Biodiversity Conservation in Afghanistan
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Fourth Quarter 2007 Technical Report

WILDLIFE CONSERVATION SOCIETY

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Paw print by Nuristan Wildlife Survey Team 2007

WCS camera trap photo of Asiatic black bear (*Ursus thibetanus*) in Nuristan

Wakhan landscape by Beth Wald

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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:

Firstly, WCS is undertaking extensive **Baseline Surveys and Data Analyses of Wildlife and Wildlands** in Afghanistan's three most biologically significant areas (Wakhan, Hazarajat Plateau, and Eastern Forests). These surveys will allow WCS to analyze the status and threats to biodiversity in Afghanistan.

Secondly, 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.

Thirdly, 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, 2007

Baseline Science and Analysis

In general, there was less effort put into field work in quarter 4 (Q4) than in other quarters of 2008, because at this time of year, many animals are hard to find. In addition, travel for humans is difficult or impossible. Nevertheless, there are interesting items to report. In Q3, 2007, scat samples had been collected from carnivores in the Wakhan, especially those of snow leopards and wolves. Carnivores play a special role in ecosystems, and a great deal of information can be gleaned from their diet. Preliminary analyses of these scat samples completed in Q4 suggest that snow leopards take very few livestock, which is good news for efforts to manage this endangered species. Unconfirmed reports in Q4 of ibex or urial from the Hazarajat are very interesting, as these large herbivore species were thought to be extinct in this area. WCS will try to confirm these sightings in 2008. In Q3, scat samples of Marco Polo sheep were also collected in the Wakhan for DNA analyses. Laboratory analyses are ongoing, but preliminary results in Q4 suggest a high amount of genetic variation in these populations, which is more good news from a management perspective. Our rangeland specialists continue to develop baseline information for rangeland evaluation and monitoring. Data collected in the field during previous quarters was processed from paper records to electronic records in Q4, and analysis is ongoing. The interface between wildlife, livestock, and humans is a critical component of ecosystem health in Afghanistan, affecting all three elements. At present our program is the only program surveying the health of livestock and wildlife in the Wakhan, and the only program in all of Afghanistan studying the diseases that move between these three elements of the Living Landscape of Afghanistan. In addition to our survey work, we are collaborating with the FAO to train staff at the Kabul Central Veterinary Diagnostic Laboratory, to increase Afghanistan's capacity to detect, monitor, and respond to disease outbreaks. All of these works are being integrated into

our GIS database.

Community Conservation Program

In Quarter 4, the CCP continued its work in Wakhan to build broad-based constituencies for conservation to ensure the conservation of Afghanistan's biodiversity. Approximately 90% of all summer Kyrgyz camps have been visited. Seasonal migration patterns and land tenure have been recorded and data is being prepared for incorporation into GIS. Socioeconomic survey instruments used for study of Wakhan's Wakhi population have been adapted for the Kyrgyz population and data collection begun. A local facilitator for community conservation in Wakhan was hired. The facilitator visited schools, prepared and distributed Environmental Education materials and collected initial three months of school data. The six schools were supplied with sets of Environmental Education materials (in Dari and Wakhi) for both students and for each school. For governance and community-based management, the CCP brought Dari language copies of the Environmental Law to Wakhan for distribution in all Wakhi villages in Wakhan. The CCP held meetings in 14 of the 17 Wakhi villages using the Big Pamir to discuss the Environmental Law and its relevance to community governance, to record the traditional resource management regulations, and to discuss the former Afghan Tourist Organization (ATO) trophy hunting regime (1969-1978). These villages agreed to incorporate the concept of community conservation committees within their existing management structure. Each village council appointed one member of the community to serve as focal person and point of contact for conservation activities and agreed to cooperate with WCS in development of conservation governance. All 24 villages actively using the Big Pamir and Little Pamir resources have now pledged their full support for WCS activities. This effectively brings all villages actively using the Big Pamir and Little Pamir under community management in partnership with WCS. This series of meetings revealed that all 42 Wakhi villages in Wakhan have traditional usage rights in the Big Pamir and Little Pamir, which prompted the CCP to recognize the necessity of including all 42 villages in Wakhan District within the conservation governance structure. To do so, the CCP collaborated extensively with the WCS Law, Policies, and Institutions Component to implement Bylaws for a Wakhan Conservation Association (WCA) that encompasses all Wakhi villages in Wakhan and will include all Kyrgyz communities once the Kyrgyz enter into Afghanistan's National Solidarity Program (NSP) in summer 2008.

Laws, Institutions, and Policies

In Quarter 4 2007, WCS responded to comments on proposed hunting legislation for introduction to a public consultation process in 2008. Q4 also saw WCS develop a regulatory proposal for CITES (Convention on the International Trade of Endangered Species) implementation and the management of national trade in wildlife products. WCS also continues to play a lead role helping the Afghanistan, Pakistan, Chinese and Tajikistan governments create a transboundary protected area across the Wakhan landscape. In Q4, WCS assisted the Afghanistan government develop a framework agreement for transboundary protected area management.

Economic development through natural resource management and biodiversity conservation depends on the creation of effective institutions and policies. WCS continues its efforts to create a sound legal and institutional basis for biodiversity conservation and natural resource management in Afghanistan. These efforts center on the drafting of a suite of environmental laws, regulations, and legal tools that target the primary resource and conservation concerns as

well as provide the guidelines and rules for cooperative management. In addition, WCS is providing support to the Afghani government for the development of effective institutions and policies that may serve to mitigate existing threats and increase opportunities for effective conservation through better governance, enforcement, and support for the rule of law. A focus is the work with other institutions in Afghanistan and the government to devise an acceptable system for the distribution and sharing of funding between the government and local communities.

Training and Capacity Building

A lack of institutional capacity to monitor, manage and protect wildlife is one of the greatest threats to biodiversity in Afghanistan. In Quarter 4, the Training and Capacity Building Program trained 51 people, with a total of over 650 trained throughout 2007. WCS trained government resource managers in wildlife management theory and practice, trained community members in protected area management and ecotourism and developed capacity for improved veterinary care in the under-serviced Wakhan Valley. WCS trained NEPA and MOAIL staff from all over the country in basic principles of population biology, a subject which was new to all of the participants. In Band-e-Amir WCS laid the groundwork for a basic wildlife monitoring program by training the MOAIL staff in bird identification techniques and use of field equipment. Six Nuristan community members, after receiving thorough training in questionaire techniques, completed a 300 household socio-economic survey that assessed the value of the forest to the inhabitants of Waygal Valley, Nuristan. Two Wakhi community members graduated from the Dutch Committee for Afghanistan's 6 month paravet course and WCS equipped them with all necessary supplies to establish sustainable, private veterinary field units in the previously unserviced Upper Wakhan Valley. WCS will continue to work with the paravets to provide technical assistance and train them to recognize wildlife disease. Eight people experienced conservation best practices as practiced abroad through the study travel program. A group of Wakhi shura leaders visited the Wakhan region of Pakistan to learn about community benefits from ecotourism and management of protected areas, since as decision makers, they will be responsible for working with WCS and the Islamic Republic of the Government of Afghanistan on issues related to park boundaries, range management and tourism revenue. WCS continued to build capacity within resource managers in the government by matching international technical experts with appropriate govenrment counterparts to conduct field work on Marco Polo Sheep, park and community management, among other topics. WCS Research Assistants continued to pioneer new geographic and technical areas for data collection by conducting bird surveys of northern Takhar province and taking samples of dead wild birds for avian flu testing in a mission jointly funded by the USAID-funded program, Global Avian INfluenza Network for Surveillance (GAINS).

Operations, Security, and Logistics

During Q4 the usually quiet province of Badakshan was disturbed by the ambush of an Aga Khan Development Foundation vehicle when gunmen opened fire and killed two of the organisation’s employees near Baharak. With uncertainty surrounding motive, most NGOs ceased operations in the area. WCS already had staff members deployed in Wakhan and since this is the only access route to-and-from the area, we had no option but to rent less-obtrusive

vehicles to negotiate the Faisabad to Ishkashim route. The incident did not affect our work, and teams departed from Wakhan at their designated times. The only direct effect was an increase in Operational expenses due to the unforeseen costs of renting vehicles for several weeks. In an attempt to reduce the future risks it is recommended that staff working in Wakhan have a valid Tajikistan visa with them when they deploy so that in an emergency they can withdraw from the area via Tajikistan and Dushanbe and return to Kabul by air.

In spite of the effects of a late but severe winter the security situation in Afghanistan did not experience the traditional "quiet period." In Kabul, the Serena Hotel was targeted and a number of international guests as well as the national staff were killed by a group of insurgents armed with rifles grenades and explosive vests early in 2008. This appears to have been an isolated incident, but the true effect on the expat and NGO community's enthusiasm for continued humanitarian work in this country will only be able to be judged in the coming months when internationals return from their annual breaks

The situation in the rural areas, particularly in Bamian, Nuristan and Wakhan has been very quiet and our teams have not experienced any security related problems. That said, for a while now the situation in Nuristan (Eastern Forests complex) has been problematic. Only nationals from the communities, who are fully aware of the dangers and are trusted by the locals, are used for surveys by WCS. In spite of this, teams still run some risks as AGEs (anti-government elements) are known to occasionally implement informal roadblocks on access routes and search vehicles and passengers for any evidence of employment by US or Coalition Forces, USAID and anyone else perceived to be an enemy of their cause.

By far the greatest risk for WCS staff employed in Afghanistan remains in Kabul city, not in the rural areas where our fieldwork is carried out. The main threat here is kidnap for ransom and IEDs (improvised explosive devices) such as roadside bombs, suicide bombs and the like. Security measures are discussed as frequently as an incident is reported through ANSO or any other security monitoring agency. Staff are advised which areas are to be avoided and are forbidden to leave the office or guest house compound when the risk is very specific or believed to be inappropriately high on a given day. New members of WCS arriving in Afghanistan are not allowed to leave for fieldwork unless they have completed mine awareness training and have received an up-to-date briefing on the current security situation in the country.

During 2008 WCS will provide mine awareness and security training for new personnel (e.g., the new Director and Technical coordinator), continue with refresher training for our unarmed office guards with our contracted QRF (Quick Reaction Force) namely Hart Security. The remaining two drivers that have not yet completed the advanced/defensive driving course will do this as a matter of priority.

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 detect potential changes 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

Meaningful conservation decisions can only be based on accurate scientific data. Afghanistan has had almost no scientific data collection during the last thirty years of conflict, and most conservation decisions cannot be made on data that is 30 or more years out of data. Wildlife surveys, therefore, remain the core component of biodiversity conservation in Afghanistan.

Activity 1.1.1 Mammal Surveys

WAKHAN

Carnivores hold a special place in ecosystems. Healthy populations of carnivores require healthy populations of their prey (usually herbivores), which in turn require healthy populations of plant species. Thus, by studying carnivores, we can learn a great deal about the entire ecosystem. Unfortunately, carnivores are extremely alert, mobile, and difficult to trap. However, we can learn much from collecting their scat. In our Q3 report, we indicated that scat samples had been collected, and would be analyzed in the 4th quarter. Here, we report on the initial results of the analyses.

Analyses indicate that we collected 94 Snow Leopard scats, 84 Wolf Scats and 13 Red Fox Scats from the Wakhan. The two larger species, Snow leopard and Wolf, are mostly dependent on the large mammalian prey where as Red Fox is entirely dependent on the smaller mammals especially rodents. In terms of percent occurrence, Marco Polo sheep contributed 25.6% followed by Marmot 23.7% and Ibex 21.05% to the diet of the Snow Leopard and Wolf. Livestock comprised just 9.6% of Snow leopard diets, compared to 33% for wolves (table 1, table 2) This indicates minimal conflict between livestock owners and snow leopards. The results are in accordance to the post winter conflict survey. According to the survey the number of livestock killed by wolves is 212. Snow leopards killed only 56 head out of an estimated 40,994 livestock animals in the Wakhan.

Table 1: Percent Occurrence of Different Prey Species and 95% Bootstrap Confidence Intervals for Snow Leopard Scats from Wakhan Afghanistan (N = 94)

Prey Item	Frequency of Occurrence	Percent Frequency of Occurrence	95 % Bootstrap Confidence Limits
Marco Polo	34	33.0	0.266 – 0.468
Ibex	19	18.4	0.14 – 0.296
Cape Hare	7	6.8	0.021 – 0.138
Marmot	30	29.1	0.223 – 0.426
Rodent	2	1.9	0 – 0.053
Yak	2	1.9	0 – 0.053
Goat	3	2.9	0 – 0.074
Sheep	3	2.9	0 – 0.074
Cattle	2	1.9	0 – 0.053
Unidentified	1	1.0	0 – 0.032

Table 2: Percent Occurrence of Different Prey Species and 95% Bootstrap Confidence Intervals for Wolf Scats from Wakhan Afghanistan (N = 84)

Prey Item	Frequency of Occurrence	Percent Frequency of Occurrence	95% Bootstrap Confidence Limits
Marco Polo	16	18.2	0.119 – 0.274
Ibex	21	23.9	0.155 – 0.339
Cape Hare	4	4.5	0.012 – 0.095
Marmot	16	18.2	0.113 – 0.274
Rodent	1	1.1	0 – 0.036
Yak	8	9.1	0.036 – 0.155
Goat	3	3.4	0 – 0.083
Sheep	11	12.5	0.06 – 0.208
Cattle	7	8.0	0.036 – 0.155
Unidentified	1	1.1	0 – 0.036

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Another estimate of the importance of different prey species to predators is the percentage of each prey species in the total biomass they consume (as opposed to frequency in the diet). Of the total biomass consumed by these two species, we can also estimate the fraction of biomass contributed by each prey species. Wild Prey contributed 88.6% of the biomass where as livestock just contributed 11.4 % of the biomass per 100 scats for the snow leopard. In Wakhan wild prey is still the major food item of the snow leopard. The results of the scats analysis and winter survey are in accordance and confirms minimum conflict in the Wakhan Corridor of the Afghanistan.

HAZARAJAT

Previous WCS reports concluded that ibex and urial had been extirpated within the proposed boundaries of Band-i-Amir National Park. However, during this quarter we had several reports of the urial in the Band-i-Amir area.

On October 23, local people reported urial from two locations; 26 were reported from Band-i-Korguli north of Bala Tang and 13 from Darye Gomow. On October 25 we did a survey to determine if we could find the animals in the Bala Tang area. The route went from Bala Tang to an elevation of 3689m and descended Darye Jawal to Dehokhana, a horizontal distance of 15km. No animals were seen.

On December 15th, two groups of ibex or urial were reported by Jarukashan shrub collectors in the Burghusunak area. One group had 7 animals, and other group had 23.

Figure 1. Urial survey north of Band-i-Amir Lakes.

This is an unexpected and exciting development. If confirmed, it will increases the biodiversity value of the proposed National Park.

In the Ajar Valley, ungulate surveys were undertaken from 5 locations along the 40km length of Darye Jawzeri. This is the first time that the Tabaqsar area of the western Ajar Valley has been surveyed since 1977. No animals were seen in 5.3hr of observation.

Our guide said that the last leopard in the Ajar area was killed during his youth. The disappearance of leopard for Ajar can therefore be approximated at the early to mid-1980s.

No small mammal trapping was undertaken at Band-i-Amir during the Q4 because the area was intensively trapped in the summer. In Ajar, 28 trap-nights of effort were invested and only two mouse-like hamsters (*Calomyscus* sp.) were captured. One was mounted and a liver sample was preserved in lysis buffer.

Activity 1.1.2 Avifauna Surveys

Little concerted effort was put into avifaunal surveys in the fourth quarter, as it is the wrong season for effective, efficient surveys. There were, however, two interesting new sightings in Bamian. A single Large-Spotted Nutcracker (*Nucifraga multipuctata*) was seen at Band-i-Amir on 25 October on the flats in front of the Ranger Station. On October 28 and 29, several Black-throated Accentors (*Prunella atrogularis*) were tentatively identified in the canyon-bottom rocks in the west end of Jawzeri.

Conversations with the Rangers indicate that the Afghan Snowfinch (*Pyrgilauda theresae*) is commonly netted at Band-i-Amir during the winter months. The Afghan Snowfinch is commonly considered as Afghanistan's only endemic bird species. Avifaunal surveys in the Wakhan and Bamian are planned for 2008.

Activity 1.1.3 Other Wildlife Surveys

Hazarajat: On October 30, two skinks about 10cm long were seen in the Ajar Valley. Efforts to catch them failed when they took cover in spiny bushes. There are 7 species of skinks known from Afghanistan, but no identifications could be made.

There are reported to be 5 species of fish in the Ajar River. To date, two have been captured and identified (*Salmo trutta, Capoeta capoeta heratensis)*. In the hopes of capturing the remaining three species, we hired local boys to pull a funnel-shaped drag net upstream. Unfortunately, only brown trout (*Salmo trutta*) were captured.

Nuristan: For further information on wildlife survey work in Nuristan, please see Activity 2.4.1.

Activity 1.2 Marco Polo Sheep Research and Monitoring

In our third quarter report, we explained the economic, cultural, and ecological importance of Marco Polo sheep (*Ovis ammon poli*). We indicated that we would begin addressing issues of connectivity, corridors, isolation, loss of genetic diversity, and possible barriers to movement among sub-populations of Marco Polo argali throughout the 4 country transboundary region. We are relying on non-invasive sampling (primarily of feces) to provide raw data on the genetic structure of this meta-population or populations because: the region is extremely remote and difficult to access; capturing large numbers of argali for research purposes in this area is impractical; and because simply observing them during short-duration surveys does not provide the information we need. Thus, we are extracting DNA from fecal samples collected in the field. Results of this study will provide critical data in understanding and resolving transboundary conservation issues, and hence in how Afghanistan must approach its own part of this overall ecosystem.

Data available to us thus far suggests that within the Wakhan Corridor of Afghanistan, Marco Polo argali are found only in a small section of the Big Pamir, in the easternmost sections of the Little Pamir (particularly the Tegermansu area), and in the Wakhjir Valley. Occasional reports of argali are received from elsewhere within the Wakhan Corridor, but our operating assumption – until shown to be erroneous – is that Marco Polo argali populations within the Afghan portion of the range are isolated and discountinous. We believe, in contrast, that the population on the Tajikistan side of the Amu Darya is larger and more contiguous in nature. The exact nature of the population in Taxkorgan County, Xinjiang, has not yet been determined, but it appears, based on earlier surveys conducted by Dr. George Schaller and colleagues from WCS-China, that Marco Polo argali exist in reasonable numbers in many of the valleys just north of the Chinese road leading toward the Afghan border (G. Schaller, unpublished data). A small population is known to inhabit the area in Pakistan around Khunjerab Pass.

The extracted DNA should allow us to estimate how genetically similar or different individuals from various locations within the overall range might be. This will help us answer a number of questions related to conservation and land use policy. E.g., Are there identifiable sub-populations? If so, do any have levels of genetic diversity low enough to arouse concern for their future viability? Can we estimate the magnitude of gene-flow among groups of argali that appear

to be geographically separate? If so, are there identifiable natural barriers (e.g., mountain peaks, large valleys), or man-made barriers (e.g., areas of relatively heavy livestock use) to gene-flow? (Distinguishing among these can help us determine if human activity is threatening the long-term genetic viability of Marco Polo sheep in this area). Can we identify geographic regions that appear important in maintaining connectivity among demographically disparate populations? Is there sex biased gene flow such that females move far less than males?

Collecting Samples

During autumn 2007, Mr. Zhang Kejia of WCS-China travelled to the Taxkorgan Nature Reserve area of western Xinjiang, China, to follow up on previous WCS surveys conducted by Dr. George Schaller and Dr. Kang Aili. Mr. Zhang collected 40 fecal samples from Marco Polo argali, stored them in ethanol, and has prepared them for shipment to our contracting laboratory in Portugal. Also during autumn 2007, Mr. Sergei Kondratov of Safari Outfitters (Cody, Wyoming, USA) collected approximately 30 fecal samples from Marco Polo argali in the Murgab area of southern Tajikistan, just north of the Amu Darya River from the Afghan Pamirs. These are currently in under study at our contracting laboratory in Portugal.

Dr. George Amato of the Sackler Institute for Comparative Genomics at the American Museum of Natural History has begun extracting DNA from tissue samples collected in earlier years by Dr. George Schaller in Tajikistan and Xinjiang, China. In addition, we have access to 40 tissue samples from Tajikistan that have been stored by Dr. Pierre Taberlet in Grenoble, France, which are also being shipped to the contracting laboratory in Portgual.

Sampling tubes and instructions were also provided to Inayit Ali of the Afghanistan Biodiversity Project, who in turn, will assist with obtaining fecal samples from the (evidently quite small) population of Marco Polo argali remaining in the Khunjerab pass area of northern Pakistan.

Preliminary Results

To optimize laboratory processing and ensure quality control, we conducted preliminary analyses on the level of genetic diversity in a random sample of 24 of the first 96 fecal samples (61 from the Big Pamir, 35 from the Wakjhir Valley). For 12 of the 24 samples, we also performed more in-depth analysis.

Lack of genetic variation often puts populations of wild animals at great risks (e.g., if one animal is susceptible to disease, they all may succumb if there is insufficient genetic variation in the population; e.g., genetic birth defects become common in populations with low genetic variation). Initial findings suggest an encouragingly high amount of variation, which in turn suggests that the sheep population in our study are is not too small, nor isolated, nor a bottlenecked population. While preliminary, these findings are encouraging.

Activity 1.3 Assessment of Rangelands in Wakhan

Work on rangeland assessment of the Wakhan in Quarter 4 consisted of field work in the Wakhan Corridor ending in early September. On arrival to Kabul the rangeland team worked on equipment storage and preparation of voucher specimens for transport to the U.S. Specimens were transported to Missoula, Montana on 15 September for identification and verification. Data from the field mission was transferred from paper field forms to electronic versions (excel worksheets) by Mr. M. Ayoub Wafinahrabi (Afghan Rangeland Technician) for summarization and later analyses. Mr. Wafinahrabi has received continual training in excel and worked on data

input from 1 October through the 4th Quarter and is continuing to work on data input. The data input process consists of transferring information from 129 point intercept transects, 121 line intercept transects, and above-ground biomass samples from 255 plots. Cover data from line intercepts will be used to provide more detailed information on plant communities of the Wakhan, develop indicators of rangeland degradation, and provide permanent photo points for future determine trend in plant communities associated with livestock grazing and other changes in the rangeland system. Above-ground biomass samples will information to estimate available forage for livestock and wildlife and the variation in forage for different rangeland types. During this period we continued to review literature and began work on data summarization. Photographs have been processed to allow for coupling with vegetation plot information and transect photos will accompany transect information in the GIS being developed.

Transfer of data from paper field forms to electronic versions is time-consuming taking as much time as the original data collection. However, due to the limitations of current technology and power supplies, paper field forms remain the best option (as opposed to taking PDA-type electronic devices into the field).

Progress and Performance Assessment

In Quarter 4, WCS continues to develop baseline information for rangeland monitoring and planning. Collected voucher specimens are currently in the U.S. for verification. Data was copied from paper field forms to electronic versions for permanent storage, analyses, and summarization. The transect data has been converted to excel files which have geographic coordinates which will allow for placement into a GIS system.

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

In the fourth quarter of 2007, WCS continued data collection on disease issues related to livestock management in the Big Pamir region and exptend these investigations to Little Pamir, the Wakhan Valley and Bande-e-Amir in the central Hazarajat region. **At present, there are no other programs that are surveying wildlife or health of domestic livestock in Wakhan, and no programs in Afghanistan looking at the links between diseases shared between wildlife and livestock.**

In May the first subset of 81 sera samples collected in Pamir/Wakhan in December 2006 was tested for brucellosis (rose bengale test), Q fever (ELISA test) and chlamydiosis (ELISA test) three abortive diseases of domestic ruminants. Prevalences were 10%, 60%, and 0%, respectively. This was the first confirmation of the occurrence of Q fever in small ruminants in Afghanistan. Because rose bengale test lacks specificity (false-positive results occur), the eight positive samples for brucellosis were retested with ELISA and Complement Fixation Test in August 2007. They were all negative suggesting that none of the livestock tested so far in Wakhan/Pamir have been exposed to *Brucella* spp. In October and November 2007, 346 samples from Pamirs and Band-e Amir were tested for brucellosis. Four positive results with rose bengale test could not be confirmed with ELISA and Complement Fixation Tests. In addition 38 randomly chosen samples negative with rose bengale test proved also negative with ELISA. To conclude, despite in-depth serological investigations we have so far failed to find a domestic animal seropositive to *Brucella* spp. in populations surveyed. Still in November 276 samples

collected in Pamirs and Band-e Amir were tested for Q fever, chlamydiosis, toxoplasmosis and Blue Tongue virus disease (ELISA test). Results confirmed a relatively high prevalence (>25%) to Q fever and Blue Tongue virus disease of investigated populations. Exposure to chlamydiosis and toxoplasmosis were relatively low (<10%). Eventually 42 samples collected in Pamirs tested negative to rinderpest (ELISA). Complete results of serological investigations will be exposed and discussed in a separate report in 2008 as further testing for exposure to Foot and Mouth Disease (FMD) and Peste des Petits Ruminants (PPR) are still pending. Finally, a large subset of the bird population of Kabul zoo, which we sampled in summer 2007, was confirmed negative to Avian Influenza by the Kabul Central Veterinary Diagnostic Laboratory (KCVDL) in October 2007.

WCS in collaboration with FAO has been involved in the training of staff at the KCVDL in how to carry out these tests, including ELISA tests, a biochemical technique used to detect the presence of an antibody or an antigen in a sample, rather than relying on fee-for-services at western diagnostic laboratories. This will increase Afghanistan's capacity to identify and monitor infectious disease outbreaks and enlarge the testing capacity of the Afghan staff in a range of other diseases than those they are already trained to detect (FMD, PPR, RP and Avian Influenza). In October 2007, WCS purchased and brought to the laboratory serological kits for Q fever, chlamydiosis, toxoplasmosis, Blue Tongue virus and brucellosis. The screening work was completed by November 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, the ecosystem health component will try to 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 Geographical Information System (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.

In mid-June 2007 the Ecosystem Health team taught Wakhi herders in five different pasture areas of the Big Pamir grazing system to use hand-held GPS units and record three times per day the position of their livestock herds within the grazing area. GPS units were downloaded in mid-September. All five GPS units have operated successfully and more than 600 data points have been collected and directly plotted on topographic maps. Seven GPS units have been redeployed in Big Pamir in October 2007 to document the range use of livestock during winter 2007-2008. The preliminary data set collected in summer 2007 has been compiled and integrated into the GIS developed at WCS Kabul. The data will contribute to document range use by Wakhi domestic ruminants and when combined to Marco Polo range use data, evaluate the pattern of disease spillover risk and contribute to understand the deterministic factors of Marco Polo range use. In October 2007, the team also downloaded air temperature loggers deployed in Wakhan Valley and Big Pamir since December 2006. This unique set of more than 40,000 data points constitutes the first longitudinal study of air temperature variations in this area. Data logging will hopefully be carried out for several consecutive years. Air temperature is an important proxy to understand effect of climate harshness on animal survival, to evaluate long term climate changes and to support other components of the project with a better understanding of abiotic factors prevailing in the area.

In November 2007 we prepared and delivered two separate reports, one concerned our summer investigation of raptor trade in Mazar-e Sharif, and the other resulted of a questionnaire survey we carried out at Kol-e-Hashmat Khan Lake in the vicinity of Kabul, to evaluate the risk of disease spillover from wild to domestic birds. Both investigations were aimed at educating Afghan trainees about the risk of disease spreading from wild to domestic animals and vice versa either though illegal trade or illegal hunting. Legal and illicit wildlife trade has an important influence on the spread of infectious disease, and may directly threaten wildlife populations. This was combined with complementary and parallel efforts under Activity 2.6. In December we compiled the missions' data collected in the Pamirs in 2007 and produced the annual report for our donor.

WCS Ecosystem Health Team has continued in October and December to conduct opportunistic surveys of wildlife trade patterns in Kabul Bird Market to understand the patterns of the trade in conjunction with the WCS legal and policy team. In early December 2007 the team conducted a 10-day long wild bird survey in Takxar province along the Amou Dariya River. We hope the survey will document the importance of this area in providing suitable habitat to wintering waterfowls, known to be an important reservoir of avian influenza viruses. We also hope to determine if significant numbers of domestic poultry were in direct contact with waterbirds in this area. Results of this mission are not yet available.

Progress and Performance Assessment

During this quarter the WCS Ecosystem Health team accomplished a number of objectives. We developed and advanced serological screening work to be carried out at the Central Veterinary laboratory in 2007. We carried out two field missions, in Big Pamir and wetlands of Takxar province, respectively, collecting information and samples. We also finalized Q fever, chlamydiosis, toxoplasmosis, brucellosis and BTV testing protocols on samples collected in 2006 and 2007. In addition the team has sent abroad sera samples collected in Band-e-Amir for testing against Contagious Caprine Pleuro Pneumonia (CCPP) as well as some Brucella negative and BTV positive samples from Big Pamir. CCPP tests have not been carried out yet but all negative samples to Brucella were confirmed negative and all positive samples to BTV were confirmed positive with more sensible and specific ELISA tests, respectively. Capacity building was continued at Kabul zoo during two short visits paid to the veterinary staff.

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 reasonably 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. During May 2007, WCS selected two Wakhi candidates who currently follow the para-veterinary training course implemented by the Dutch Committee for Afghanistan (DCA). WCS has transported the two candidates to Charikar in the north of Kabul where both of them have succeeded to enroll for the 6-month training course. Visits were paid to candidate paravets in August and October 2007 to maintain contact with them, assess their learning progresses and collect letters for their families. By spring 2008, WCS will provide the two trainees with the necessary equipment and lodging to start their practice. In addition time will also be allocated to further train them, in particular in wildlife disease issues. In October 2007, WCS has also hired a Wakhi trainee to join and assist the Ecosystem Health team in Big Pamir. He was trained to

identify broad categories of disease conditions, to describe symptoms to veterinarians, to provide basic wound and lesion, to perform vaccination and blood-sampling, and provide care and basic animal husbandry. This training was designed to complement and facilitate traditional veterinary care and allow awareness of disease spread through domestic livestock. In Quarter 4, 2007, WCS also continued to invest in training two veterinary graduates of Kabul University in monitoring the health status of wild and domestic populations.

Activity 1.6. Landscape Assessments and GIS Program

During Quarter 4, WCS continued its systematic data collection, spatial integration and analysis of all field activities, to better understand the intersections between geographic, biological, and socioeconomic variables in the conservation context. Staff training occurred, particularly training in land-cover field assessment using GPS; and digitizing on-screen from imagery data (1970s forest cover data which was digitized from Russian topographic maps). This training was an important aspect of the Eastern Forest Change Analysis. Wakhan datasets were updated, including rivers and cadastral information. The boundary data for Ajar Valley and Band-i-Amir protected areas were also updated, and the Band-i-Amir protected area zoning also refined and updated.

Tasks completed in Quarter 4 included the following:

1. Writing a technical conceptual note assessing the current status of the Eastern Forest Cover change analysis, and exploring the best ways forward.
2. Ordering a series of Aster satellite imageries for the Eastern Forest Complex for one time-period.
3. Full processing of selected imageries ahead of the forest cover change detection exercise; which included:
    a. Resampling of each scene to the highest resolution considered.
    b. Reprojecting each scene to suitable projection (UTM 42).
    c. Checking and adjustment of each scene's geo-position.
    d. Stacking adequate time-series layers.
    e. Displaying appropriate band combinations.
    f. Enhancing images through brightness/contrast.
    g. Final formulation of the appropriate image analysis method for forest cover change detection.
    h. Hands-on training of the GIS/RS Analyst in the application of the approach envisaged.
    i. Implementation of the method for one Aster scene July 2007 versus Landsat October 2000 and one time-series comparison (A4_20070718 vs. 152037_20001018_l7).

Imagery and Data Acquisition

WCS' GIS unit continued to build its collection of remote sensing imageries primarily focused on

the Eastern Forest Complex (EFC) forest cover (change) assessment. A collection of scenes from various satellite platforms and sensors was gathered in 2007. The latest addition to the collection of both higher resolution data (Spot, Quickbird) and lower resolution data (Landsat MSS, Landsat TM, Landsat ETM) has been a series of Aster scenes; Aster V-IR bands, 15/30/90 m resolution, of years 2004-2007; and another 5 Aster V-IR bands, 15/30/90 m resolution.

Developing Conservation GIS Expertise

WCS continued to invest in its Afghan GIS officers during Quarter 4, introducing and training its first officer in-situ on the appropriate method for conducting forest cover change detection. Meanwhile, the second GIS officer is starting to receive better attention and training, although this is still not optimal; the constraints to date have been the pressing needs of the first officer to deliver the EFC project outputs on time, and hence his inability to dedicate desired attention to the second officer.

Data Analysis and Integration

During Quarter 4 the GIS unit was mainly involved in designing/examining and running a method of change analysis for the EFC. The unit extended their work on making more spatially explicit data from different sources. Further support to field teams included providing specific maps, appropriate/processed data and updating datasets. The GIS unit finalized previous GIS spatial data and put them in appropriate format for the WCS Living Landscapes Program (LLP). The GIS unit also continued its efforts in tracing, refining and processing topographic data from different sources available (including Russian topographic maps, field data collections, and other sources) into the standard GIS spatial format which then can be used for the Living Landscapes approach. This includes finalizing administrative boundaries, ethnic areas, protection zones, protected area boundaries for Hazarajat Plateau. This process also included data preprocessing; i.e. converting to image file, reprocessing, resembling, co-registering, stacking appropriate layer bands, and building training samples, and finally running the process for forest-non-forest classification of all selected imageries.

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 the landscape level. The ongoing effort of collecting data in the field and rending those data spatially explicit lays the groundwork for building biological and human landscapes following the WCS Living Landscape model. WCS staff continue to design a strategy for geospatial analysis of the project components to create a landscape-species model that will help define the parameters for the proposed protected areas, and to identify and prioritize their threats. In this quarter, the GIS team compiled datasets and stored them in a standard format in the structured GIS database in terms of projection, datum, and extent/scale of data, and documented metadata for every dataset. In Quarter 1 2008, two WCS-Afghanistan staff, including the GIS manager, will travel to WCS headquarters in New York City to attend a Living Landscapes Program training workshop.

OBJECTIVE 2: STRENGTHENING LAWS, POLICIES, AND INSTITUTIONS

During Quarter 4, WCS continued its 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.

WCS worked further on refinements to the Protected Area Committees and revenue sharing schemes in the Band-i-Amir Lakes. We also worked with the Community Conservation Committees in the Wakhan to revise proposed articles of incorporation and the establishment of Community Conservation Committees. As part of its train-the-trainer program, WCS continued its work with the Afghan Lawyers Union (ALU), helping to develop presentation materials and incorporating their input in an updated version of the some updates on the Compendium of Environmental Law and Practice. In addition to these, WCS submitted a 3rd technical draft of the hunting and wildlife law.

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 are helping define these protected areas through stakeholder input, scientific research, and appropriate laws and regulations, and maintain them through appropriate enforcement mechanisms.

Activity 2.1 Update Wakhan Protected Areas

WCS continues its work in the development of the Wakhan protected areas. A Technical Coordinator has been hired, and he will commence work in February 2008. WCS is assisting NEPA in their application for funding through UNDP/GEF to assist the establishment of Afghanistan's protected area network, the Wakhan being a major component of this initiative. The establishment of Community Development Committees continues through the Corridor and it is expected this process will be completed in Q1 2008. Concerns remain about the proposed formation of a new regiment of Border Police in Upper Wakhan and their hunting of Marco Polo sheep. WCS is in dialogue with provincial authorities, hoping to mitigate the threat by engaging them in the conservation process. Similarly, WCS has initiated dialogue with other provincial authorities, acknowledging their importance in the protected area and conservation process.

Activity 2.2 Assessment and Development of a Transboundary Peace Park

Three conferences are planned, facilitated by WCS, between collaborating countries. The first workshop occurred in 2006. The second was originally scheduled for the fall of 2007, in Dushanbe, Tajikistan. However, the timing of the second conference has been delayed at the request of the Government of Tajikistan. The reason for the request stemmed in part from the inability of the Pakistan delegation to attend at the agreed upon time. Presently, the political climate in Pakistan still makes it difficult to predict when their delegation will be available for the conference. WCS hopes that the second conference can be scheduled for the second or third quarter of 2008.

These delays have allowed WCS to pursue the drafting and negotiation of a framework agreement and more realistically target a signing of a multi-lateral agreement at the second conference. In this endeavor, WCS has engaged the US State Department's Bureau of Ocean, Environment, and Scientific Affairs, the US Embassy in Tajikistan, and is working alongside other organizations both in response to the strong interest so far expressed by all concerned and to create a groundswell of support for the initiative.

The remaining three countries have all expressed a strong interest in moving forward with an agreement and WCS will use the new window of opportunity to pursue final approval prior to holding the second conference.

Activity 2.3 Central Hazarajat Plateau Conservation Initiatives

Band-i-Amir

The 3rd Band-i-Amir Protected Area Committee (BAPAC) meeting was held in the Band-i-Amir Ranger Station on October 22. The meeting was chaired by Mrs. Habiba Sarabi, the Governor of Bamian, and was entirely in Dari. The meeting was boycotted by 9 of the 13 community representatives. The boycott was organized by the Band-i-Amir Shura led by influentials from a single village. A decision was made to destroy the existing bazaar within 10 days. BAPAC decided to create a new Amenities Zone near Kopruk to accommodate a hotel proposed by a French developer. A site visit followed the meeting to determine the exact location of the proposed hotel.

Figure 2.
Third BAPAC meeting chaired by Provincial Governor Habiba Sarabi.

The 4th BAPAC meeting was held in the Band-i-Amir Ranger Station on November 21. The meeting was chaired by Mrs. Habiba Sarabi, the Governor of Bamian. Six of the nine community representatives that had previously resigned returned to this meeting. WCS presented draft Rules of Procedure to act as bylaws for the functioning of the BAPAC. WCS provided identification cards for the guards that were signed by the Governor. Topics of discussion were removal of the existing bazaar, illegal hunting activities, and the proposed French hotel development.

The 5th BAPAC meeting was held at the Ranger Station on 15 December. The meeting was co-chaired by Deputy Chairman, Mohammad Fazel Roshan, and the Secretary, Mohammad Sharif. Present were representatives from the remaining three villages that had boycotted the last two meetings. All villages are now once again being represented on the BAPAC. The Rules of Procedure presented by WCS at the previous meeting were approved. The Commander of the New Zealand Provincial Reconstruction Team presented the Park Rangers with the uniforms provided by WCS. WCS presented identification cards for all BAPAC members. Topics of discussion were the removal of the bazaar, planning the new bazaar, work-planning for the next year, plans for consultation and approving the management plan and Collaborative Management Agreement. The Park Rangers reported infractions of rules occurring since the last meeting.

The 11th meeting of the Band-i-Amir Coordinating Committee was held in Kabul on 13 November. Updates were provided on progress and challenges at Band-i-Amir and on the status of Parliamentary approval of the Protected Area Regulations. Issues related to World Heritage Site status and obtaining a revenue-sharing agreement were discussed. The group agreed that the committee is serving a useful purpose but that its role should now be expanded to cover all protected areas. In future, the group will be called the “National Protected Area Coordinating Committee”. There was a strategic discussion about how the Committee can better gain the ear of senior government officials.

On approximately 15 November, the Provincial Government moved to destroy the buildings in the Band-i-Amir bazaar, as approved by the BAPAC. This was followed by a violent demonstration by the people of Jarukashan with some damage resulting to the Ranger Station. Several people were taken to jail. Subsequently, the most influential religious leader in the area discussed the move with the Governor and District officials and apologized for the vandalism. The Governor said it was a shame to damage a facility donated by the international community, but that the perpetrators would not keep them in prison. However, the vandals would be expected to pay for replacing the windows.

On November 13, Chris Shank, accompanied by Qais Sahar and Shafiq Fydaee, met with Vice-President Khalili in the Presidential Palace to apprise him of plans to create Band-i-Amir National Park. Mr. Khalili is an ex-commander from the Hazarajat and has close connections with factions in the Band-i-Amir area. He indicated that this project has long been close to his heart and offered help to ensure it is realized.

On 24 October, seven locals, the Rangers and government representative met in the Band-i-Amir Ranger Station to examine the management plan. The entire “management

prescription" part of the management plan was discussed in detail and there was agreement to make many changes to the plan. The Collaborative Management Agreement was completed and appended to the draft management plan. New maps were created in GIS to reflect alterations to management zones suggested by community members. The changes to the plan were translated into Dari.

Ajar

On November 2nd we met with the newly formed multi-village valley Zone Shura in the Dehe Myana mosque. Representatives of 6 villages are represented on this shura. The Zone Shura gave us a letter signed by all communities acknowledging the ban on hunting and green wood cutting. Many informal meetings were held with members of several Ajar communities.

On November 1, we travelled to Ruye Sang to meet with Mr. Zaligh, the new Woleswal for Kahmard. We explained our program to him. He was very keen on ensuring full involvement of the Woleswali in development of the Wildlife Reserve. Two communities, Podinatu and Pushte Waz, are of particular significance to the establishment of the protected area because they use the area and are reported to hunt heavily. Podinatu is a very inaccessible and poor village lying on the western end of the proposed reserve. It controls the important area of Tabaqsar, perhaps the best urial range in Ajar.

Figure 3. The village of Podinatu.

On October 27 we gave a short PowerPoint presentation in the mosque and made a strong plea for people to stop hunting. Informal discussions continued in the evenings. We agreed to pay one Podinatu representative to travel to Band-i-Amir to observe the next Band-i-Amir Protected Area meeting. Podinatu and Yelga, have a very significant and dangerous feud related to a murder that occurred 5 years ago. This represents a major impediment to getting cooperation between the villages. WCS will work carefully to ease this impediment.

Pushte Waz lies outside the Ajar watershed, but is only a short distance to the south of the

Ajar villages. The village lies in a glacial cirque and accessed by an extraordinarily steep road from Saighan. We met with the community outside of the mosque on November 3. In general, Pushte Waz is sceptical about the protected area and afraid of the Ajar villages.

Activity 2.4 Eastern Forests Program

2.4.1 Nuristan Wildlife Surveys

In Q4 the Nuristan teams completed the camera trap survey as mentioned in Q3. The survey was initially designed as a mark-recapture for felid species like leopard, which have such variations in their markings that it is possible to distinguish and identify individual animals by their photographs. If we can distinguish individuals of each species, we can make estimate the number of animals of each species in the area. However, no leopards or other animals with unique markings were detected in our camera traps. As a result, the camera trap work only tells us of the presence of species detected, not their population sizes. Nevertheless, the work has produced valuable results, including one previously undescribed mammal for Afghanistan – the masked palm civet (figure X). There are no records of the masked palm civet from the 1965 Street Expedition conducted by the Field Museum of Natural History in Chicago, nor from Khoshal Habibi's Mammals of Afghanistan, but masked palm civets occupy similar habitat in neighboring Pakistan.

The Smithsonian Institution in the USA continues to work on identifying the small mammals previously collected by the Nuristan Wildlife Survey team, and analyses of scat samples collected is also on-going. We expect results from these efforts early in 2008.

Figure 4. Camera trap result from Nuristan Wildlife Survey. This animal has been tentatively identified as a masked palm civet, which would be a new species for Afghanistan.

Two members of the teams have been trained in scientific reporting and literature review/research and are writing up reports of the occupancy and camera trap surveys for submission to the Islamic Republic of the Government of Afghanista.

2.4.2 Timber Trade

Beginning in late 2006 and working into early-2007, WCS devised and implemented a strategy to assess the level of timber trade in Kabul. The primary purpose of this study was to act as a measure of the level of impact on timber in the Eastern Forest region (a main source area of Afghanistan's traded timber), one of the original program goals for the project. The study was not intended to measure timber trade on a national level. The final report will be completed in Q1 of 2008.

The Kabul timber trade surveys have, in part, provided a basis for developing a national trade program (timber and wildlife). A trade program strategy has been drafted, focusing on laws, governance, education and training, particularly in relation to CITES (Convention on International Trade of Endangered Species). The draft will be reviewed and implementation commenced in Q1 2008.

Activity 2.5 Ranger Training

As reported in our last quarterly report, WCS is delaying the implementation of a ranger training program until the protected areas are created, and existing environmental laws are drafted. Once this occurs, WCS will work with the Ministry of Agriculture and NEPA to implement this program. Given the new WCS-facilitated ranger hiring in Band-i-Amir, WCS expects to engage in ranger training initiatives in the spring of 2008, focused on these rangers and potentially provisional rangers currently being identified for the Wakhan region.

Activity 2.6.1 Review of biodiversity related legislation

Environmental Law Compendium and Practice Guide

Additional commentary has been added to the Compendium as additional developments in the legal field unfold, primarily in the field of community tools for natural resource management. Translations of the Compendium is still pending, waiting for laws to be approved.

Establishment of a Legislative Drafting Group

The concept of using "drafting groups" remains intact as the legislative development work continues, remaining flexible and including different partners as the subject matter requires.

National partners currently include in the first instance the National Environmental Protection Agency and Ministry of Agriculture. This has been expanded to include the Lawyer's Union of Afghanistan and local community members in Band-i-Amir and the Wakhan. Members from the

government agencies were directly involved in the development of all national level legislation and have reviewed the development of legal instruments for local communities. It is hoped that with additional training The Lawyer's Union of Afghanistan may take a role in the development of national law.

WCS' primary international partner has been UNEP, which maintains an office 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. Other international partners include the Asian Development Bank, World Bank, FAO, NRC, and AREU.

Drafting of Forestry Law, Rangeland Law, Hunting and Wildlife Conservation Law, and Amendments to the Protected Area Regulations

WCS Law and Policy program will continue to provide information to the government of Afghanistan to refine or revise proposed legislation as needed.

Forest Law: Slated for parliamentary consideration in Spring 2008. Public consultation on the draft Forest Law has concluded with the draft remaining with the taqnin until further notice.

Protected Areas Regulations: Slated for parliamentary consideration in Spring 2008. Protected area management structures are still being developed by newly formed Protected Areas Committees (PAC), with primary emphasis given to the Collaborative Management Agreement (CMA), internal rules for group operations, and operational by-laws to ensure the fair and consistent application of the agreed upon rules. It may be that additional legal instruments will be developed in this overall effort. However, this should not affect passage of the proposed regulation.

Rangeland Law: Slated for parliamentary consideration in Spring 2008. Although part of the suite of environmental laws to be considered by the parliament this Spring, it is unlikely that this law will be passed as currently formulated. WCS anticipates significantly more debate will occur before this bill has any realistic chance of being approved. At present, a further revision of this law has not yet been requested.

Wildlife Conservation and Hunting Law: Slated for parliamentary consideration in Spring 2008. WCS finalized the first draft of the Hunting and Wildlife Conservation Law and received commentary from the drafting group in Q4. Also, second technical draft was prepared in Quarter 4 and submitted to the Ministry of Agriculture for further comment.

CITES Implementing Legislation: A first technical draft is nearing completion. WCS is continuing consultation with relevant stakeholders and believes the draft will be finalized in Q1 2008.

Local Instruments for Resource Management

WCS has recently begun to focus more attention on the development of legal instruments that may be used by local communities to organize themselves around questions of resource management. These instruments presently include the Protected Area Committee bylaws, terms of references, and collaborative management agreements, as well as the Wakhan Community Conservation Committees. All instruments are still in draft form and have been submitted to those individuals in the WCS program responsible for the areas in question. Each instrument will

be vetted at the community level and then revised before submission to the appropriate national authorities for approval. All instruments are designed to fit with existing and traditional governance structures as well as comply with or anticipate the mandates of proposed national legislation. The combination of simultaneous development, however, necessarily causes a degree of uncertainty in the process.

Regulations vs. Laws vs. Local Agreements: The analysis on the hierarchy of law contained in the Compendium and the experience of the legislative drafting group continue to suggest that our legislative efforts will struggle with the question of legal authority versus speedy approval. In short, the parliamentary process in Afghanistan has numerous pieces of legislation that have been submitted simultaneously to all standing committees, resulting in an apparent deadlock. Submitting additional national legislation is unlikely to result anything being approved. On the other hand, regulations may be approved at the ministerial level. Given the interests of NEPA and the Ministry of Agriculture in moving forward, this may be the logical path to follow. However, regulations as a general rule do not compete well with national legislation in a developing legal system. Submitting additional drafts as laws will probably result in a protracted approval process, but might improve the ability of resource managers to argue against competing interests granted by other national level legislation.

Activity 2.6.2 Trophy Hunting Program

Having reviewed relevant examples of trophy hunting programs and conducted a detailed analysis of the legal aspects of trophy hunting in Afghanistan, WCS has prepared a draft analysis of the potential for a trophy hunting program in Afghanistan. The analysis shows that that a trophy hunting program here would likely face significant legal challenges. WCS' assessment remains that it is still too early to begin developing a trophy hunting system, although our efforts are moving in this direction.

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.

Through a properly designed and managed trophy hunting program, 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. WCS will continue its work to help Afghanistan prepare for the day when it might implement a profitable, sustainable trophy-hunting program.

Activity 2.6.3 Wildlife Trade

Beginning in late 2006 and working into mid-2007, WCS devised and implemented a strategy to assess the level of wildlife trade in Kabul. The primary purpose of this study was to estimate the impact of the demand from traders/sellers in Kabul on wildlife in the Eastern Forest region (a

main source area of Afghanistan's traded wildlife), one of the original program goals for the project. The study was not intended to measure wildlife trade on a national level. That Kabul's markets receive product from around the country, however, has given the results a slightly larger coverage than initially intended. The final report will be completed in Q1 of 2008.

As with the timber trade, the Kabul wildlife surveys have provided a basis for developing a national trade program. A program strategy has been drafted, focusing on laws, governance, education and training, particularly in relation to CITES (Convention on International Trade of Endangered Species). The draft will be reviewed and implemented in Q1 2008.

Activity 2.7. Environmental Service Valuation

In the fourth quarter of 2007, based on the pretest survey which was conducted from late July to early September, the Environmental Service Valuation team analyzed the pretest data and revised the survey questionnaire for the main survey. After that, the enumerators had another training workshop in order to exercise the revised questionnaire in Kabul, and then the main survey started late November. All pretest surveys were mailed to Canada, and our researcher coded the data for the first one month. The analysis tested the following issues.

- Whether the questions were understood by the subjects properly
- Whether the data was available
- Whether the proposed model was valid with the collected data

In the revision stage, we amended each question so that it could collect relevant data during the main survey. In order to make clear the situation of the research sites (Neshegram, Chimi, and Kaygal), we communicated with the enumerators who came from the sites by email and an instant messenger.

In late November, Dr. Gary Bull, the team leader, held a training workshop for one week in Kabul. Six enumerators and one translator joined the workshop. By reviewing all questions one by one with the enumerators, we revised again in order to finalize the questionnaire. After finishing the workshop, the enumerators started the main survey in Neshegram village in Nuristan. They will conduct a total of total 300 surveys: 123 surveys in Neshegram, 95 surveys in Chimi, and 82 surveys in Kaygal. The main survey will continue till February 2008.

During the period, the team focused on finding out relevant questions which could work properly in the field. The team depended on personal communications with local people to clarify the questions because not enough field data is available. For this reason, it took more time to amend the questionnaire than we scheduled, but we had a chance to better understand the situation relative to the research area. To achieve better results, the team plans to invite one local enumerator to participtate in the main survey analysis.

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

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Applicability to Biodiversity Codes

WCS actions are designed to enhance community-level resource management, building upon traditional resource management systems through incorporating the interests of the Islamic Republic of Afghanistan, the international conservation community, and global tourism. These activities necessarily take place on multiple levels: the village level; the inter-village level, where multiple villages share resources; the district level; the provincial level; the national level; and, especially in the area of ecotourism, the international level. Accordingly, the Community Conservation Program (Objective 3) works with all Wakhan-related project components to incorporate their findings and initiatives within the community framework. These include Ecosystem, Wildlife and Livestock Assessments (Objective 1); Laws, Policies and Institutions (Objective 3); and Training and Capacity Building (Objective 4). WCS Community Conservation Program (CCP) reports the following activities for Q4 2007.

Activity 3.1 Socioeconomic Surveys of Wakhan

The CCP team, working in conjunction with a WCS-sponsored Ph.D. candidate conducting dissertation research among the Kyrgyz population in the Little Pamir, began a socioeconomic survey of the Kyrgyz communities in the Little Pamir. This included adapting the existing WCS household survey questionnaire for use with the Kyrgyz community, and initial data collection in the main Little Pamir Kyrgyz settlement of Qara Jilga. This work will continue in FY08.

The CCP team met with village councils in Dehghulaman, Kandkhun and Kharich villages to collect data on village boundaries, land ownership and use, fuelwood and fodder use, grazing rights and usage, wildlife and hunting, and history of Big Pamir usage during the Afghan Tourist Organization's hunting program in Big Pamir.

Activity 3.2 Conservation Awareness and Environmental Education

Syed Aminuddin Shah, a Wakhi community leader, joined the WCS CCP team as the Community Conservation Facilitator for Wakhan for a four-month trail period beginning in September 2007. The WCS CCP team distributed environmental education materials in the six government schools in Wakhan District in which Environmental Education (EE) programs were started in Q2 2007. The students in the upper classes of each school are conducting three environmental education activities: environmental event record keeping; census of number, kind and status of community livestock; and survey of daily household fuel wood usage. The schools are:

Ptukh Middle School
Rochun Middle School
Dehghulaman Middle School
Baba Tangi Middle School
Sast Middle School

Qila-e Panja High School

Syed Aminuddin Shah visited all six schools to prepare materials and meet with teachers. With the CC Specialist, he assisted in preparation and distribution of Environmental Education school supplies and in collecting the initial three months of school data.

The six schools were supplied with 44 sets of EE materials, complied as individual school kits containing notebooks, pens, pencils, hard boards, name badges, and file folders for students, supervisor teachers and the Wakhan District's Education Department. Each school was also supplied with a metal truck for safe keeping of the EE materials and data reports. Each school was supplied with data collection forms sufficient for six months. These forms and materials included: color charts (posters) in Dari of annual environmental education work plan; fuel wood data forms; 150 school bags.

Syed Aminuddin Shah was tasked with the following tasks for end of Q4 2007 and start of Q1 2008 (when the CC Specialist would be on home leave):

• Ensure that the EE livestock committees autumn data collection is completed by all 6 schools.
• Collect and tabulate all the data collected by EE school committees during previous 5 months.
• Conduct an assessment of the schools EE activities using the assessment sheet and encourage them to follow the yearly work plan.
• Assist other WCS teams

The CCP team conducted one awareness workshop on "What is a Protected Area?" in Kret village, attended by 24 villagers. Topics covered include definition and purpose of a protected area, management under various categories, pros and cons for the community under the various categories, and the role of government and community in management. The villagers had numerous questions about the management of a protected area, and expressed their concern that it will alienate them from management of the resources needed for their livelihood and future activities.

Draft national protected area regulations will require substantial community participation in the protected area planning and nomination process. A series of workshops in all 24 villages utilizing Pamir resources is planned for 2008, to introduce the six internationally recognized protected area categories, and to enable the communities to participate effectively in the process as it develops.

Activity 3.3 Community Organization & Governance

The CCP team continued to hold meetings with the *shuras* (village councils) of the 17 Wakhi villages using the Big Pamir to discuss the existing Environmental Law and its relevance to community governance, and to record the traditional resource management regulations in each village. The team visited Kharich, Khandkhun and Dehghulaman. Meetings have now been held in 14 of the 17 villages. The team also discussed previous management regimes (especially the Afghan Tourist Organization (ATO) grazing and hunting control from 1968 to 1978, and the Mujahideen national government period (1993-1996) in each village.

A key outcome of these meetings was that all villages stated their preference for conservation activities to be administered through their existing village council or *shura*, which were created

as part of the National Solidarity Program (NSP). Villages declined to form separate Community Conservation Committees. Each village council appointed one member of the community to serve as focal person and point of contact for conservation activities, and agreed to cooperate with WCS in development of conservation governance.

Previous meetings in FY06 covered 11 additional villages, including those actively using the Little Pamir. All 24 villages actively using Big Pamir and Little Pamir resources have pledged their full support for WCS activities, have either appointed or agreed to appoint a focal person for conservation, and have agreed to work with WCS to develop and incorporate conservation bylaws into village council bylaws. This effectively brings all villages actively using the Big Pamir and Little Pamir under community management in partnership with WCS. This management will take place through the existing village council structure and accords well with the both existing and proposed national environmental legislation.

Meetings also revealed that all 42 Wakhi villages in Wakhan have traditional usage rights in the Big Pamir and Little Pamir. Although households from all the villages do not actively go to the Afghan Pamir areas, they do send livestock with related households. Based upon this information, the CCP team recognized a need to include all 42 villages in Wakhan within the conservation governance structure. Working with the WCS Law, Policies, and Institutions Component, the CCP team drafted a set of bylaws for an envisioned Wakhan Conservation Association (WCA).

The CCP brought Dari language copies of the Environmental Law to Wakhan for distribution in all 42 villages. The CCP had a meeting with Akhtar Iqbal, Regional Program Manager for AKDN in Badakhshan in early November who liked the proposed idea of training WCA staff in AKDN sponsored training centers. He offered full cooperation for any future activities.

Activity 3.4 Ecotourism Enterprise Development

Community conservation initiatives (development of protected areas, conservation of biodiversity) must be closely linked with economic benefits in order to be sustained. Tourists drawn by Wakhan's unique resources, whether for ecotourism or research, provide opportunities to directly link resource conservation to improvements in people's lives. WCS will work to ensure that economic benefits flow directly to local communities, to diversify and broaden the economic base providing these benefits, and to make clear the linkage between conservation and development. Efforts focus on increasing the numbers of inbound foreign tourists because if there are few or no tourists, there are few or no economic benefits, and the link with conservation becomes impossible.

To accomplish these goals, WCS is focusing on three areas: the development and promotion of primary ecotourism products in Wakhan; capacity building for ecotourism employment in Wakhan; and international promotion of tourism to Afghanistan.

3.4.1. Development & Promotion of Primary Ecotourism Products in Wakhan

Wakhan's tourism potential lies with the adventure travel and trekking market, but this potential remains largely unrealized because mechanisms to transmit information to potential tourists are lacking.

RETURN TO NOSHAQ Campaign

Noshaq (7,492 meters), Afghanistan's highest mountain and the second highest peak in the Hindukush Range, is accessible from Qazideh village in Wakhan District. A solid prewar history of mountaineering expeditions to Noshaq and neighboring 7000-meter summits demonstrates the strong potential market: 32 successful ascents since the 1960 first ascent until 1978, including the world's first winter ascent of a 7000m peak. Noshaq's standard route, its long and gentle West Ridge, has world-class potential for commercially organized expeditions aiming to climb a high, but nonmechanical peak. Trekking and mountaineering tourism to Noshaq is vital to stimulate overall tourism to Wakhan.

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In Q4 plans and a budget were prepared for producing and distributing a brochure, and publishing a RETURN TO NOSHAQ web page. This campaign requires creating and distributing a brochure to a target audience of the international mountaineering community, which includes 93 members of the International Mountaineering and Climbing Federation (UIAA) and 50 of the world's top adventure travel tour operators. The process involved researching Noshaq's mountaineering history, acquiring images of Noshaq and their copyright, working with a graphic designer to conceptualize the brochure and its functionality, writing the brochure and website text, and compiling lists of potential donors.

Despite the promise of this project, it is on hold for now. The obstacle to launching this tourism product is the existence of landmines that block the route to the base camp. For tour operators or anyone else to seriously and successfully promote trekking in Wakhan, they need to be able to tell potential trekkers that there are no landmines anywhere in Wakhan. While mine clearance is clearly beyond the scope of WCS activities, we are exploring ways to facilitate those who are working to get the minefields cleared.

The welcoming of climbers and trekkers back to Noshaq would become a source of national pride for Afghanistan and its Ministry of Information, Culture and Tourism, and could generate much needed tourism income for residents. The potential local labor revenue generated would range between $2,500 and $3,000 per climber (excluding additional money climbers would spend on permits, transport, accommodation, and food/supplies). With a historical rate of approximately two (successful) expeditions per year, based on an average-sized expedition, income-earning opportunities at the village level could conservatively range from $30,000 to $60,000 per year. Investing in this landmine clearance project potentially yields a direct 100% return on investment within two to three years.

***Wakhan & the Afghan Pamir* Map**

In Q4 the WCS ecotourism manager began conceptualization and development of a *Wakhan & the Afghan Pamir* ecotourism map, with publication scheduled for Q2 2008. Plans and a budget were developed in conjunction with a graphic designer, cartographer, printer, and distributor. This process included determining map scale, map extents, the physical size of the map, its source for topographical data, textual content, and a production and publishing timetable. Since

there is almost no published material about Wakhan, a useful trekking map is an important reference to disseminate information to tourists.

3.4.2. Capacity Building for Ecotourism Employment in Wakhan

Wakhan Trek Guide & Trek Cook Training

In Q4 the team followed up the Trek Guide and Trek Cook trainees who attend the Q2 workshop entitled "Ecotourism in Wakhan: A Workshop for Trek Guides & Cooks." A primary concern and source of confusion identified among trainees and villagers was the determination of who got the chance for work. Some trainees were not only hired but hired for more than one trip, whereas other trainees did not get any chance for work. The team discussed the nature of employers and how they differ from one another, the possible length of hire (from one-off trips to seasonal or full time employment), the mechanism for hire, and type of labor (jobs) possible. The mechanism for hire was distinguished between an employer hiring labor through the village council using the traditional *naubat* or rotational system for labor allocation, and an employer hiring skilled labor directly. In Q4 the team prepared a flowchart called *Ecotourism in Wakhan: Labor for Trekking* and distributed copies, translated into Persian, to the trainees and village councils for reference, clarification and discussion among themselves.

In Q4 the team distributed a Wakhan Trek Guide Feedback Form and a Wakhan Trek Cook Feedback Form. The feedback forms asked the respondents (WCS component managers) to rank the trainees' skills on a scale from 1 (poor) to 5 (good).
In Q4 the team completed a 2007 Wakhan Trek Guides & Trek Cooks Earning Survey to evaluate the impact of the Q2 2007 training and trekking in Wakhan in general. The analysis also includes individuals trained in 2006 or prior by AKDN, the only other NGO that has conducted tourism training.

3.4.3. International Promotion of tourism to Afghanistan

International promotion of tourism to Afghanistan requires WCS working with both the government and private sectors. WCS endeavors to support efforts to promote tourism to Afghanistan as a country, which will also support tourism to its provinces. WCS will seek to strengthen the government institutions working in tourism so that they can better understand principles and concepts of ecotourism in order to clarify and set policy. Particularly essential is developing capacity within and working closely with both the Ministry of Information, Culture and Tourism, and the Afghan Tourist Organization (ATO), which works under the ministry's supervision.

Pacific Asia Travel Association (PATA)
The Pacific Asia Travel Association (PATA, http://www.pata.org) is the leading tourism industry association for Asia. The benefits of being a PATA Member Destination are obvious to those in the travel industry and would be invaluable to Afghanistan rebuilding its tourism industry and recovering from decades of conflict.

In Q3 the WCS ecotourism manager contacted the CEO of PATA about their willingness to consider inviting Afghanistan to become a PATA Member Destination. Although PATA's

charter and bylaws exclude Afghanistan by geographical definition, a previous exception set precedent for moving forward. The team drafted a sample letter to PATA requesting status as a PATA Member Destination, which ATO and the Ministry of Information, Culture and Tourism revised. WCS facilitated submission of the letter in Q3 in advance of PATA's annual executive council and board of directors' meetings held in August and September.

In Q4 PATA announced their acceptance of Afghanistan as a PATA Member Destination and sent follow-up documents to the ministry in Kabul. Completion of the PATA Government-Destination Membership application and payment of the Membership Invoice are still pending. WCS is facilitating completion of these documents and dues payment, which will be resolved in Q1 2008. WCS should support this effort by paying the first year's membership on the behalf on the ministry. This regional membership will further strengthen the government's tourism sector and their participation in PATA-sponsored industry events will demonstrate Afghanistan's commitment to develop its tourism industry and its regional partnerships.

International Tour Operators

Most of the world's top 50 adventure travel tour operators do not yet know about Afghanistan's tourism products or trekking potential in Wakhan. Tour operators who plan and select destinations for their annual catalogs typically need an average lead time of 18 to 24 months to market and sell trips. Based on a successful initial effort, the team in Q4 planned a personalized information campaign to launch in Q1 2008 to invite the world's leading tour operators to bring private sector business to Afghanistan, focusing on Wakhan in particular.

International Publicity

WCS continues to support and facilitate promotion of tourism to Afghanistan in the media. The WCS ecotourism manager's efforts with just one North American tour operator resulted in two magazine articles in Q4 that feature Wakhan.

The cover story of the November 2007 issue of *National Geographic Adventure* magazine was titled the *25 Best New Trips in the World*, and the Wakhan trek designed by the WCS ecotourism manager was selected as one of the trips. *National Geographic Adventure's* readership is 2.3 million worldwide.

The trip leader of the upcoming 2008 Wakhan trek by a North American tour operator did a reconnaissance to Wakhan in summer 2007, which the WCS ecotourism manager facilitated. This reconnaissance resulted in an article titled *Another Trek in the Wall* in the January 2008 issue of San Francisco-based *Marin* magazine, which has a readership of 100,000.

3.4.3.5. Tourism Association of Afghanistan (TAA)

In Q4 the team continued to work with the private sector to promote tourism. Domestic tour operators, hoteliers, and agencies in Afghanistan conceived of the idea to form the Tourism Association of Afghanistan (TAA) as a private-sector initiative. They have not yet been able to complete the establishment of this organization, although the usefulness and need for such an organization is apparent to all. The team had many meetings and discussions in Kabul with prospective TAA members, who have agreed to move ahead with this initiative.

The team identified the Afghanistan Small and Medium Enterprise Development (ASMED), another U.S. AID-funded project, as a potential source of funding for a seed grant through their Association Development Grants program. Obtaining such a grant would empower TAA's future membership to participate at international tourism trade fairs and promote the country of Afghanistan as well as their private businesses. The team is working closely with the key participants to write the grant application, which is planned for submission in Q1 2008.

3.4.3.5. Marketing Tools

A coordinated marketing campaign is essential to stimulate tourism to Afghanistan and Wakhan. Marketing needs to start immediately with a focus on educating adventurous tourists that their tourist money can make a difference and positively contribute to the country's reconstruction and humanitarian effort, which includes biodiversity conservation and ecotourism enterprise development. Tourism, like conservation, cannot wait to resume until after the reconstruction is completed.

WCS hopes to work with the Ministry of Information, Culture and Tourism and ATO to develop marketing tools to promote tourism to Afghanistan, including the revitalization of a comprehensive government website on Afghanistan tourism, interactive CDs, maps, brochures, posters, and an ecotourist guidebook. All of these potential projects are on hold pending funding for same. These activities link with 1.3, Assessment of Rangelands; 2.1, updating Wakhan Protected Areas; and 2.2, Transboundary Peace Park Initiatives.

OBJECTIVE 4: CAPACITY-BUILDING INITIATIVES

Applicability to Biodiversity Codes

Afghanistan's future ability to manage natural resources 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 and study travel opportunities, and on a larger scale, public education, has the primary objective of conserving biodiversity.

During Quarter 4, WCS trained 51 government staff, community members and research assistants in conservation biology, field methodologies, theoretical ecology and community conservation.

Activity 4.1 Afghanistan Training Courses

Rich Harris, WCS Marco Polo Sheep Component Manager, taught a three-day course to 17 members of the Ministry of Agriculture and Kabul and provincial NEPA staff on wildlife population biology (participant list in Appendix A). The participants learned about density dependence, how hunting affects wildlife populations, variability in counting wild animals, and the importance of sample size in assessing wildlife populations.

Figure 5. Left: Dr. Chris Shank explains how to use a bird guide to the Rangers of Band-e-Amir National Park. Right: Dr. Rich Harris observes as a NEPA staff member practices calculating the size of a theoretical wildlife population from a mark-recapture exercise.

Dr. Chris Shank, WCS Hazarajat Plateau Component Manager, taught a day long seminar to the Rangers and staff of Band-e-Amir on the ecology, importance, and habitat of wild birds, as well as how to use a bird guide for identification. The seven participants learned how to use binoculars, spotting scopes, and Ripley's Bird Guides to identify the species of special conservation concern of the Band-e-Amir region. WCS made this equipment available to the rangers so they can practice and build their skills throughout the year. This course will lay the groundwork for a more in depth monitoring effort of the wild birds of Band-e-Amir National Park.

The Ecosystem Services Team is conducting household surveys to quantify the value of the forest to the local people in Nuristan. A team of 6 Nuristani people are conducting the survey, having received 3 weeks of training, including practical implementation, in objective interview techniques, data recording and survey methodology. This project, the subject of a PhD dissertation, holds the potential to become a community managed forest sustainably financed through carbon credits.

Activity 4.2 Conservation Study Travel Program

In Quarter 4, eight people were trained and educated through the Conservation Study Travel Program.

For five days in November, WCS-NY held a workshop for Asia regional programs on methods and strategies for improving conservation training and education programs. It was hosted in Vientiane, Laos by the Director of Education and Director of Training Programs. It built on decades of experience from various country programs implementing school and community-based education, workshops, dramas, and evaluation methods for training programs. Ayub Alavi, Hazarajat Plateau Program Officer, presented his work on organizing and educating the Band-e-Amir Protected Area Committee, learned strategic planning for training activities using a logical framework, gathered resources for education and curriculum development and discovered new methods of evaluation for training and education activities.

In November, seven Wakhi shura leaders traveled via Kabul and Islamabad to their southern neighbors in the Hunza Valley of Pakistan to increase their understanding of ecotourism, including trophy hunting, increase understanding of snow leopard behavior and strategies for reducing predation on livestock, and increase awareness of community management of national parks in terms of organization, finance and revenue sharing. For all seven participants, this was their first time out of the country, and for many, their first time in Kabul (Participant List in Appendix B). As leaders in their community, the participants will be responsible for much of the decision-making regarding potential protected area boundaries, range management, tourism operation and community education. The group was impressed by the advanced stage of tourism in Pakistan and the beneficial outcome from law-abiding communities. When asked how tourism is different in Pakistan, Khial Beg of Kret Village observed, "Pakistani people follow the law and don't hunt. This way the tourists can see the wildlife."

Activity 4.3 Field Training and Scientific Mentoring

Drs. Rich Harris and John Winnie, WCS Marco Polo sheep Component Managers, conducted field surveys in November and December to achieve the following:

- Document, via visual inspection and/or GPS units, the locations and range use of livestock during winter in areas near argali habitat,
- Document, via visual observations and collection of fecal material, habitat use by argali during early winter, and
- Document other attributes of the landscape and vegetation, relevant to our modeling the factors determining where argali spend this time of year (and thus, indirectly, what limits their population).
- Collect fecal pellets to estimate population size via mark-recapture and for winter food habit analyses.

They were accompanied by Assadullah Khairzad, Environmental Officer in the Ministry of Agriculture, who learned about the ecology and behavior of Marco Polo sheep, the fundamentals of scientific research and data collection, and new survey methods for these large ungulates. In addition, two other members of the Wakhi community were trained in scat collection, use of field equipment like GPS and data collection. The two community members will continue following the Marco Polo sheep throughout the winter and collecting data on their location and scats to achieve the goals as outlined above and give WCS a clearer picture of the range and food habits of Marco Polo sheep. This data is essential to inform the development of a protected area in the region. Rangeland Research Assistant, Ayoub Wafi Nahrabi, has been building skills in data analysis, computers, and English language by processing data from the summer/fall field season.

Drs. Ali Madad Rajabi and Hafizullah Noori, with guidance from WCS Ecosystem Health Program Manager, Stephane Ostrowksi, conducted an independent field mission in the Big Pamir. Months prior, the team had given GPS units to Wakhi herdsmen and taught them how to mark a location. WCS requested that they take a GPS point at regular intervals so that WCS can have a more exact idea of the range use of domestic animals in the Wakhan. The veterinary team downloaded data from GPS units in Big Pamir and sampled equids in Wakhan for glanders

prevalence. In addition, they continued bird observations in Sarhad e-Broghil, Kret, Baba Tungi, and Gozkun areas.

In addition, the Ecosystem Health Team conducted another independent mission, with support from the USAID-funded, Global Avian Influneza Network for Surveillance (GAINS). The team visited Darqad, Ay Khanum and Imam Sahib of northern Takhar Province on the border with Tajikistan to investigate the prevalence of bird hunting and determine if a larger Avian Influenza sampling mission of wild birds is possible. In addition, WCS Bird Research Assistant, Naqibullah Mostafawi, participated to survey the occurrence of wintering waterfowl in the region. The details and results of this mission are more fully explained in the Ecosystem Health section.

The Ministry of Agriculture, Irrigation and Livestock (MoAIL) appointed Mr. Ashugullah as the Ministry's counterpart for field work conducted in Band-e-Amir and Ajar Valley by WCS Hazarajat Program Manager, Dr. Chris Shank. Ashugullah is in the Parks and Wildlife Section of Natural Resources Management and served as the interim Warden for Band-i-Amir in the early summer. Mohammad Sharif from the Bamian NEPA office accompanied the team as well The team conducted a search for urial in the area between Bamyan and Ajar Valley. During the field work the two government counterparts learned the process of community consultation to develop a management plan for the national park and new survey methods for mountain ungulates.

WCS Program Officer, McKenzie Johnson, initiated a training program on domestic and international wildlife trade for Research Assistant, Sharbat Khan Nikmal. The goal of this training program was to build capacity on wildlife trade issues in Afghanistan so that he could lead future training sessions to Afghan fur traders. Mr. Nikmal was trained on the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES), domestic trade provisions in Afghanistan, species/skin identification, and presenting scientific information to a public audience. Mr. Nikmal achieved a score of 80% on evaluations of the training content through written examinations and oral presentations. Future training will include more in-depth coverage of the subjects and practice presenting the information to public audiences.

The Wakhan Corridor and Pamir region hosts a human population of more than 12,000 and a livestock population several times this amount. However, there is only one trained veterinarian in the Lower Wakhan and he cannot service the entire region. Since July 2007, WCS has sponsored two Wakhi community members to attend the Dutch Committee for Afghanistan's (DCA) Para-Vet Training Course. The students graduated on January 7, 2008. As part of the sustainability and privatization agreement with DCA, WCS is providing the initial start-up costs associated with establishing two Veterinary Field Units in the Wakhan (one in Avgarch and one in Kand Khun Village). In addition to this, WCS will provide technical advice and further training to the nascent paravets to improve their ability to recognize potential risks and reduce likelihood of disease transmission between livestock and wildlife populations.

In November, WCS Training and Capacity Building Manager, Kara Stevens, hired a counterpart, Dr. Mohammad Arif Rahimy. He has received on-the-job training in conservation biology, wildlife disease, use of field equipment like GPS, binoculars, range finders, etc.., data management and environmental education. For two months, Mr. Rahimy has independently implemented various training programs and evaluations while supervising ongoing training and education activities.

Activity 4.4 Public Diplomacy and Outreach

WCS participated in the USAID sponsored, Faizabad Agricultural Fair to build awareness about WCS activities, promote tourism in the Wakhan, and develop knowledge of the unique wildlife of Afghanistan. Approximately 1500 people visited the WCS booth during the Agricultural Fair, including the Minister of Agriculture and other provincial government staff.

Figure 6. Left: Students are intrigued by WCS published magazine, Wildlife Conservation. Center: Inayat Ali, Wakhan Community Conservation Officer, explains WCS activities to HE Obaidullah Ramin, Minister of Agriculture. Right: Young boys discover the diversity of mammals found in Afghanistan.

The Nuristan Wildlife Survey team used posters created by WCS to explain biodiversity conservation to schoolteachers in the Waygal Valley of Nuristan, who then used the information and materials in their classrooms. WCS will be conducting a more widespread distribution and conservation education training seminar in Nuristan when the winter snows secede.

Figure 7. A schoolteacher in Waygal Valley explaining the mammals of Afghanistan to a girls' elementary classroom.

Progress and Performance Assessment: WCS trained 51 people in Quarter 4 in natural resource management, community conservation, wildlife and domestic animal disease, and

benefits of biodiversity conservation. In this Quarter, WCS Training and Capacity Building Program has exceeded the projected indicator for this quarter by 257%.

OPERATIONS, SECURITY, AND LOGISTICS

The security situation in Afghanistan deteriorated during Quarter 4 with an increase in suicide bomb attacks by anti-government elements (AGEs) in Kabul and other provinces. The main theater of WCS activities, namely Bamian and Wakhan are still regarded as relatively safe but the security situation is being monitored to see if any perceptible changes are taking place here. It has recently been reported that AGEs are establishing themselves in increasing numbers in Ghor Province and since this is alongside Bamian Province it is worthwhile observing whether the province retains its reputation of relative stability.

In November 2007 an Aga Khan Development Foundation vehicle was ambushed in Badkshan: gunmen opened fire and killed two of the organisation's employees near Baharak. With uncertainty surrounding motive, most NGOs ceased operations in the area. WCS already had staff members deployed in Wakhan and since this is the only access route to-and-from the area, we had no option but to rent less-obtrusive vehicles to negotiate the Faisabad to Ishkashim route. The incident did not affect our work, and teams departed Wakhan on schedule. The only direct effect was an increase in Operational expenses due to the unforeseen costs of renting vehicles for several weeks. In an attempt to reduce the future risks it is recommended that staff working in Wakhan have a valid Tajikistan visa with them when they deploy so that in an emergency they can withdraw from the area via Tajikistan and Dushanbe and return to Kabul by air.

In spite of the effects of a late but severe winter the security situation in Kabul unlike the rural areas of Afghanistan did not experience the traditional "lull" in bombings in Kabul with Serena Hotel being targeted and a number of international guests as well as national staff being killed by a group of insurgents armed with rifles, grenades and explosive-vests. The number killed was stated as eight but unconfirmed reports state that as many as eleven may have died as the security and staff took the major brunt of this attack. However, time will tell whether this was an isolated once-off event or whether it spells the start of a new tactic? The true effect on the expat and NGO community's enthusiasm for continued humanitarian work in this country will only be able to be judged in the coming months when internationals return from their annual breaks.

The situation in the rural areas, particularly in Bamian, Nuristan and Wakhan has been very quiet and our teams have not experienced any security related problems. That said, for a while now the situation in Nuristan (Eastern Forests complex) has been problematic. Only nationals from the communities, who are fully aware of the dangers and are trusted by the locals, are used for surveys by WCS. In spite of this teams still run some risks as AGEs (anti-government elements) are known to occasionally implement informal roadblocks on access routes and search vehicles and passengers for any evidence of employment by US or Coalition Forces, USAID and anyone else perceived to be an enemy of their cause.

By far the greatest risk for WCS staff employed in Afghanistan remains in Kabul city itself and not in the rural areas where fieldwork is carried out. It would seem that the main threat facing WCS staff is kidnap-for-ransom and IEDs (improvised explosive devices) such as roadside bombs, suicide bombs and the like. Security measures are discussed with WCS staff as

frequently as an incident is reported through ANSO or any other security monitoring agency. Staff are advised which areas are to be avoided and are, forbidden to leave the office or guest house compound when the risk is very specific or believed to be inappropriately high on a given day. New members of WCS arriving in Afghanistan are not allowed to leave for fieldwork unless they have completed mine awareness training and have received an up-to-date briefing on the current security situation in the country. This briefing is usually given by Hart Security who have access to ISAF and NATO security information as well as to that of their clients scattered throughout Afghanistan.

During 2008 WCS will continue with refresher training for our unarmed office guards with our contracted QRF (Quick Reaction Force) namely Hart Security. We have two new staff members: a new Country Director and a new Technical Coordinator: they will receive mine-awareness training and our full complement of basic security training. Two of our drivers have not yet completed the advanced/defensive driving course: they will do so in Q1 of 2008.

WCS remains very interested in acquiring a pre-owned Armored vehicle Class C or D (as per the recommendation of Marcus Singleton of USAID Security Office, Washington DC) for use within Kabul City area. It is hoped that such vehicle might be available for rental or as surplus from completed USAID partnerships. Although the areas where WCS operates outside of Kabul are relatively safe, there are times when it is prudent to use an armored vehicle within Kabul, particularly if the possibility of attacks are deemed higher than usual by Intelligence reports.

Afghanistan Biodiversity Conservation Project
USAID Performance Indicators & Milestones for FY07, Quarter 3

OBJECTIVES	INDICATORS		Key	Quarter 1	Quarter 2	Quarter 3	Quarter 4					
	Progress on Indicator (%):	0%	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		14%				57%			85%		**105%**
	INDICATOR 1.2: RANGELAND ASSESSMENTS	0%			35%						98%	110%
	INDICATOR 1.3: ECOSYSTEM HEALTH		15%				55%			80%		
	ACTIVITY 1.4: LANDSCAPE ANALYSES AND GIS PROGRAM					40%			75%		95%	
OBJECTIVE 2: STRENGTHENING LAWS, POLICIES, AND INSTITUTIONS	INDICATOR 2.1: PARKS AND PROTECTED AREAS				30%			65%			90%	
	INDICATOR 2.2: ANALYZE, AND DRAFT LEGISLATION					40%		60%		89%	95%	
	INDICATOR 2.3: ECOSYSTEM SERVICES VALUATION	0 Households surveyed							75%	80%		
OBJECTIVE 3: COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT	INDICATOR 3.1: COMMUNITY CONSERVATION COMMITTEES	0%	0%						78%		95%	
	INDICATOR 3.2: ECOTOURISM ENTERPRISE	0				40%				80%		
OBJECTIVE 4: TRAINING AND CAPACITY BUILDING	COMMON INDICATOR 204: # PEOPLE TRAINED IN NATURAL RESOURCES MANAGEMENT & CONSERVATION AS A RESULT OF USG ASSISTANCE		45 PERSONS TRAINED (11%)							460 Persons Trained 115%	130 Persons trained 147%	Total: year-to-date 690 PERSONS TRAINED (160%)
	INDICATOR 4.4: PUBLIC DIPLOMACY & CONSERVATION EDUCATION INITIATIVE			15,000 persons		15,000 persons (40%)			55000 persons 73%		68,000 persons 90%	
USAID COMMON BIODIVERSITY INDICATORS	Total Number of People:		45	15,000								
	COMMON INDICATOR 203: Number of people with increased economic benefits derived from sustainable natural resources management and conservation as a result of USG assistance.	0								395 (87%)	398 (88%)	
	Total Number of Areas:											
	COMMON INDICATOR 194: Number of areas under community management	0								80%		100%