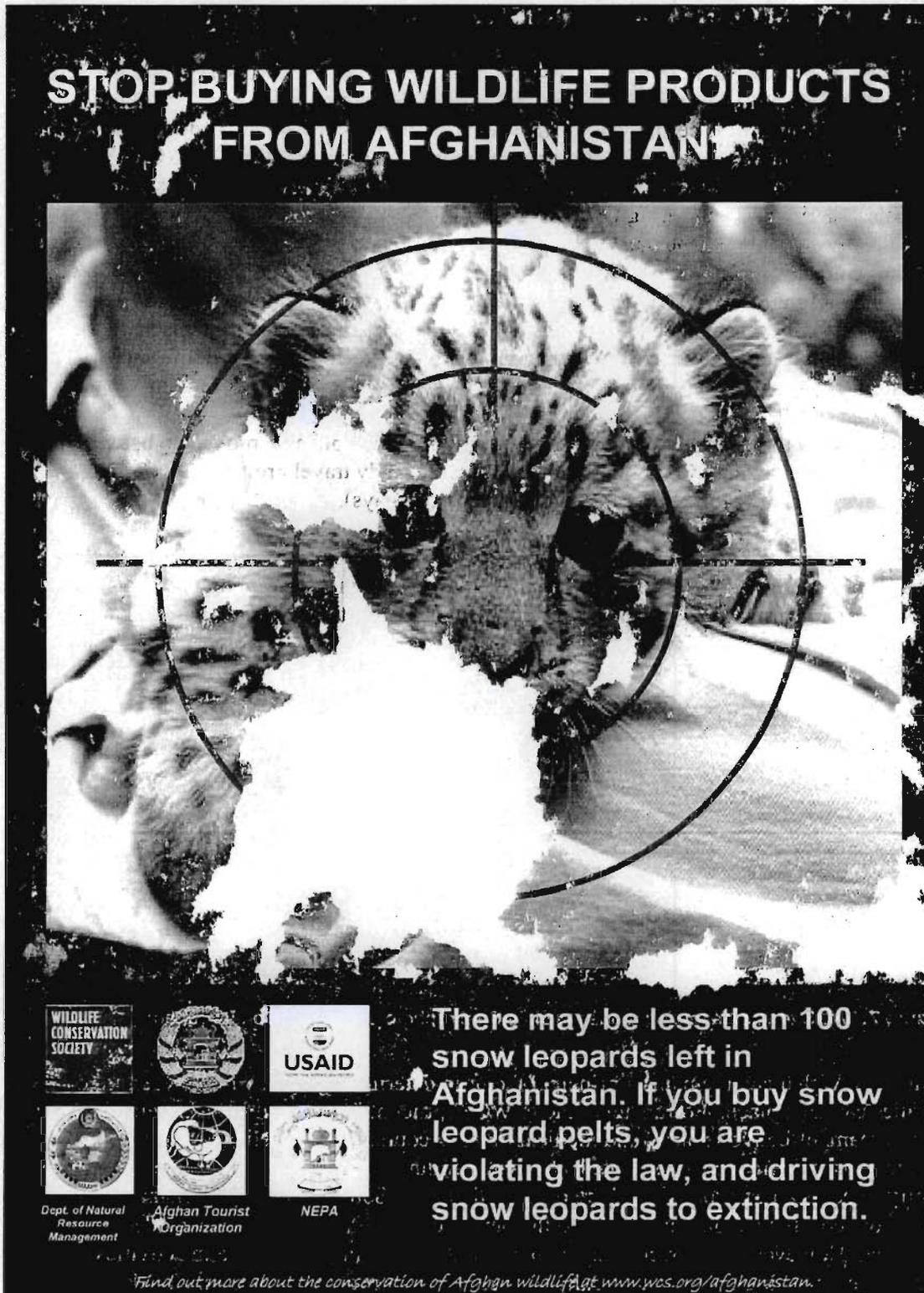


Figure 6: Snow Leopard Advertisement in Afghan Scene, and poster.

## OPERATIONS, SECURITY, AND LOGISTICS

During Quarter 4, WCS the structures, procedures and systems set up in Quarters 2 and 3, namely the Kabul Office, a storage facility in Qala-e-Panj, Wakhan as well as the Community Conservation Program office in Kret, Wakhan were fine-tuned and adapted to better serve the needs of permanent WCS staff and visiting consultants. The arrival of three new specially adapted vehicles for use by scientific teams promises greater efficacy and reduced transport costs since hired transport (during Quarters 2 and 3) proved very costly, particularly once vehicle owners discovered the nature of the terrain in which we expected their vehicles to operate. During Quarter 4, WCS identified two adjacent buildings in Ishkashem, in Wakhan, that will serve as its Regional Headquarters. We anticipate that a formal lease will be signed at the end of the first Quarter of 2007.



Figure 7: WCS teams traversing a pass in Little Pamir (photo credit: Dr. Don Bedupan).

Security in Afghanistan remains a principal factor in determining how, where, when field activities can take place. Fortunately, due to WCS' prudent investment in an experienced security team, effective security and medical training courses, WCS believes that the risks have, to a large degree, been mitigated. Notwithstanding, the aforementioned precautions the country remains an environment where dangers do exist. Some of these dangers are typical of any post-conflict country and relate to the omnipresence of mines and unexploded ordnance. However, anti-government elements (AGE) continue to engage in activities aimed at undermining the democratically-elected government of Afghanistan. To date these AGE activities have been concentrated in the South and South Eastern Provinces of the country. Fortunately WCS work in Wakhan and Bamiyan has to date not been affected by the on-going combat as these areas are not principal insurgency areas, although there are

occasionally drug-related (poppy) wars between rival tribes in Badakshan province. WCS activities in the Eastern Forests region (Nuristan and Kunar) are impacted as these areas have porous borders with Pakistan; Antigovernment elements as well as smugglers utilize these regions to gain access or to move contraband between Afghanistan and Pakistan, including an illegal trade in wildlife and timber. The hazard baseline requires re-assessment during 2007 to determine whether Bamiyan is still an acceptable risk for scientific teams visiting there. WCS has mitigated these risks by training and using Afghans from these regions to carry out wildlife surveys and work with local communities. Maintaining a low profile, transparent objectives, and strong community links has ensured our safe operation throughout 2006.

Training of all staff and the security team in procedures and drills will continue during 2007 with particular emphasis on IEDs, VBIEDs, and SVBIEDs, since this seems to be the tactic of choice in Kabul at present. The Director of Operations and the Director of Security attend weekly briefings on security at ANSO and monthly at NATO Head Quarters in Kabul. WCS requires all new staff to attend mine awareness and security courses before deployment to the field.

**Afghanistan Biodiversity Conservation Project  
USAID Performance Indicators & Milestones for FY06, Quarter 4**

OBJECTIVES	INDICATORS	Key		Quarter 1	Quarter 2	Quarter 3	Quarter 4					
		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
OBJECTIVE 1: SURVEY AND MONITOR WILDLIFE SPECIES AND THE LANDSCAPE CONTEXT IN WHICH THEY ARE FOUND	INDICATOR 1.1: WILDLIFE ASSESSMENTS											
	INDICATOR 1.2: RANGELAND ASSESSMENTS											
	INDICATOR 1.3: ECOSYSTEM HEALTH											
	ACTIVITY 1.4: LANDSCAPE ANALYSES AND GIS PROGRAM											
OBJECTIVE 2: STRENGTHENING LAWS, POLICIES, AND INSTITUTIONS	INDICATOR 2.1: PARKS AND PROTECTED AREAS											
	INDICATOR 2.2: ANALYZE, AND DRAFT LEGISLATION											
	INDICATOR 2.3: ECOSYSTEM SERVICES VALUATION											
OBJECTIVE 3: COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT	INDICATOR 3.1: COMMUNITY CONSERVATION COMMITTEES											
	INDICATOR 3.2: ECOTOURISM ENTERPRISE											
OBJECTIVE 4: TRAINING AND CAPACITY BUILDING	COMMON INDICATOR 204: # PEOPLE TRAINED IN NATURAL RESOURCES MANAGEMENT & CONSERVATION AS A RESULT OF USG ASSISTANCE											230 trained.
	INDICATOR 4.4: PUBLIC DIPLOMACY & CONSERVATION EDUCATION INITIATIVE											
USAID COMMON BIODIVERSITY INDICATORS	Total Number of People:	100	143	211	320	502	816	1376	2418	4440	8548	
	COMMON INDICATOR 203: Number of people with increased economic benefits derived from sustainable natural resources management and conservation as a result of USG assistance.											
	Total Number of Areas:	1	2	3	4	5	6					
	COMMON INDICATOR 194: Number of areas under community management.											

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