



# **Biodiversity Conservation at the Landscape Scale**

A Program of the Wildlife Conservation Society  
Supported by the USAID/Global Conservation Program

## **The Eastern Steppe Living Landscape: Sustaining Wildlife and Traditional Livelihoods in the Arid Grasslands of Mongolia**

**Annual Report  
October 2006 – September 2007**

Living Landscapes Program- Mongolia/Eastern Steppe  
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#### **I. Summary of Activity Status and Progress**

##### **a. Introduction/Summary:**

The Eastern Steppe of Mongolia is perhaps the world's largest intact grassland ecosystem. At 250,000 sq km, the area is roughly the size of the state of Oregon. This vast wilderness is home to one of the world's last great spectacles of migrating ungulates, the Mongolian gazelle. Numerous other mammals live on the steppe, and there are many rare or critically threatened birds, including six species of cranes (almost half of the world's crane species). The steppe is of international importance, and is a Global 200 Ecoregion, a Last Wild Place, and the location of Mongolia's first Ramsar site. Human populations on the steppe have historically been sparsely distributed and engaged in traditional nomadic livestock production, which had minimal impact on the ecosystem. This historical pattern of sustainable use of the steppe's resources has been disrupted by major socio-economic changes during the past fourteen years. Rising urban unemployment has increased reliance on the hunting of wildlife for subsistence and income, while declining markets for meat and other livestock products have increased poverty among herders. The country's economic needs are also driving oil, coal, gas and mineral exploitation of the Eastern Steppe. The WCS Living Landscapes Program, with important support from USAID, strives to address these threats to biodiversity and wild places through the implementation of a participatory, wildlife threats-based strategy for landscape conservation. The program in Mongolia, "The Eastern Steppe Living Landscape: Sustaining Wildlife and Traditional Livelihoods in the Arid Grasslands of Mongolia," is funded by USAID's GCPII program.

The Eastern Steppe Living Landscape Project has played an expanding role in shaping wildlife management strategies and conservation policy in the Eastern Steppe since the project began in October of 2003. In FY07, the project has made significant progress in applying the Landscape Species Approach on the Eastern Steppe, producing the biological, human and conservation landscapes that are critical conservation planning tools and effective illustrations of both the challenges and opportunities that exist when striving to conserve a landscape as large and diverse (especially in terms of management zones and jurisdiction) as the Eastern Steppe.

In this, the fourth year of the program, the Eastern Steppe Living Landscapes Project has reached out to some of the highest levels of government in Mongolia to engage these key stakeholders as plans for the development of the Eastern Steppe region emerge, helping to ensure the conservation of the grassland steppe of Mongolia and the wildlife species and livestock herder livelihoods that it supports. At the same time, the project has sought to engage local wildlife

managers and communities of livestock herders in conservation planning and wildlife monitoring and protection, with the goal of establishing sustainable nature resource use and wildlife management practices. Information gathered through the Eastern Steppe project field work has provided critical support for some key pieces of environmental legislation including the extension of the ban on Siberian marmot hunting and the development of draft changes to the Mongolian Law on Hunting. The piloting of a “Collaborative Wildlife Protection Program” in Nomrog Strictly Protected Area has led to interest in promoting this kind of collaboration among the State Border Defense Agency, Protected Area Administration and aimag-level environmental inspection agencies and departments in other regions of the Eastern Steppe where protected areas and international border regions overlap. Our collaboration with the Eastern Mongolian Community Conservation Association has been very fruitful and community-based wildlife conservation initiatives have become a major focus of our work on the ground in the Eastern Steppe. Implementing separate but interrelated initiatives aimed at engaging national, local and community-level stakeholders has proven to be essential in advancing wildlife and landscape level conservation on the Eastern Steppe.

## **b. Highlights**

Accomplishments for the program’s fourth year:

A plan for natural resource management designed to conserve wildlife and to maintain rural livelihoods:

- Selected the final suite of eight Landscape Species for the Eastern Steppe Living Landscape: the Mongolian gazelle, Siberian marmot, gray wolf, eastern moose, Asiatic grass frog, taimen, white-naped crane and saker falcon. Broad stakeholder support for this suite of focal species has allowed the project to focus its efforts and move forward with the additional components of the Landscape Species Approach.
- Completed mapping of the biological, human and conservation landscapes for the Mongolian gazelle, saker falcon and white-naped crane. This process has broadened the definition of wildlife conservation in Mongolia. Stakeholders, including government officials, wildlife managers, academics and wildlife conservation NGOs, have indicated a willingness to move beyond a conservation planning process largely focused on conserving critically endangered populations of individual species to a plan of action which addresses the relationships among populations of wildlife and the humans that share their habitat---conservation on a landscape scale.
- Conducted the first “Community Ranger Training” in collaboration with the Eastern Mongolian Community Conservation Association. The community appointed rangers from each of the 21 active community-based conservation groups on the Eastern Steppe to work to effectively expand the network of “protected areas” on the Eastern Steppe by 200,000 hectares through community-initiated wildlife protection and management.
- Completed the third year of a marmot population survey on the Eastern Steppe. Eastern Steppe Living Landscape Project field data contributed to the documentation of the decline in this economically and ecologically important species and supported the extension of the government ban on marmot hunting.
- Produced the first full draft of a Mongolian Gazelle Management and Action Plan. This effort represents the first time government officials, conservation NGOs, and the Mongolian academic community have worked collaboratively on a species management plan for government acceptance and implementation.

**c. Table of Activity Status**

<b>Activity No.</b>	<b>Activity Title</b>	<b>Status</b>	<b>Page No.</b>
<b>Objective 1</b>	<b>Develop and adopt participatory strategies to reduce threats to wildlife in the Mongolia Eastern Steppe landscape</b>		5
1.1	Refine the conceptual model for the Eastern Steppe and create conceptual models for each of the suite of Eastern Steppe Landscape Species to articulate the causal relationships among conservation targets and threats	Initiated Delayed	5
1.2	Identify principal actors to address threats, evaluate their capacity to do so and engage them in specific interventions	On track	5
1.3	Develop an adaptive, participatory and spatially explicit strategy for threat abatement and landscape conservation	On track	11
1.3.1	Choose Landscape Species for the Eastern Steppe through the Landscape Species Approach	Completed	11
1.3.2	Develop a spatially explicit representation for threat abatement and landscape conservation	On track	11
1.3.3	Identify points for critical action to conserve Eastern Steppe Landscape Species	On track	13
<b>Objective 2</b>	<b>Develop and implement sustainable and adaptive mechanisms to strategically address threats across the landscape</b>		16
2.1	Establish necessary management mechanisms	On track	16
2.2	Enhance local capacity to implement the strategy	On track	18
2.2.1	Enhance local institutional capacity	On track	18
2.2.2	Enhance local community capacity	On track	20
2.2.3	Enhance local disease management	On track	23
2.2.4	Enhance local scientific capacity	On track	27
2.3	Implement mechanisms for measuring success and adapting the landscape strategy	On track	27
2.4.	Identify and strengthen constituencies for conservation at local, national and international levels to help ensure effective strategy implementation	On track	28
<b>Objective 3</b>	<b>Learning and teaching best practices in the Mongolian Eastern Steppe landscape and beyond</b>		29
3.1	Using economic valuation of rangeland and water resources as a tool for site-based conservation: a comparison of the Eastern Steppe of Mongolia and the Rungwa-Ruaha Landscape, Tanzania	Initiated Delayed	29
<b>Objective 4</b>	<b>New York Coordination Unit Strategy: Guide the design and testing of wildlife-focused planning, implementation, and evaluation tools for effective conservation at a landscape scale, and promote learning across sites and beyond</b>		30
4.1	Provide technical assistance to site-based conservation	On track	30
4.2	Design, implementation, and testing of decision support tools	On track	31
4.3	Catalyze cross-site and cross-organizational learning, and communication	On track	33
4.4	Application of Living Landscapes Program tools beyond core sites	On track	35
4.5	Ensure coordination and communication services for the program	On track	36

## **II. Detailed Description of Progress**

### **a. Key short and long-term program objectives for the reporting period (October 2006 – September 2007)**

In what is perhaps the largest remaining swath of ecologically functional temperate grassland in the world, WCS is developing and implementing long-term conservation measures at a landscape scale. We are doing this by working with key national, regional and local partners to address identified threats and opportunities, and by focusing research on the conservation and management of wide-ranging and vulnerable Landscape Species that represent the diversity and integrity of the system. Over time, we plan to successfully implement and refine the Landscape Species Approach within the Eastern Steppe Landscape, thereby promoting this concept in other biologically critical landscapes in Mongolia.

Threats to the Eastern Steppe Landscape continue to be related to poor planning and management at the central government level and to deficits in the local and national resources necessary to enforce existing environmental regulations and wildlife protection laws. Oil and mineral exploitation is expanding in the Eastern Steppe with little evidence of science-based decision making or serious consideration of the potential impacts of the oil/mineral extraction and related infrastructure development on the wildlife populations and communities of nomadic pastoralists living on the Eastern Steppe. Poaching and illegal wildlife trade is decimating populations of fur bearers and large ungulates on the Eastern Steppe and across the nation.

To address poor planning and management at the central government level, the Eastern Steppe Living Landscape Project (ES-LLP) continues, as one of its primary objectives, to develop policy recommendations on a range of critical issues that can be instituted by appropriate agencies and institutions to alleviate immediate threats to the steppe landscape and to the wildlife and human communities that depend upon natural resources for their survival. In FY07, the ES-LLP worked closely with local agencies, wildlife managers and communities of livestock herders, engaging them in conservation planning and wildlife monitoring and protection. The result has been local government support of community-led wildlife conservation initiatives and on-the-ground coordination of wildlife protection activities implemented by the traditionally separate State Border Defense, Protected Areas and State Special Inspection agencies.

The ES-LLP continues to develop and implement a landscape-scale management planning process, by collecting and interfacing the information necessary to guide management strategies and actions at a broad scale using WCS's Landscape Species Approach, information such as the human-caused threats and the biological requirements of species. Specific objectives during FY07 included: finalizing the suite of Eastern Steppe Landscape Species, creating a complete set of biological, human and conservation landscapes for key Eastern Steppe Landscape Species and presenting the process for peer review and acceptance among national policy makers, Eastern Steppe stakeholders and the broader conservation community.

In the long term, the ES-LLP expects that our use of participatory initiatives for landscape conservation will produce a mosaic of wildlife-focused landscape-level conservation efforts initiated by the Ministry of Nature and Environment (Protected Area Administration), national agencies with jurisdiction over wildlife protection (State Border Defense Agency and State Specialized Inspection Agency), local governments and communities of livestock herders. The Landscape Species Approach will unite the efforts of the diverse stakeholders on the Eastern Steppe and provide the guidance and tools necessary to implement more strategic and collaborative conservation interventions, monitoring and evaluation activities.

## **b. Activity Descriptions**

### **OBJECTIVE 1: Develop and adopt participatory strategies to reduce threats to wildlife in the Mongolia Eastern Steppe landscape**

#### **Activity 1.1 Refine the conceptual model for the Eastern Steppe and create conceptual models for each of the suite of Eastern Steppe Landscape Species to articulate the causal relationships among conservation targets and threats**

The conceptual model for the Eastern Steppe Landscape was reviewed in FY07 on a number of occasions both internally by WCS Mongolia staff and with participation from the program's conservation partners including scientists from the National University of Mongolia and the Academy of Sciences. The role that conceptual models play in the Landscape Species Approach was explained during the Species Conservation Planning Stakeholder workshop held in Ulaanbaatar in October, 2006. As the agenda for this workshop developed, the focus was placed on describing the Landscape Species Selection process and collecting input on the threat mapping and biological model building process as described in Activity 1.3.1 and Activity 1.3.2.

The information collected from species experts, wildlife managers and government officials during the October 2006 workshop has led to the refinement of the Eastern Steppe conceptual model. Detailed conceptual models for individual landscapes species are still under development. The need for a second round of Landscape Species Selection and the time devoted to the development of biological, human and conservation landscapes for the initial three Eastern Steppe Landscape Species has delayed the full development of individual conceptual models. A draft conceptual model for the Mongolian gazelle has been created as part of the drafting of the Mongolian gazelle management and action plan. This model and those developed for the Siberian marmot and other key Landscape Species in FY08 will be discussed and further refined during aimag and community-level participatory conservation planning workshops scheduled for the spring of 2008.

#### **Activity 1.2 Identify principal actors to address threats and evaluate their capacity to do so and engage them in specific interventions**

In FY07, the ES-LLP continued to strengthen and develop linkages within the environmental sector and in the development and political sectors. We continued collaborative activities and coordination among local, national and international agencies and institutions positioned to address key threats to wildlife conservation and herder livelihoods on the Eastern Steppe. These efforts were initiated with the aim of lessening the negative impacts of poor coordination and improving conservation planning and management from the local to central government level.

A new focus of our program has been to engage a new set of important actors – aimag (i.e., state) level and community level leaders on the Eastern Steppe. It is critical to engage these partners because most land use and land management decisions are made at the local level. In FY07, interventions were initiated with communities of livestock herders and local NGOs working and living in the Eastern Steppe (e.g., Eastern Mongolia Community Conservation Association) (See Activity 2.2.2). In addition, more work was done directly with the aimag-level branches of national agencies and institutions, including those of the offices of the State Specialized Inspection Agency, aimag Environmental Departments and State Border Defense Agency guards posted in the Eastern Steppe region.

Activities designed to identify principal actors to address threats, evaluate their capacity and engage them in specific interventions include the following:

### **Government Relationships**

1. *Brandt's Vole Management Recommendations*: Since 2004, WCS has worked with WWF-Mongolia to end the practice of using bromadiolone, or any similar toxin which puts non-target wildlife at risk, to control Brandt's vole populations. Together, WCS and WWF have engaged the Mongolian Ministry of Food and Agriculture and the agency has discontinued the widespread use of toxin-laced bait to control Brandt's vole eruptions. A new law on the use of toxins was passed by the Mongolian parliament in early 2006, placing further restrictions on the use of toxins in Mongolia.
2. *The Nomrog Bridge and Millennium Road*: The ES-LLP has continued to monitor the planning of the Millennium Road and the Nomrog Bridge. WCS staff track the news and meet with aimag-level officials in the protected areas administration and environmental agency at least twice a year to review infrastructure development plans. The Mongolian media reported in June 2006 that plans for the Millennium Road Bridge, connecting Mongolia to China across the Nomrog River in Dornod Aimag, will go forward. This information indicates the reversal of a decision, made at the end of 2005 by a committee of ministry officials, to halt the Nomrog Bridge project for economic and environmental reasons. The most recently proposed bridge site is different from the original site proposed in 2003/2004 and will require a full Environmental Impact Assessment (EIA). The concern is that the newly proposed site, whether located within the Strictly Protected Area of Nomrog or not, will disrupt and fragment one of the most unique and bio-diverse areas of the Eastern Steppe. In May 2007, WCS received a copy of the official agreement between the Mongolian and Chinese governments to build the Nomrog Bridge, with construction of the bridge due to begin in the summer of 2007. Recent reports also indicate that the Millennium Road has once again been drawn to avoid the major population center of Choibalsan and bisect important Mongolian gazelle habitat on the Eastern Steppe.
3. *Mongolian Gazelle Management & Action Plan (Review & Final Draft)*: A full draft of the Mongolian Gazelle Management and Action Plan was completed by WCS Mongolian gazelle biologist Kirk Olson, in July 2007. The management efforts outlined are designed to "ensure the long term persistence of Mongolian gazelles at an ecologically and culturally meaningful population size throughout its current range and will allow gazelles to occupy former range" and focus on maintaining the integrity of the steppe (preventing habitat fragmentation) and reducing illegal hunting. The Mongolian Ministry of Nature and Environment is the main implementer of species management plans in Mongolia, however, only one (snow leopard) has ever been adopted. WCS assessed the interest and capacity of a range of actors to implement a Mongolia gazelle management plan by forming a management plan committee and going through a formal plan review process. The management plan review committee (B. Lhagvasuren, Institute of Biology, Mongolian Academy of Sciences; J. Choikhand, International Cooperation Department, Ministry of Nature and Environment; D. Galbadrakh and Susan Antenan, The Nature Conservancy; and Kirk Olson and Amanda Fine, WCS) met on July 31, 2007, to make suggestions for final changes and additions to the document which will provide a road map for the long-term conservation of the Mongolian gazelle and grassland steppe of eastern Mongolia. The decision was made to take the finalized plan first to the Ministry of Nature and Environment (MNE), and then move to engage additional agencies with the assistance and leadership of the MNE. WCS staff also met with Zoological Society

of London staff visiting Mongolia outside the gazelle management plan review process. They too have an interest in identifying a process for the official adoption of species management plans in Mongolia, and the two programs will work together on this issue in FY08. The current draft of the Mongolian Gazelle Management and Action Plan is provided in Appendix A1.

4. *Conservation Education*: The Mongolian Gazelle, *Procapra guttorosa*, is featured in the “Great Plains” section of the landmark BBC TV series Planet Earth, which has captured some of the most spectacular footage of wildlife and natural events ever seen. The Mongolian gazelle is one of the Eastern Steppe Landscape Species and has been the focus of WCS research since 1998. WCS field staff worked closely with the BBC crew over three years (2002-2005) to facilitate their filming of the gazelle herds. The migration of this population across Mongolia is the last large-scale migration of ungulates in Asia. The “Great Plains” component of the BBC Planet Earth series was first shown in November 2006. The entire Planet Earth series is now available on DVD. The WCS-sponsored monthly conservation networking event showcased the episodes featuring Mongolia and regional wildlife in April 2007.
5. *Siberian Marmot Hunting Ban*: During FY07 WCS, in collaboration with the leadership of local community groups and aimag-level officials on the Eastern Steppe, has strengthened its relationship with the government by presenting letters and short reports calling for an extension of the ban on commercial hunting of marmots to the Mongolian Ministry of Nature and Environment. These sets of documents provide essential information to policy makers and wildlife managers on the design of appropriate programs for conserving marmots. In early December 2006, the ES-LLP received confirmation from the Ministry of Nature and Environment that a resolution had been passed extending the nationwide ban on hunting marmots in Mongolia for an additional two years, through 2008. This is an important achievement for the ES-LLP and others in the conservation community who have worked to halt and reverse the dramatic decline in the numbers of this economically and ecologically important species. Data generated by the WCS/USAID study of marmot populations on the Eastern Steppe (density, distribution, and an assessment of recovery) were cited as important evidence supporting the need to extend the marmot hunting ban to allow the population to recover to a point at which sustainable hunting is again possible. A presentation of the data collected by the ES-LLP, documenting the decline in marmot populations, is provided in Appendix A2. This presentation has been given in Mongolian and English to a broad group of stakeholders ranging from Mongolian wildlife biology students and government officials to members of the international ecological research and conservation communities.
6. *Eastern Steppe Economic Region*: In an effort to remain up-to-date on private and public sector actors in the Eastern Steppe, WCS staff attended a meeting in Choibalsan, Dornod Aimag, held between the 27<sup>th</sup> and 31<sup>st</sup> of October 2006, called the “Partnership for Development in the Eastern Region” which was organized by Dornod Aimag Government. Participants included the Deputy Prime Minister, Members of Parliament, government officials from the Eastern Aimags, and delegates from China, including business groups from Inner Mongolia and the governors of Khulunbuir and Xinganmeng provinces. A few highlights of specific initiatives of particular interest to the Eastern Steppe Living Landscapes Project include the following: 1) Expansion of the railroad infrastructure in the region; 2) Expansion of trans-boundary protected areas (presumably along the borders with both Russia and China); 3) Establishment of a “legal framework” for a Nomrog border point; 4) Review of the current plan for the Millennium Road with

plans to route it through Choibalsan and on to the Havriga border point; 5) The development of tourism in the Khalkah Gol (river) region; and 6) Financial support for irrigated agriculture. Understanding the current plans for development of the Eastern Steppe Economic Region (Khentii, Dornod and Sukhbaatar Aimags) will allow WCS and our partners in the conservation community to provide guidance for mitigating the potential negative environmental impacts associated with the development of the region in the four identified focus areas: 1) Infrastructure and tourism; 2) Mineral resources and environment; 3) Agriculture, manufacturing, and services; and 4) Human development and social welfare. A follow-up Mongolian-language report summarizing the “Partnership for Development in the Eastern Region” was compiled by WCS staff to update our database and to distribute to the conservation community in Ulaanbaatar.

7. *Government of Mongolia and External Partners Meeting*: On April 3<sup>rd</sup> and 4<sup>th</sup> 2007, ES-LLP staff attended the Government of Mongolia and External Partners Meeting and participated in the “Rural Development and Environment” working group sessions. The meeting was held to present and comment on the Government of Mongolia’s “National Development Strategy” and provided an opportunity to bring livelihood and wildlife conservation issues on the Eastern Steppe to the attention of national and international policy makers and the development community.
8. *World Environment Day*: The WCS Mongolia Program participated in the United Nations Development Program-led Environmental Protection Campaign in Ulaanbaatar in May 2007. The campaign comprised of a series of conservation education and awareness activities leading up to World Environment Day on June 5, 2007. The WCS Mongolia program helped create the Ulaanbaatar Environment Campaign poster series which features five of Mongolia’s endangered or threatened species: the Mongolian Saiga, Altai Snow-cock, Hulan (Wild Ass), Taimen and Siberian marmot.

### **Donor/NGO Coordination**

A lack of full coordination among international donor-funded projects and national and international environmental NGOs continues to reduce the effectiveness and impact of conservation efforts in Mongolia. The Eastern Steppe Living Landscape Project strives to improve donor/NGO coordination by taking advantage of opportunities to exchange information and identifying areas of cooperation among various players in the wildlife and natural resources sectors in Mongolia.

1. WCS staff attended two German Technical Cooperation (GTZ)-sponsored workshops in November 2006. The first focused on community-based natural resource management in community protected areas in the Khan Khentii Region and provided the opportunity to compare lessons learned from community-centered conservation projects across Mongolia. The various initiatives were assessed based on their success in upholding the “pillars of protected areas”, which include: 1) Ecological Integrity; 2) Governance; 3) Social Participation and Empowerment; and 4) Financial Sustainability. Through workgroup session discussions, WCS staff members were able to share information and gather feedback from other project supervisors on the activities and structure of the Eastern Mongolian Community Conservation Association, and to suggest herder exchanges through the projects that have been scheduled for FY08. The second workshop focused on protected area ranger training. The WCS program’s work with the Nomrog Strictly Protected Area was used as an example of the potential for interagency collaboration (State Border Defense Agency, State Specialized Inspection Agency and Protected Area Authority) in wildlife monitoring and protection in the many parks and

protected areas that are located in border regions. Participants at the GTZ workshop agreed to collaborate on the development of a nationally accepted, uniform ranger training curriculum. WCS provided the ranger training materials --developed, tested and updated in September 2006-- to the Nomrog Strictly Protected Area wildlife protection and law enforcement training initiative.

2. In February 2007, WCS Mongolia Country Program Director Amanda Fine attended an informal meeting with World Bank representatives and colleagues from the World Wide Fund for Nature (WWF-Mongolia) and the German Technical Cooperation (GTZ)'s "Conservation and Sustainable Management of Natural Resources" project in Mongolia to discuss priorities and next steps in addressing the devastating declines in the population levels of many wildlife species in Mongolia due to over-hunting and illegal wildlife trade. The declines were highlighted in the 2006 discussion paper published by WCS and the World Bank entitled "The Silent Steppe: The Illegal Wildlife Trade Crisis". The group will write a joint proposal for funding from the World Bank's Netherlands Trust Fund for Environmental Reform to support a 4-year project directed at breaking the trade chain for illegal wildlife in Mongolia.
3. On April 5<sup>th</sup> 2007, WCS Mongolia staff attended the Education for Sustainable Development in Mongolia conference which presented a 4-year program, implemented by the World Wide Fund for Nature (WWF-Mongolia) and funded by the Swedish International Development Cooperation Agency, designed to promote the sustainable use of natural resources in Mongolia. The WCS/USAID LLP staff had the opportunity to review examples and case studies from the WWF project sites in western Mongolia and to discuss the potential of expanding the program into the Eastern Steppe.
4. On April 18<sup>th</sup> and 19<sup>th</sup> 2007, WCS Mongolia staff attended a workshop entitled "Towards the Identification and Safeguarding of Important Areas of Natural Habitat in Mongolia," convened by the Mongolian Ministry of Nature and Environment and The World Bank, and organized by BirdLife International and the Wildlife Science and Conservation Center. The focus of the workshop was on updating the current list of 41 Important Bird Areas (IBAs) in Mongolia and producing a list of additional IBAs which need to be investigated further. The ES-LLP contributed significantly by providing data collected during the 2004 important bird area surveys of the Eastern Steppe and by providing information on bird counts, species and lakes surveyed during the 2005 and 2006 avian influenza field seasons. This information is considered key to understanding the potential impacts of development in Mongolia, and will serve as a means of safeguarding key areas for birds, wildlife and overall biodiversity in the Eastern Steppe region and beyond.
5. On July 2, 2007, project GIS/Remote Sensing specialist Mr. Ochirkhuyag presented the conservation planning component of the ES-LLP to the advisory committee of the Eastern Steppe "Zuun Bus" partnership for sustainable development and conservation of the Eastern Steppe region. The "Zuun Bus" partnership advisory committee is made up of representatives from the Mongolian Ministry of Nature and Environment, the Academy of Sciences, The Nature Conservancy, WWF-Mongolia, WCS-Mongolia and the Dutch-funded National Geo-Information Center for Natural Resource Management. Components of the WCS Landscape Species Approach (LSA) to conservation of the Eastern Steppe region of Mongolia will be adopted and carried forward by the "Zuun Bus" partnership. This collaborative effort expands the potential impact of the Landscape Species Approach by broadening the group of stakeholders using LSA tools to identify conservation opportunities and priorities in the Eastern Steppe based on the

diverse ecological needs of key wildlife species and the geographic location and severity of wildlife/human conflict.

### **Training and Capacity Building/Collaborative Research**

The Eastern Steppe Living Landscape Project continues to build our relationships with Mongolian academic institutions.

1. Country Program Director Amanda Fine was invited to attend the annual Scientific Council Meeting of the Ecology Laboratory, Institute of Biology, Mongolian Academy of Sciences, in mid-December 2006. Additionally, WCS Mongolia program GIS specialist Mr. L. Ochirkhuyag and gazelle biologist Ms. S. Bolorsetseg were invited to attend a conference at the National University of Mongolia which focused on establishing a network for long-term ecological research in the region. Both of these meetings provided opportunities for WCS scientists to contribute to the long-term national efforts to develop sound wildlife management practices in Mongolia. In addition, the meetings provided a forum through which the ES-LLP can build on and disseminate lessons learned through efforts to conserve wildlife on the Eastern Steppe.

### **Protected Areas and Stakeholders on the Eastern Steppe**

The WCS Mongolia program keeps up-to-date with changes in leadership in key governmental organizations on the Eastern Steppe, with special attention paid to the Protected Area Administration.

1. In December 2006, ES-LLP staff met with the newly appointed director of the Eastern Steppe Protected Area Administration (PAA), Mr. Unenbat. The meeting gave the ES-LLP the opportunity to meet with the entire Eastern Steppe PAA staff, who provided updates on field projects and conservation activities in the region. Of note was the announcement of the creation of a separate administrative structure, the Nomrog Strictly Protected Area (SPA). The location of Nomrog SPA - on the Mongolian border with China - exposes it to significant cross-border poaching, as well as threats linked to the planned development of major infrastructure. The ES-LLP has been working on the development of a collaborative wildlife protection program in Nomrog SPA, and the establishment of a separate park administration with a dedicated staff of rangers and wildlife specialists, to improve the likelihood of success in the conservation of this important region of Mongolia.
2. In March 2007, the ES-LLP received proposals for collaborative research and conservation initiatives from Mr. Unenbat, as follow-up to our mid-December introductory meetings. The ES-LLP has also received a letter from Mr. Dashdorj, the director of the newly created administrative unit for the Nomrog SPA, expressing an interest in collaborative work. The ES-LLP works to strengthen the capacity of stakeholders on the Eastern Steppe involved in wildlife conservation and management, including the PAA. The PAA is interested in the expansion of the WCS collaborative wildlife protection program initiated in Nomrog SPA in September of 2005.

### **Activity 1.3 Develop an adaptive, participatory and spatially explicit strategy for threat abatement and landscape conservation**

#### **Activity 1.3.1 The Suite of Eastern Steppe Landscape Species will be presented to partners and Eastern Steppe stakeholders for comment and acceptance**

Our suite of focal conservation targets, called Landscape Species, provides the backbone of the Landscape Species Approach (LSA). Landscape Species are selected based on criteria such as their area requirements, use of different habitats, vulnerability to multiple threats, socio-economic significance, and ecological functionality. During FY07, the methods for selecting Landscape Species and an initial suite of Landscape Species was presented to stakeholders and conservation partners in a participatory, peer-review process. Initial meetings and a conference were held with species experts to review the data used for species selection, and the results were presented to a broader audience as described below.

*Ulaanbaatar-Based Stakeholder Workshop:* The ES-LLP held a stakeholder workshop in Ulaanbaatar on October 3, 2006. Over 60 individuals participated, including representatives from the Mongolian Ministry of Nature and Environment, the State Specialized Inspection Agency, Mongolian academic and research organizations and international and local NGOs working in the environmental sector. The workshop was designed to update local partners on progress made by the ES-LLP and to provide a forum for comment and feedback on three major components of the Living Landscape Program's conservation planning process: the suite of Landscape Species, and Biological and Human Landscapes. The workshop was covered by Mongolian print and TV media. After the workshop, participant feedback was used to revise the selection process and the final suite produced. The updated information will be provided to aimag- and community-level stakeholders at similar informational workshops in the early spring of 2008, in preparation for the finalization of Conservation Landscapes (models used to identify conservation opportunities and priorities based on the diverse ecological needs of key wildlife species and the geographic location and severity of wildlife/human conflict) for the Eastern Steppe.

In May 2007, ES-LLP GIS/Remote Sensing Specialist Mr. Ochirkhuyag Lkhamjav trained Eastern Steppe protected area staff on the use of the WCS Landscape Species Selection (LSS) software. The LSS software and necessary files were provided, and Ochirkhuyag worked with the protected area staff to develop a candidate Landscape Species database for Ugtum protected area as an initial LSS project.

#### **Activity 1.3.2 Develop a spatially explicit representation for threat abatement and landscape conservation**

Mr. Ochirkhuyag worked in close collaboration with Dr. Karl Didier, Dr. Eric Sanderson, and Gosia Bryja from the New York-based Coordination Unit to update the Mongolia program's Eastern Steppe spatial database and move forward with the mapping of Human/threat Landscapes and Biological Landscapes for the Eastern Steppe Landscape Species. Relationships with key stakeholders and conservation partners continued to be essential to the efforts of collecting timely and accurate information describing human land uses, natural vegetation cover, infrastructure, and species-specific distribution information. This effort continues to be time consuming in Mongolia where information is "protected" and the concept of "public access databases" is still a very foreign idea.

The program continued to update the Eastern Steppe GIS database with information available from the State Specialized Inspection Agency (illegal hunting/poaching), the Ministry of Food and Agriculture, Veterinary Department (livestock disease data), the Mongolian National Statistics Office (human population distribution), the National Remote Sensing Center (maps, water and weather data) and the Geology Information Center (mining and exploration data). In FY07, the project also gained access to aimag-level demographic and livestock distribution data which allowed for a more precise mapping of local or “village” hunting/poaching threat and the risk of livestock disease and overgrazing. A detailed map of locally protected areas (soum or aimag-level) and community protected areas was also developed in FY07 from information collected in collaboration with the Eastern Mongolian Community Conservation Association. An updated map of protected areas (national, local and community) is provided in Appendix A3. This map represents the first effort to geo-reference locally and community protected areas in Mongolia and allows us to more explicitly describe the extent of the protected area network on the Eastern Steppe.

Contributions to the process of building a spatially explicit representation of threat abatement and landscape conservation on the Eastern Steppe in FY07 are described below:

In collaboration with Drs. Karl Didier, Eric Sanderson, and Gosia Bryja, Mr. Ochirkhuyag incorporated the above spatial data into a process for mapping:

- Biological Landscapes (the potential and current distribution of Landscape Species)
- Human/Threat Landscapes (the distribution of human activities which threaten biodiversity)
- Conservation Landscapes (areas of potential conservation impact and priorities for action)

First-version Biological Landscapes were created for all Landscape Species, and Human Landscapes were developed for Hunting and Poaching, Overgrazing of Pasture, Livestock-Wildlife Disease, and Mining and Infrastructure Development. These were presented for review by stakeholders and species experts at the Ulaanbaatar workshop in October 2006. Human Landscapes and Biological Landscapes for three species (Mongolian gazelle, white-naped crane, and saker falcon) were revised based on information collected at the workshop. The Biological and Human Landscapes were then used to create Conservation Landscapes for each of the three species, and results were presented at the WCS Living Landscapes Program Annual Meeting in the Adirondacks, NY May 2-8, 2007. These maps are included in Appendix A4.

The process for creating Biological and Human Landscapes outlined above was more time-intensive than originally thought. Therefore, participation of local (aimag-level) stakeholders and members of Eastern Steppe livestock herding communities in the Landscape Species Approach and review process has progressed differently than originally envisioned. Engagement with local wildlife managers and officials on the Eastern Steppe has been more direct and focused on interventions. To date, local wildlife managers and officials have been less involved than predicted in our efforts to have stakeholders look at the conservation planning process across the broader Eastern Steppe region. Similarly, work with livestock herder conservation communities has progressed to the designation of community protected areas and the development of local wildlife protection and conservation plans. Ulaanbaatar-based stakeholder workshops have been used to raise support for the process as a whole. In FY08, increased effort will be made to integrate local and community-led initiatives into overall conservation planning for the Eastern Steppe region, with a series of aimag-level workshops scheduled for the spring of 2008.

### **Activity 1.3.3 Identification of points for critical action to conserve Eastern Steppe Landscape Species**

The primary LLP tool for identifying points critical for conservation in large landscapes like the Eastern Steppe is the Conservation Landscape. During the first three years of the ES-LLP, the project focused a portion of its resources on collecting basic biological information (population numbers, habitat preferences, reproductive rates, behavior, resource needs, etc.) for key Eastern Steppe Landscape Species candidates, primarily the Mongolian gazelle and Siberian marmot. This continues to be critical to the design of effective and appropriate threat-reducing interventions. In FY07, field-based projects on the Mongolian gazelle and Siberian marmot continued (and are described in detail below). However, efforts were made to identify Conservation Landscapes for Mongolian gazelle, saker falcon and white-naped crane, with plans to extend this effort to the remaining five members of the suite of Eastern Steppe Landscape Species in FY08.

Creating the Conservation Landscapes progressed as described below.

#### **Human Landscape Adjustments for Conservation Landscapes**

Monitoring ger (livestock herder camp) locations using satellite imagery in FY07 was unsuccessful. Instead, the project has collected information on the locations of livestock herder camps by researching livestock numbers and the number of herder families registered in sub-administrative units called bags. WCS staff met with the Daqing (Petro China) oil company in FY07 to request more specific information about the company's oil drilling and infrastructure development plans in the Eastern Steppe. Only long-term plans, which involve the establishment of a pipeline with plans to bury it underground across some portion of Eastern Mongolia, were discussed.

#### **Setting Landscape Species Population Targets**

We undertook a process in the winter/spring of 2007 to set population targets for the Eastern Steppe Landscape Species and build **Conservation Landscapes**. Steps included the following: 1) setting specific targets levels (population levels) for selected Eastern Steppe Landscape Species; 2) translating the biological landscapes into abundances (e.g., number of gazelle); 3) combining the biological and threat landscapes to create a map of the current distribution and a map of potential conservation impacts on selected species; and 4) annotating the maps, noting explicitly where the project is working and/or plans to work and the specific interventions being implemented. Mongolian species experts and WCS staff were consulted throughout this process and the outputs were presented at the LLP annual meeting in May 2007.

#### **LLP Annual Meeting, Adirondacks, NY**

Between May 1<sup>st</sup> and 8<sup>th</sup>, the ES-LLP team joined WCS staff from 13 other global Living Landscape sites in the Adirondack Mountains of New York at the annual Living Landscapes meeting. Representatives from LLP sites in Asia, North America, Africa and Latin America presented the **Conservation Landscapes** from their sites. The suite of Eastern Steppe Landscape Species, biological models and final conservation landscapes were presented by Ochirkhuyag Lkhamjav, Eastern Steppe GIS specialist, and Amanda Fine, Mongolia Country Program Director. In addition to comparing the **Landscape Species Approach (LSA)** across the various landscapes, the participants drafted a series of briefs designed to guide the future application of the Landscape Species Approach.

### **Presentation of Conservation Landscapes/Results to Date**

The presentation prepared by ES-LLP staff for the 2007 Annual LLP Meeting is presented in Appendix A4. The presentation summarizes the entire Landscape Species Approach from the selection of Landscape Species to the building of biological and threat landscapes and draft conservation landscapes for three of the Eastern Steppe Landscape Species (the Mongolian gazelle, white-naped crane and saker falcon).

The collection of critical data for the conservation and management of two key Eastern Steppe Landscape Species, the Mongolian gazelle and Siberian marmot, continued in FY07. The process of constructing biological, human and conservation landscapes for the Eastern Steppe confirmed the need to focus on the Mongolian gazelle, but also highlighted the need to collect information about the winter distribution of the Mongolian gazelle as their needs and habitat use during the winter season is not understood. The LSA also helped to prioritize future species-specific research projects should the resources become available, including expanding the Siberian marmot research described below. Field-based work and continued collaborative research efforts are described below:

### **Mongolian Gazelle Research**

The Mongolian gazelle, an Eastern Steppe Landscape Species, is important to the livelihood of livestock herders living on the Eastern Steppe and the ecological integrity of the steppe ecosystem. WCS has worked to collect information necessary to manage and conserve the Mongolian gazelle since the late 1990's by studying the migratory behavior and distribution of the population and making estimates of its population size.

*WCS Range-wide Mongolian Gazelle survey:* A range-wide survey to estimate the population size of Mongolian gazelle east of the Beijing-Ulaanbaatar railroad was completed in June of 2005. The survey covered a total of 5,184 km over a 223,000 km<sup>2</sup> region. Sampling was performed in four regions (Kherlen River North, Meningin Steppe, Central Steppe, and Western Steppe) along North-South lines at 30 and 60 kilometer intervals. Based on this survey and its analysis, the population of Mongolian gazelle east of the railroad was estimated to be 1,290,000±16%CV. This potentially represents a near 50% decline in population size since 1994 when a range-wide survey was conducted using an Antonov 2 plane. The gazelle population data collected during the 2005 survey was further analyzed in 2006, to investigate factors that may be influencing Mongolian gazelle migration patterns and their use of different areas of the steppe. Factors investigated included: herder/livestock presence, pasture productivity (NDVI data), distribution of micro-minerals and the presence/absence of biting insects.

*Research Collaboration:* In August 2006, Thomas Mueller from the Conservation and Research Center of the Smithsonian Institution worked with the WCS Mongolian gazelle project to refine the “resource predictability and movement strategy” models and plan future collaboration.

In 2006, collaboration also continued with Dr. Ito Takehiko from the Arid Land Research Center at Tottori University, Japan, and the Mongolian Academy of Sciences. In October 2005, the Mongolian gazelle team assisted with the satellite collaring of four gazelle captured to the east and west of the Mongolia-China railroad. Data from this collaborative effort will improve our understanding of gazelle movements and habitat requirements on the eastern edge of their current range and the impact of the trans-Mongolian railroad on gazelle movement patterns in the region.

In FY07, progress continued on the “Population Genetics of Mongolian Gazelles” project in collaboration with Niko Balkenhol and Lisette Waits at the University of Idaho. Preliminary results were completed in December 2006. Samples were collected throughout the range of

Mongolian gazelles, and by comparing 10 microsatellite loci the samples were found to have a very high degree of genetic variation and no evident geographical distinction, providing additional evidence that the gazelle population is a single large, panmictic population. Current efforts to isolate microsatellite loci specific to Mongolian gazelle will allow us to determine any recent genetic differences that may have evolved.

Dr. Seiki Takatsuki at the Tokyo University, Japan, continues to process fecal samples submitted by the WCS Mongolian Gazelle project in an effort to describe food resource overlap between Mongolian Gazelle and livestock on the Eastern Steppe.

*Eastern Steppe Site Visit:* In preparation for the 2007 WCS Donor Trip to the Eastern Steppe (June 12 – July 9, 2007), Kirk Olson had the opportunity to visit and make observations in and around the Toson Hulstai Nature Reserve, the Kherlen River and Da Qing Oil fields in Dornod aimag and portions of Khentii aimag (Ugtam Nature Reserve area, Zuun Chonor and Bayan Uul) during his return trip to Ulaanbaatar. Observations in and around Toson Hulstai included evidence of poaching, overgrazing and high densities of livestock herder winter camps in the reserve, as well as high densities of herders with their livestock along the Kherlen river and around springs, limiting gazelle access to these areas. In the Da Qing Oil field fire suppression and evidence of overgrazing by livestock was observed, presumably due to livestock herders settling in the region to provide meat and livestock products to the Da Qing base.

### **Siberian Marmot Population Assessment—Identifying Conservation Strategies and Management Options**

Populations of the Siberian marmot, an Eastern Steppe Landscape Species of importance to the livelihood of livestock herders living on the Eastern Steppe and the ecological integrity of the steppe ecosystem, have experienced a dramatic decline in the last 10 years across Mongolia, due primarily to over-hunting for the fur trade. The ES-LLP has worked to monitor the population size and distribution of marmots on the Eastern Steppe since 2005. The evidence collected by the Eastern Steppe marmot survey team has been used to support the extension of the Government of Mongolia's ban on marmot hunting—a policy put in place to allow marmot populations to rebound across the country to a level at which hunting for subsistence and small-scale fur trade can again be practiced at a sustainable rate.

*Siberian Marmot Population Assessment (2006):* In June through August of 2006, ES-LLP staff repeated the marmot population survey conducted in 2005 to expand our understanding of marmot distribution and density in the Eastern Steppe of Mongolia (Dornod, Sukhbaatar, and Khenti aimags). Data collected in 2006 was analyzed over the winter and combined with data collected in 2005 in an effort to assess population trends and determine whether or not the marmot population has begun to rebound as a result of the two-year national hunting ban. The evidence collected by the Eastern Steppe marmot survey team indicates that marmot populations on the Eastern Steppe are still well below expected numbers. These data have been used to support the extension of the government's ban on marmot hunting for an additional 2 years. Dr. Samantha Strindberg of the New York-based Coordination Unit, who assisted with the design for the 2005 marmot population survey on the Eastern Steppe, used the results of this first survey to revise and improve the design for the survey that took place in 2006 and again in 2007.

*Siberian Marmot Population Surveys (2007):* A team of scientists, including WCS Research Associate Dr. Susan Townsend, field biologist Ms. O. Chimedtseren, and assistant researcher Mr. Enkhbat, began the 2007 survey of the Eastern Steppe marmot population in early June. The 2007 survey effort was modified to fill in data gaps in the three-year study designed to monitor the population size and distribution of marmots on the Eastern Steppe. Seven 20-km driving line

transects were completed in Khentii aimag, 8 line transects in Sukhbaatar aimag and 8 line transects in Dornod aimag. The survey technique was also adapted to horseback transects and tested in Ugtam Nature Reserve, Dornod aimag. The 2007 data is currently being analyzed and will be added to the data collected in 2005 and 2006.

A copy of the scientific paper published in the Mongolian Journal of Biological Sciences entitled “Mongolian Marmot Crisis: Status of the Siberian Marmot in the Eastern Steppe” by Susan E. Townsend and Peter Zahler is provided in Appendix A5.

**OBJECTIVE 2: Develop and implement sustainable and adaptive mechanisms to strategically address threats across the landscape**

**Activity 2.1 Establish necessary management mechanisms**

The WCS Mongolia program has been a leader in addressing unsustainable hunting and wildlife trade in Mongolia since the publication of an extensive and detailed report in 2006 on illegal wildlife trade, entitled “The Silent Steppe: the Illegal Wildlife Trade Crisis in Mongolia”. The report was written by WCS as a follow-up to the 2005 wildlife trade study implemented by WCS and funded by the World Bank’s Netherlands-Mongolia Trust for Environmental Reform. Initiatives listed under this project are designed as follow-up to the 2005 study. The activities range from building national and international awareness of the severe wildlife population declines in Mongolia due to over-hunting and uncontrolled wildlife trade, to reviewing the legal framework for wildlife trade law enforcement and hunting management in Mongolia and presenting specific recommendations for additions and amendments to the Mongolian Law on Hunting to the Ministry of Nature and Environment.

**Over-Hunting and Illegal Wildlife Trade: Raising Awareness**

*Publications on Wildlife Trade in Mongolia:* The WCS program requested a re-printing of the detailed report on illegal wildlife trade in Mongolia, entitled “The Silent Steppe: the Illegal Wildlife Trade Crisis in Mongolia,” due to the continued high demand for this 2006 publication.

*Mongolian TV Programs:* In December 2006, the WWF-Mongolia Program used material from the Silent Steppe Report and outputs from the 2005 conference on wildlife trade for a TV series examining environment policy in Mongolia and the gaps that currently exist in the areas of wildlife protection and hunting management.

**Training and Capacity Building**

*Enforcement of Wildlife Trade Law:* WCS worked with the U.S. Embassy of Mongolia and TRAFFIC Russia and East Asia, an international organization focused on preventing the illegal trade of wildlife and wildlife products, to identify Mongolian participants to attend a training funded by the Bureau of Oceans and International Environmental and Scientific Affairs (OIES). This training was designed to address emerging issues surrounding illegal trade in wildlife resources (tigers, musk deer, saiga antelope, etc.), and the roles of China, Russia and Mongolia. Unfortunately, the 2006 training conference was cancelled but it has been rescheduled for the fall of 2007. Subsequently WCS, the U.S. Embassy of Mongolia and TRAFFIC East Asia collaborated on the drafting of a proposal to OIES for a Mongolia-based wildlife trade enforcement training program. The program seeks to raise the awareness and capacity of Mongolian Customs officials and conservation partners in the border regions to identify illegal wildlife trade and to collaborate to reduce and prevent its occurrence.

### **Legal Reform: Improving Hunting Management and Wildlife Trade Law Enforcement**

*Legal Framework Gap Analysis:* In the fall of 2006, a detailed WCS-led review of the legal framework for wildlife trade law enforcement and hunting management in Mongolia was completed. The gap analysis consisted of a comparative analysis of: 1) the list of wildlife management needs identified from the survey and conference conducted in the context of the World Bank Wildlife Trade Assessment in the summer and fall of 2005; and 2) existing legislation, regulation and implementation. The legislative review was performed with the assistance of a Mongolian environmental law specialist, P. Odgerel. Research was conducted to identify current legislation at either the national (government policies, legislative acts, resolutions from the prime minister) or regional (ministerial resolutions, local) level which either directly or indirectly regulates hunting and trade, or, in the opinion of those interviewed, has a significant impact on the subject. Finally, the gap analysis compares the identified needs with existing law and practice in order to identify gaps and conflicts. The results were organized under the following broad headings:

- ✓ Improving financing for wildlife management;
- ✓ Establishing an institutional basis for national management;
- ✓ Establishing a legal basis for local management;
- ✓ Defining mechanisms and requirements for Interagency Coordination and Cooperation;
- ✓ Defining mechanisms and requirements for improving systematic knowledge of wildlife populations;
- ✓ Ensuring a scientific basis for wildlife uses and management;
- ✓ Designing a permit and license system for household, sport, and trophy hunting and fishing;
- ✓ Designing a permit and license system for hunting and fishing tourism operators and industrial hunting operators;
- ✓ Developing enforcement tools and revising the list of illegal actions;
- ✓ Developing controls and enforcement tools for international wildlife trade;
- ✓ Developing controls and enforcement tools for national wildlife trade;
- ✓ Improving dispute resolution tools; and
- ✓ Improving the use of economic incentives and disincentives to wildlife management.

The overall conclusion of the gap analysis was that the major piece of legislation in need of review, additions and recommendations for amendment was the Mongolian Law on Hunting. This work continued through the spring of 2007 as described below. A full report on the GAP analysis and review of the Mongolian Law on Hunting is available in Appendix A6.

*Mongolian Law on Hunting:* The results of the WCS-led review of the legal framework for wildlife trade law enforcement and hunting management in Mongolia were presented to the Ministry of Nature and Environment in March of 2007. The report summarizes the gaps in the current law and presents specific recommendations for additions and amendments to the Mongolian Law on Hunting. The report was reviewed by a working group established by the Ministry of Nature and Environment in April 2007. It is expected that further review, comment, additions and recommendations will be completed in time to present the changes to the Mongolian parliament during the 2007 fall session. The proposed amendments to the Mongolian Law on Hunting respond to the legislative and management gaps and conflicts identified during the gap analysis, in addition to data collected during several workshops and studies over the past several years concerning Mongolia's wildlife and the impacts of hunting and trade. The key changes to the current hunting law are outlined in an executive summary provided in Appendix A7.

*Mongolian Law on Hunting, Follow-Up:* The first meeting of the working group formed by the Ministry of Nature and Environment to discuss the revision of the Mongolian Law on Hunting was held in April, 2007. The WCS Wildlife Trade Specialist, Ms. N. Odonchimeg, attended and participated in the working group meeting. Suggestions for additions and changes to the law were solicited from a broad range of stakeholders in the wildlife community from academic and research institutions, conservation NGOs, government enforcement agencies and the private sector. WCS presented a summary of the review of the legal framework for wildlife trade law enforcement and hunting management in Mongolia completed in early 2007 and distributed the final report which summarizes the gaps in the current law and presents specific recommendations for additions and amendments. Reports indicate that changing the Mongolian Law on Hunting is a priority for the Ministry of Nature and Environment but not necessarily for the Mongolian parliament. Delays are expected.

## **Activity 2.2 Enhance local capacity to implement the strategy**

### **Activity 2.2.1 Enhance Local Institutional Capacity**

The Nomrog Strictly Protected Area (SPA), located in Mongolia's Eastern Steppe, supports populations of a number of regionally and globally threatened wildlife species including Red Deer, Roe Deer, Eastern Moose, Grey Wolf, and Lynx. The reserve is threatened by a range of factors resulting in the unsustainable harvest of wildlife caused by: 1) cross-border incursions, encroachment and poaching by foreign nationals; 2) poaching and habitat destruction by government staff members who live in the protected areas; and 3) poaching by influential Mongolian and foreign outsiders. The "Wildlife Protection Training Program" for field staff within Nomrog SPA is designed to enhance wildlife protection in the SPA and highlight the important role of law enforcement staff in conservation. The long-term goal is to strengthen the legal and enforcement capacity in Nomrog SPA through a "Collaborative Wildlife Protection Program" which involves State Border Defense Agency staff, SPA park rangers and state environmental inspectors in wildlife conservation activities within Nomrog SPA.

#### **Pre-Training Planning**

*Stakeholder Meetings:* Following a 2005 assessment performed by Tony Lynam, the WCS Asia Training and Capacity Development Director, Tony and the ES-LLP designed a wildlife protection and law enforcement training course for Nomrog SPA as the 1<sup>st</sup> of what we hope will be multiple trainings and subsequent implementation of a "Collaborative Wildlife Protection Program" within the park, involving agencies, local governments and communities with jurisdiction for wildlife protection in the Eastern Steppe border regions. Preparatory work for this project took place between November 2005 and June 2006, and included individual meetings with all of the invited stakeholders, including the State Border Defense Agency (SBDA), State Specialized Inspection Agency (SSIA), Sumber Soum Government, Dornod Aimag Environmental Agency, Dornod and Nomrog Protected Area Authority.

*Participant and Trainer Selection:* Training program participants and trainers were selected in June through August 2006. Training participants were drawn primarily from the Nomrog SPA border guard posts as these are the individuals who live, work and patrol within the SPA. Additional training participants included the SPA rangers and Sumber Soum and Dornod aimag level representatives from the SBDA, SSIA and PAA. The training team was made up of two international experts/consultant, the WCS Asia Regional Training and Capacity Development Director, WCS gazelle biologist Kirk Olson, 3 WCS local staff members, two representatives from the Ulaanbaatar SSIA headquarters, 1 from the Ulaanbaatar SBDA headquarters and the

Governor of Sumber Soum, a former park ranger in Nomrog SPA. The list of trainers and participants is below:

- SBDA Ulaanbaatar Officials (1 staff)
- SBDA Dornod (1 staff)
- SBDA Sumber Soum (1 staff)
- SBDA Nomrog Guard posts (10 staff)
- PAA Dornod Aimag (2 staff)
- PAA Nomrog SPA rangers (2 staff)
- State Inspector Dornod Aimag (1 staff)
- Sumber Soum Government (Governor) (1 staff)
- International Experts/Consultants (2 staff)
- WCS Staff (Regional & Local) (5 staff)

*Draft Training Manual & Training Materials:* A 15-module training handbook was developed, reviewed and translated into Mongolian. The modules were accompanied by PowerPoint presentations and lectures. These materials were piloted during the September 2006 training and comments were gathered for further additions and improvements. A selection of field guides and basic wildlife monitoring equipment were purchased to provide to 3 teams of State Border Defense Agency guards, 1 team from the Protected Area Authority and 1 from the Environmental Inspection Agency of Sumber soum.

#### **Wildlife Protection Training 2006**

A full report of the wildlife law enforcement training workshop conducted between September 2<sup>nd</sup> and 14<sup>th</sup> 2006 in the Nomrog SPA in eastern Mongolia is provided in Appendix A8.

#### **Wildlife Protection Training Follow-Up**

*Site Visit:* In December 2006, ES-LLP staff traveled to Sumber Soum of Dornod Aimag and the Nomrog Strictly Protected Area (SPA) to evaluate the success of the “Wildlife Protection Training Program” delivered by WCS regional specialists in September 2006. Key stakeholders and training participants included the State Border Defense Agency (SBDA), the Protected Area Administration (PAA), the State Specialized Inspection Agency (environmental inspectors), Aimag and Soum-level government officials and members of the Nomrog SPA buffer zone council. Participants were pleased with the outcomes of the training, collaborative wildlife monitoring activities developed during the training were in place, and the equipment provided was being cared for and used appropriately. The SBDA guards at the Nomrog post reported discovering and destroying two wildlife poaching camps and disrupting a series of traps and snares set by poachers in the SPA. The SBDA staff is stationed within the reserve and is its only permanent human residents. Their continued efforts to protect wildlife will be an essential component of the “Collaborative Wildlife Protection Program” for Nomrog SPA.

*Additional Training Requests:* The success of the “Wildlife Protection Training Program” delivered by WCS regional specialists in September 2006 to Nomrog SPA stakeholders including the SBDA, PAA, the State Specialized Inspection Agency (environmental inspectors), Aimag and Soum-level government officials and members of the Nomrog SPA buffer zone council, led to requests to expand this component of the Collaborative Wildlife Protection Program to other protected areas in the Eastern Steppe which were received by the WCS Ulaanbaatar offices in January 2007.

*Planning Second Phase of Training:* In response to proposals received in January from the director of the Eastern Steppe Protected Area Administration (PAA) and the director or the newly created administrative unit for the Nomrog Strictly Protected Area (SPA), ES-LLP staff began work on the second phase of the Nomrog training in the spring of 2007. The second phase will incorporate the staff of the new Nomrog Protected Area Administration as well as representatives from the 15 volunteer community rangers identified by the PAA. This project strengthens wildlife protection in the Eastern Steppe by promoting collaboration among the Protected Area Administration, State Border Defense Agency (SBDA), the State Specialized Inspection Agency (environmental inspectors), Aimag and Soum-level government officials, members of the Nomrog SPA buffer zone council and volunteer community rangers. The collaborative approach is promoted as a means of pooling the limited resources each of these entities has available to devote to wildlife protection.

### **Activity 2.2.2 Enhance Local Community Capacity**

As stated in previous reports, community-conservation initiatives with livestock herders on the Eastern Steppe are faced with logistical issues that arise due to the nomadic nature of the society. Shifting grazing patterns and a complex system of land use make physically identifying a “community” more challenging. In this reporting period, however, the ES-LLP has made great progress in its efforts to engage communities of livestock herders on the Eastern Steppe and foster effective wildlife protection and community-based management of natural resources. We have worked very closely with the Eastern Mongolian Community Conservation Association (EMCCA) which continues to act as the umbrella organization for the groups of livestock herders on the Eastern Steppe engaged in community-led wildlife protection and management. The ES-LLP has provided technical assistance and encouragement through trainings, site visits and regular planning meetings with the leadership of the EMCCA.

Efforts to support the establishment of a local protected area in and around Buir Lake have been less successful. Progress continues to be hindered by bureaucratic issues which the Eastern Steppe project has been unable to influence in any way. The eventual outcome of the protected area application process is currently unclear.

### **Community-Based Conservation: Workshops & Training**

WCS officially began its work with communities of livestock herders in the Eastern Steppe in FY06, when we hosted a Community-Based Natural Resource Management Community Workshop in association with the Eastern Mongolian Community Conservation Association (EMCCA) entitled “Procedures for Herding Community Natural Resource Ownership and Protection,” which was held from 20–22 July at the “Shaazan Nuur” Eco-camp in Dornod aimag.

1. *Workshop Report and Community-Protected Area Database:* The full report from the WCS-supported workshop series organized by the EMCCA entitled “Procedures for Herding Community Natural Resource Ownership and Protection” was completed in August 2006, and was provided as an appendix to the FY06 annual report. The report contained a profile of each of the herder community groups, environmental threats identified, wildlife conservation goals and a map and an initial inventory of the natural resources within their proposed management zones. The WCS program will continued to update this “database” with the profiles of new community protected areas on the Eastern Steppe throughout FY07.

2. *Workshop Follow-Up:* Eastern Steppe Living Landscape Program staff met with the leaders of the EMCCA in Choibalsan, Dornod Aimag, in December 2006 to receive updates on the progress of herder community groups working to obtain permission from their soum governments to manage and protect the natural resources within their traditional grazing lands. All of the herder groups who participated in the July workshop co-sponsored by the ES-LLP and the EMCCA have prepared and submitted their application materials. These contracts are an important first step in the establishment of community-based conservation on the Eastern Steppe. ES-LLP staff discussed plans for 2007 community activities with the leaders of the NGO which will involve a series of wildlife monitoring and protection initiatives.
3. *Community-Based Conservation Meeting:* ES-LLP staff attended the January meeting of the EMCCA which was held in Choibalsan, Dornod Aimag, on January 17<sup>th</sup> and 18<sup>th</sup>, 2007. Representatives from four newly formed livestock herder “natural resource conservation groups” attended the meetings, along with representatives from 11 established groups. With the assistance of the EMCCA, livestock herder communities on the Eastern Steppe have used an amendment of the environmental protection law to apply for the right to conserve and manage the natural resources in their traditional pasture lands. The ES-LLP will continue to support the EMCCA by providing technical assistance with a focus on the environmental monitoring and wildlife protection components of the livestock herder community conservation and management plans.
4. *Community-Based Conservation Workshop Planning:* In February, ES-LLP staff worked with the director of the EMCCA to plan a May workshop designed to provide the 1<sup>st</sup> phase of training to newly appointed community wildlife rangers. The ES-LLP has compiled material for a “community wildlife ranger manual” which will be used in the training and will be provided to community rangers. This initiative is an example of the technical assistance that ES-LLP is providing to the EMCCA members who have expressed an interest in engaging in environmental monitoring and wildlife protection as the main components of their community conservation activities.

#### **Community-Based Conservation: Community Ranger Training**

From May 13–23, three WCS Mongolia Program staff working on the Herder Community-Based Nature Conservation Project traveled to “Shazaan Nuur” Eco-camp in Dornod to participate in the first of two Herder Community Volunteer Ranger Trainings that were scheduled for this summer. A total of 14 volunteer rangers (4 women, 10 men) from herder communities participated in the training. Two staff from the EMCCA organized the workshop, and 5 representatives from the Protected Area Association and 2 from the Environmental Inspection Agency gave various presentations. Topics that were presented included: biodiversity in protected areas, community-based wildlife conservation management, environmental laws and policy, the status of wildlife and plants in Mongolia, sustainable development, biodiversity conservation activities in Mongolia, and the role and responsibilities of volunteer rangers. The training was well received by participants; they offered various suggestions for future trainings and plans were made for further collaboration and training. Participants were given a handbook containing outlines of all the presentations given during the training to share with members of their communities. Proceedings from the training were compiled, translated and distributed to all participants in August 2007. A copy of the proceedings from the Community Volunteer Ranger Training is provided in Appendix A9.

### **Community-Based Conservation Linking: Community-Protected Areas and National Protected Areas**

1. In June, the ES-LLP worked to bridge the current gap in communication and cooperation between community-protected areas on the Eastern Steppe and the Protected Area Administration (PAA) and its network of nationally protected areas. For three weeks in June and July, project staff worked in Ugtum Nature Reserve north of Choibalsan in Dornod aimag. In June, the team conducted a baseline survey of wildlife with participation from both PAA staff and community rangers from the EMCCA. The field work will be followed by a series of sessions at PAA headquarters in Choibalsan where data will be analyzed by the survey participants and presented in a format which will allow protected area managers easy access to the information necessary for the development of management plans, wildlife monitoring and enforcement of environmental law.
2. *Ugtam Nature Reserve Focused Wildlife Survey:* In late June/early July staff from the WCS Mongolia Program, representatives from the Dornod Protected Area Authority (PAA), and the local volunteer community ranger (a member of the EMCCA) collaborated to conduct a focused wildlife survey of Ugtam Nature Reserve in northern Dornod (13 people total: 7 female, 6 male). The volunteer and PAA rangers were able to work closely during the survey, forming a key link between a government entity and community herder group. Several methods were used to survey wildlife in the reserve, including track and camera stations, small mammal trapping, nightly spotlight surveys, surveys on foot, via horseback and by vehicle, and scan samples using spotting scopes and binoculars. A major goal of this field activity was to introduce and train Dornod PAA staff in wildlife survey and density estimation techniques. This activity also afforded an opportunity to meet with the local herder community group, Bayan Ukhaa, near Ugtam and discuss their goals and activities. The volunteer ranger from this group accompanied the other participants to Choibalsan and attended the subsequent training on wildlife survey techniques and data summary and analysis.
3. *Protected Area Administration/Community Ranger Training:* A workshop/training was held from July 4-6 to summarize data that were collected during the focused wildlife survey in Ugtam, and to teach data summary and analysis techniques. WCS staff, members of the PAA and Environmental Inspection Agency, and Ugtam's PA and volunteer rangers participated in this workshop/training (15 people total: 8 female, 7 male). Species lists were compiled for Ugtam, broken down into insects (20 spp.), birds (44 spp.), mammals (17 spp.), herps (4 spp.) and plants (49 spp.) for 11 different habitat types. Dr. Sue Townsend gave presentations on the marmot survey methodology and wildlife census and monitoring techniques. Data from grasshopper and butterfly transects were analyzed using DISTANCE software during a demonstration of this density estimation technique. Ann Winters, WCS Community Conservation Technical Advisor, presented information on small mammal trapping and mark recapture analyses, and lead an activity demonstrating mark recapture statistics. During the final day of the workshop, participants identified specific recommendations and goals to include in the final report, and developed a timeline for report writing, review, and completion. The wildlife survey and data analysis techniques presented at the workshop represent key elements of both national and community-led protected area management. The project will expand its efforts to improve local and PAA capacity to manage natural resources on the Eastern Steppe through continued cooperation with the Dornod PAA and the Eastern Mongolian Community Conservation Association.

### **Community-Based Conservation: NGO/Donor Coordination**

The Eastern Steppe community-based conservation project staff focused on the development of a training curriculum and manual for community rangers charged with monitoring and protecting the natural resources in their community-managed protected areas. Materials for the “community wildlife ranger manual” have been compiled in collaboration with the EMCCA and other biodiversity conservation and natural resource management projects in Mongolia including WWF-Mongolia, the German Technical Cooperation (GTZ) program “Conservation and Sustainable Management of Natural Resources” in Mongolia, former UNDP-GEF projects and the current Altai-Sayan UNDP GEF. The development of a standard curriculum and set of training materials for community wildlife rangers is a priority of multiple organizations currently working in the field of community-based conservation and natural resource management in Mongolia, and the project looks forward to the opportunity to contribute to this effort through our work on the Eastern Steppe.

### **Activity 2.2.3 Enhance Local Disease Management**

Disease at the interface of wildlife, livestock and human health continues to be a concern on the Eastern Steppe. In FY07, the ES-LLP continued its collaboration with the WCS Field Veterinary Program (FVP) and successfully raised funds to support critical wildlife disease monitoring activities on the Eastern Steppe. These activities are an essential component of wildlife health policies and programs designed to minimize outbreaks and prevent widespread impacts of disease on wildlife, livestock and people. An Eastern Steppe-based Foot and Mouth disease (FMD) project, funded through a grant from the American Zoo and Aquarium Association (AZA) Conservation Endowment Fund, continued in FY07; as did a national-level effort to survey wild birds in Mongolia for highly pathogenic avian influenza (HPAI) through the USAID-supported Global Avian Influenza Network for Surveillance (GAINS) program.

#### **Foot and Mouth Disease (FMD)**

Foot and Mouth is a viral disease which affects both wild and domestic ungulates. The disease is a conservation concern because individual animals can be killed and/or debilitated by FMD, while wildlife species are often blamed for spreading the disease and are impacted by disease management plans that call for their destruction or a reduction in their access to important habitat.

*FMD in Mongolian Gazelle:* The epidemiology (distribution of routes of transmission) of the FMD virus among and between Mongolian gazelle and livestock on the Eastern Steppe is not fully understood. In FY06, a study funded by the AZA Conservation Endowment Fund was initiated specifically to determine whether Mongolian gazelle are reservoirs of FMD virus, or simply carriers in the event of an outbreak in livestock (as previous data suggest) – an important distinction for both local livestock production and for conservation of gazelles. Samples were collected in November 2005, stored over the winter, and transported to the Plum Island Foreign Animal Disease Laboratory in the United States in May 2006. Unfortunately, sample testing revealed that the field handling of the tissues and blood samples was inadequate and data could not be collected. The AZA agreed to allow the remaining funds to be used on a follow up study to screen both Mongolian gazelle and livestock for FMD virus in the summer of 2007. Details of the progress of the follow-up study are below.

*Foot and Mouth Disease (FMD) Study:* The follow-up Foot and Mouth disease study was designed to improve our understanding of FMD transmission on the Eastern Steppe and the relationship between livestock and gazelle in disease distribution and transmission. In May 2007, two WCS Mongolia Program staff traveled to Matad soum, Dornod aimag, with the local Dornod aimag veterinarian to sample livestock for FMD. Forty samples were obtained: 10 sheep, 10 goat, 10 cow, and 10 camel samples.

The Matad soum sampling location is a typical Mongolian gazelle calving ground and provides the opportunity to sample both livestock and Mongolian gazelle in a region where their populations overlap on a regular basis. In June, blood samples for FMD testing were collected from both livestock and Mongolian gazelle calves. Between June 16<sup>th</sup> and 27<sup>th</sup>, 40 blood samples were collected from sheep, goats, cows and camels in Matad soum and testing of newborn gazelle calves followed. Blood samples were collected from 27 Mongolian gazelle calves (13 male; 14 female) from Ekhen khudag, Suul undur, and Jaran togoo of Matad soum and Toson khulstai protected area. Testing of newborn gazelle calves provides information on FMD exposure of the herd, specifically the mothers. The goal of this component of the study is to determine the level of exposure of livestock and Mongolian gazelle on the Eastern Steppe to the FMD virus by screening serum (blood) for antibodies to the vaccine-type and wild-type (natural disease) virus to improve our understanding of the transmission of FMD on the Eastern Steppe and the relationship between livestock and gazelle in disease distribution and transmission. Additional information collected during the gazelle calf capture included the weight, sex, general condition and approximate age of the calves. The additional information will be added to the database on Mongolian gazelle that WCS has contributed to since 1998.

The samples collected from livestock and Mongolian gazelle were transported back to Ulaanbaatar for testing; arrangements have been made with veterinary partners at the Institute of Veterinary Medicine to process the samples in-country, which has significant advantages over transporting samples to laboratories outside Mongolia for testing. A final collection of samples from livestock from Matad soum is in progress and the final results from the three months of testing are expected in October 2007.

### **The Interface of Livestock, Wildlife and Human Health**

*The SANREM CRSP Report “The Livestock, Wildlife and Human Health Interface in Mongolia”* was compiled and published in September 2006 and distributed to workshop participants and relevant institutions and agencies in the veterinary, ecology and public health fields in Mongolia in January 2007. The conference was held in 2005 and focused on diseases which affect populations of wildlife, livestock and humans. Although the proposal for a long-term project focused on research and capacity building in the area of the interface of livestock, wildlife and human health submitted to the USAID Sustainable Agriculture and Natural Resource Management (SANREM) Collaboration Research Support Program (CRSP) was not funded, the WCS Mongolia program and the WCS Field Veterinary Program continue to look for opportunities to re-submit a similar proposal for funding. A copy of the report is available in Appendix A10.

### **Highly Pathogenic Avian Influenza (HPAI) Caused by H5N1**

Avian influenza is a viral disease which naturally circulates in wild birds; however, it has the potential to mutate into highly pathogenic forms that cause significant morbidity (sickness) and mortality (death) in domestic and, increasingly, wild birds. This makes avian influenza a conservation concern given its potential direct impact on endangered populations of wild birds. Wild birds may also be endangered by disease control plans that call for their destruction.

*Avian Influenza Surveillance in Wild Migratory Birds in Mongolia:* WCS has been involved in monitoring wild bird populations in Mongolia for highly pathogenic strain of avian influenza (HPAI) since August 2005 when a multi-disciplinary team of Mongolian scientists and WCS field veterinary program staff were assembled to conduct a pilot field survey and investigate a reported die off of swans and other migratory water birds in Erkhel Lake of Hovsgol aimag in northern Mongolia. A die off of birds, primarily whooper swans, was confirmed as the highly pathogenic strain of avian influenza, H5N1. The importance of field surveillance and a multi-disciplinary approach that combines veterinary and wildlife/ornithological expertise in addressing HPAI in Mongolia was clear. Since the August 2005 survey, the WCS Mongolia Program and the WCS Field Veterinary Program (FVP) have expanded the avian influenza surveillance program in Mongolia with funding from USAID as part of the WCS Global Avian Influenza Network for Surveillance (GAINS) program. The primary local partners for the wildlife bird HPAI surveillance work in Mongolia continue to be the Mongolian Academy of Sciences and the State Central Veterinary Laboratory. Reports and survey results are also shared with the National Emergency Management Agency, other Mongolian institutions and agencies involved in HPAI surveillance in Mongolia, and the United Nations Development Program. Current and future updates on the avian influenza surveillance in wild birds in Mongolia and around the world can be found on the GAINS website: <http://www.gains.org/>

Specific HPAI surveillance activities in 2006 and 2007 to date are listed below:

*Wild Bird Migrations:* In an effort funded by the Food and Agriculture Organization of the United Nations and in collaboration with the U.S. Geological Survey (USGS, Western Ecological and Patuxent Wildlife Research Centers), WCS led an effort to capture and satellite tag swans and geese in Eastern Mongolia in July 2006 to determine the extent and route of their migration, which is key to understanding the potential for the spread of avian influenza through bird migration. The majority of the GPS/satellite “backpacks” placed on 10 whooper swans in Hachine Tsagaan Nuur in Dashbalbar soum, Dornod aimag were successful. These birds were followed throughout their migration, and reports indicate that they flew south from Mongolia, through eastern China and/or North Korea before wintering in southern South Korea. Updated whooper swan movement information can be viewed at the following website, hosted by the USGS: <http://www.werc.usgs.gov/sattrack/whooperswan/index.html>.

*Surveillance Activity (2006):* The 2006 WCS/USAID-funded survey of wild migratory birds in Mongolia for avian influenza (HPAI) took place from July to October 2006. The team covered 42 sites in 11 aimags during the 3-month survey period. Over 3,000 samples were collected during the field surveys and were transported to the United States for testing at the United States Department of Agriculture’s (USDA) Southeastern Poultry Diagnostics Center in Athens, Georgia. Initial delays occurred in processing the samples collected from Mongolia, and final results were not available until June of 2007. Types of samples tested included the following:

- 1) Tracheal, oropharangeal, fecal and cloacal swabs submitted from 121 individual birds (including dead, sick, injured and healthy birds). Five of these samples were Influenza type A positive but none of the samples were confirmed as HPAI positive.
- 2) A total of 666 pooled environmental fecal samples, representing 13 species, were submitted. Of these, 620 were screened for Influenza A, and 39 of these were found to be positive. None of the samples collected by the WCS GAINS team in 2006 have been HPAI positive.

Additional information on bird abundance, species diversity and characteristics of the lakes surveyed was recorded. This proved to be very important information for the team from BirdLife International working to build a nation-wide database of Important Bird Areas in Mongolia.

*Government and Donor Coordination:* Representatives from the WCS/USAID wildlife bird surveillance program attended the United Nations Development Program's "Thematic Group on Avian Influenza" meeting in November 2006, and participated in a workshop hosted by the State Central Veterinary Agency and the Food and Agriculture Organization of the United Nations, designed to plan and coordinate the 2007 avian influenza surveillance efforts in Mongolia.

The WCS/USAID avian influenza project facilitated arrangements for four Mongolians to attend an Avian Influenza Surveillance Training Course organized by the Wildfowl & Wetlands Trust (WWT) and the Food and Agriculture Organization of the United Nations (FAO), February 18-23, 2007, at the WWT Slimbridge Centre in Gloucestershire, United Kingdom. The Mongolian attendees represented the State Central Veterinary Agency, the Ornithology Laboratory of the Mongolian Academy of Sciences, the Veterinary Department of the Ministry of Food and Agriculture and the WCS/Mongolia avian influenza project team. The participants, members of the 2007 WCS GAINS avian influenza surveillance initiatives in Mongolia, returned to Mongolia and reported that the training was a great success. WCS Field Veterinarian Dr. Martin Gilbert also participated in the training, which focused on wild bird capture and sampling for avian influenza, to further mentor the Mongolian participants. The techniques and methods demonstrated at the training are being used in Mongolia in 2007, allowing further opportunities for capacity building in avian influenza surveillance in wild birds in Mongolia.

*Surveillance Activity 2007 (Pre-Season):* The WCS avian influenza team conducted a preliminary field survey April 6-17 in Central Mongolia, focusing on Erkhel Lake in Hovsgol Aimag where highly pathogenic avian influenza (HPAI) was confirmed in wild migratory birds in 2005 and 2006. The team completed a live bird survey of the lake and removed and buried any dead birds from the previous season in preparation for the season-long (May until October) monitoring that will be conducted at Erkhel Lake in 2007. The team also surveyed a complex of lakes in the Darkhat Valley region of Hovsgol Aimag in preparation for their efforts to capture live migratory water birds in 2007 for avian influenza sampling, marking and release.

*Surveillance Activity 2007 (Season-Long Monitoring):* The WCS avian influenza team has focused their 2007 survey work on Erkhel Lake in Hovsgol Aimag; beginning their season-long surveillance and monitoring activities in early May with plans to continue through early October 2007. Full assessments of the lake are conducted every 2 weeks. There have been no signs of significant bird die offs to date. The HPAI surveillance efforts were significantly expanded in June with the addition of a second team of veterinary and ornithological volunteers from the United States and the Netherlands. This team covered 15 lakes in central Mongolia, performed bird counts (recording species composition and numbers) and surveyed the shoreline for signs of dead or sick birds. To date, neither team has observed any evidence of an HPAI outbreak in the areas they are surveying.

*Migratory Movements, Distribution and Population Status:* In addition to the season-long surveillance of Erkhel Lake, the avian influenza team is engaged in efforts to capture, sample, mark and release wild migratory birds in Darkhat Valley region of Hovsgol Aimag, a migration corridor used by wild birds. In May, the avian influenza team established a base camp in the Darkhat Valley region, surveyed sites and prepared their equipment for the 2007 live bird capture efforts. News of re-sightings and other details of the 2007 work are posted on the GAINS website: [www.gains.org](http://www.gains.org).

The 2007 Avian Influenza Surveillance work was being conducted in collaboration with the Mongolian State Central Veterinary Laboratory and the Ornithology Laboratory at the Biology Institute of the Mongolian Academy of Sciences, as part of the USAID-supported *Global Avian Influenza Network for Surveillance* (GAINS). The primary objectives of GAINS are to expand operational field capabilities, improve the understanding of viral strains and transmission of all strains of influenza viruses in wild birds, and to disseminate information to all levels of governments, international organizations, the private sector and the general public. Through this work, WCS seeks to contribute to our understanding of migratory movements, distribution and population status of wild birds. Through these efforts in Mongolia, WCS is contributing to the implementation of Mongolia's "Strategy for Prevention and Preparedness for Avian Influenza" drafted in 2006/2007.

#### **Activity 2.2.4 Enhance Local Scientific Capacity**

The ES-LLP continues to incorporate the enhancement of local scientific capacity in all aspects of programming. The project works primarily with the National University of Mongolia (NUM) and the Mongolian Academy of Sciences (MAS) to identify ecology and biology students who will benefit from participation in ongoing WCS field research programs. In FY07, one student from the NUM was engaged full-time as part of our Mongolian gazelle project and 2 NUM students were engaged part-time with the Siberian marmot study. One young scientist from the Biology Institute of the MAS is currently working as the "ornithologist in training" with the avian influenza project and another, more senior, young biologist is working on a WCS project in western Mongolia.

Relationships with the NUM and MAS continue to be collaborative and supportive. Efforts to formalize the relationship between these two institutions with a Memorandum of Understanding or similar document have been stalled due purely to both parties' time constraints and other obligations.

The WCS Mongolia program continues to sponsor a monthly conservation networking event that is widely publicized within the academic and research community in Mongolia. Students from Mongolian universities and young biologists from research institutions and government agencies make up the majority of the monthly audiences.

#### **Activity 2.3 Implement mechanisms for measuring success and adapting the landscape strategy**

Mechanisms for measuring the success of adapting the Landscape Species Approach have continued to focus on assessing the populations of key Landscape Species that the program is working to protect and conserve, primarily the Mongolian gazelle and Siberian marmot. Completion of the final selection of the suite of Eastern Steppe Landscape Species will allow us to focus on the development of monitoring plans for the full suite of species, or work with partners to develop those plans.

Siberian marmot population surveys have proceeded as planned in this reporting period. The population assessment methods used have been broadly disseminated and local wildlife management officials have continued to express an interest in adopting the methods and making the yearly surveys a part of their programs of work. The driving transect survey methods have been written in a "how to" format with examples and sample data sets and are currently undergoing revision and translation. As planned, ES-LLP staff developed marmot population

assessment methods with community rangers in the Ugtum reserve area in Dornod aimag in July 2007, and these techniques will be used more broadly by herding communities in FY08.

Performing a range-wide aerial survey of Mongolian gazelle continues to be a goal of the ES-LLP but logistical constraints, such as identifying appropriate aircraft and arranging for permission to fly, are still significant. The program will continue to promote and rely on the “range-wide” ground survey method, which was conducted to assess the population east of the Trans-Mongolia railroad.

The cost and time associated with measuring the success of landscape strategies (via wildlife population surveys and assessments) continues to be high. Proposals have been re-submitted to the National Science Foundation to continue their support for range-wide gazelle monitoring activities, and assistance in identifying funds for the continued monitoring of the Siberian marmot population and other Eastern Steppe Landscape Species has been solicited from academic researchers in U.S. institutions.

#### **Activity 2.4 Identify and strengthen constituencies for conservation at local, national and international levels to help ensure effective strategy implementation**

In FY07, the Mongolia program moved forward with its plans to develop conservation education materials for schools and communities on the Eastern Steppe by partnering with Conservation Ink, and Mongolia and U.S.-based NGOs specializing in environmental education and materials for the general public. WCS Mongolia does not have conservation education specialists on staff nor the resources to develop these materials ourselves. The specific program is described below:

Conservation Ink’s Traveling Trunk program is designed to bring much-needed conservation and environmental education to rural communities throughout Mongolia. A “Traveling Trunk” is literally a case full of educational materials that will move from one school and/or community to another. The project seeks to create a sustainable conservation education program that builds capacity in local communities for environmentally sound land and wildlife management practices. The ES-LLP is collaborating with Conservation Ink to develop the traveling conservation trunk program for the Eastern Steppe ecoregion. The goal of the WCS and ConInk partnership is to bring the “Traveling Community Conservation Trunk” program to schools and to communities of livestock herders on the Eastern Steppe who are interested and engaged in community management of wildlife and natural resources.

#### **Launch of the Traveling Conservation Trunk Program**

*In the U.S.:* Ted Wood of ConInk and Meghan Rubinstein and Rich Reading of the Denver Zoo held four scoping meetings to lay out the concept of the program, review applications for Mongolian contractors, review zoo trunk conservation materials for relevance to the Mongolian trunks, research English conservation curricula and lesson plans, and discuss scope of work assignments for each partner. After carefully reviewing program manager applications from Mongolia, ConInk engaged the services of People Centered Conservation (PCC), a Mongolian NGO with extensive experience in community conservation development and education. Ms. Tunga Khuukhenduu of PCC will be the acting manager, with support from the PCC staff as needed. Tunga brings experience in both community conservation and environmental education. ConInk requested Tunga to arrange meetings, school visits, NGO visits and logistics to Choibalsan prior to their arrival.

*In Mongolia:* In April 2007, Ms. Rubenstein and Mr. Wood met with their Mongolian partner, Ms. Khuukhenduu, and the staff of PCC, to develop a working strategy for the trunk program. The team officially hired local staff, identified shared office space for the program and held initial meetings with the Minister of Education who fully supported the idea of the program and provided Ms. Khuukhenduu with educational standards for all the sciences. The team also discussed the WWF green schools program and how their curriculum could fit into the trunk program. The team traveled to Choibalsan, Dornod Aimag, where they met local partners and researched materials. They met with the staff of the PAA, including a number of park rangers who took a keen interest in the trunk program.

The team also arranged visits to three Eastern Steppe schools and worked with an aimag-methodologist. They reported the need for science and conservation materials and curriculum, and the high level of interest from students and teachers. In May and June, the Mongolia-based and U.S. teams prepared materials for a test trunk, identified electronic files and copies of existing publications, and developed a framework for the curriculum by reviewing existing lesson plans in a book called *Nature & Children*, produced in English and Mongolian by the former Eastern Steppe Biodiversity Project. Ms. Khuukhenduu will develop specific lessons and activities geared for Eastern Steppe communities, and design the activity-based contents of the test trunk. ConInk continued to oversee the program, and made arrangements to re-publish publications chosen for the trunk that are no longer in circulation.

### **OBJECTIVE 3: Learning and teaching best practices in the Mongolian Eastern Steppe landscape and beyond**

#### **Activity 3.1 Using economic valuation of rangeland and water resources as a tool for site-based conservation: a comparison of the Eastern Steppe of Mongolia and the Rungwa-Ruaha Landscape, Tanzania**

Engagement with nomadic livestock herder communities in the Eastern Steppe (Activity 2.2.2), initiated in FY06, has developed into a strong link between the project and approximately 20 community groups who are members of the Eastern Mongolian Community Conservation Association. Rangeland, water and other natural resource distribution and “valuation” has been a topic of discussion at every organized event with the EMCCA members. Efforts to move these discussions into a more formal valuation of the natural resources on the Eastern Steppe, with the potential to compare outcomes with those of similar exercises with nomadic pastoralists in the Ruaha Landscape, have been made but no concrete action has been taken. The Mongolia program does not have the expertise in-country to lead a natural resource valuation exercise, but has identified technical expertise available through collaboration with the USAID TransLinks program (Earth Institute and CERC at Columbia University). Community groups continue to be very interested in mapping their natural resources within community-managed areas, and incorporating these maps into their natural resource management plans with the intent to track the resources over time. This mapping of natural resources over time will likely lead to the kind of adaptive management and site-based conservation we envision, but with more locally-driven decision making.

**OBJECTIVE 4: New York Coordination Unit Strategy: Guide the design and testing of wildlife-focused planning, implementation, and evaluation tools for effective conservation at a landscape scale, and promote learning across sites and beyond**

The NY-based Coordination Unit (CU) of the Living Landscapes Program (LLP) is designed to develop and test wildlife-focused, landscape-scale approaches to biological conservation across multiple sites. To ensure the widespread utility of these new conservation approaches, the program is testing them within landscapes or seascapes that encompass a diverse array of ecological features, land-uses, resource-use issues, and jurisdictional arrangements. The CU is charged with designing and managing the program to develop new approaches in close collaboration with WCS field-based staff, to facilitate and harmonize testing and implementation among these core sites, and to capture the synergistic benefits of their diverse experiences. It guides development of landscape-scale strategies, tools and techniques; assists in the design and development of cost-effective intervention and monitoring programs at these sites; promotes cross-site learning; and ensures communication among the sites, WCS staff (central and field), USAID (DC and missions), and the larger conservation community.

During FY07, the priority for the Coordination Unit continued to be working with field sites to promote adoption of best-practice tools for effective conservation at landscape scales. These efforts culminated at the LLP Annual meeting which took place in the Adirondacks, NY over May 2-8, 2007. During this meeting, all WCS/GCP funded and WCS/LLP volunteer sites presented and discussed their use of LLP/GCP tools in the development of their conservation landscapes. During this year we continued to refine and simplify the process for selecting landscape species, including revision of the software decision-support tool. Though the software uses context sensitive help, and is designed to be usable without training, we decided to further facilitate field adoption of landscape species selection (i.e., conservation target selection) by finalizing and disseminating a 'how to' manual (Appendix B1) to accompany the selection software. In addition, we continued working with our field staff and NY program and accounting staff to explore how best to integrate project strategic planning elements, such as conceptual models and monitoring frameworks, into annual operations planning and reporting.

**Activity 4.1 Provide technical assistance to site-based conservation**

Members of the NY Coordination Unit worked closely with field sites to provide targeted technical input (punctual advice and informal and formal training in strategic conservation planning, monitoring the effectiveness of conservation actions, geographic and quantitative analysis, and specific conservation issues) throughout the year. In a number of cases, this involved trips to sites as reported in the previous sections of this and the other site-specific reports: Madidi (Bolivia), Maya (Guatemala), Glovers (Belize), and Eastern Steppe (Mongolia). As our LLP/GCP sites are at different stages of development or evolution, they have warranted (and requested) different levels of NY coordination unit assistance during this reporting period. This is to be expected and reflects our adaptive management approach to conservation investment.

Overall, LLP staff supported the 4 four sites through the following process:

- **Finalization of each site's suite of Landscape Species.** LLP-NY support included providing guidance on the candidate species and other data required for the target selection process, technical support for the software used to select Landscape Species, and review of draft Landscape Species suites in order to assist field staff in choosing the most appropriate conservation targets for their site.

- **Development of quantitative population targets for Landscape Species.** LLP-NY provided technical support and helped gather information from the literature. Setting appropriate population targets is pivotal to the strategic application of the Landscape Species Approach (LSA).
- **Creating draft Biological, Human, and Conservation Landscapes or Seascapes for Landscape/Seascape Species.** LLY-NY led on the development of several models and provided technical support to field staff to ensure the successful development of these models that are at the core of the LSA.

For example, the Eastern Steppe of Mongolia is the youngest LLP/GCP site. This year, Dr. Amanda Fine and her Mongolian team made huge strides in completing steps of WCS's conservation planning methodology, the Landscape Species Approach. LLP staff from New York provided substantial support and guidance to the Mongolia staff. Presentation and review of the results took place during a stakeholder workshop in Ulaanbaatar on October 3, 2006. During visits to Mongolia, Drs. Karl Didier and Eric Sanderson also participated in several meetings and discussions with The Nature Conservancy and the World Wide Fund for Nature (WWF-Mongolia and US) about collaborative conservation planning and implementation in the Eastern Steppe, now known as the Zuun Bus collaboration. Dr. Didier has also provided some spatial information and technical support to TNC as they proceeded through their conservation planning framework in Mongolia. Dr. Samantha Strindberg also assisted field staff in Mongolia to develop a sampling design and field protocol to collect information in order to obtain the first empirically based estimates of population size, distribution, and habitat use of the critically threatened Siberian marmot, a Landscape Species, across the Eastern Steppe.

Another highlight was that Janet Gibson and her team at the Glover's Reef Living Seascape (GRLS) made great progress this year with the seascape models for all seven of their Seascapes Species: hawksbill turtle, Nassau grouper, Caribbean reef shark, star coral, queen conch, *Diadema*, and osprey. Dr. Samantha Strindberg of LLP-NY traveled to Belize City in February 2007 to assist the Belize field team in refining their potential biological seascape and human threat seascape models and to create new models for current abundance, target abundance, conservation impact and benefit-cost for all species. This information is a key element of the Conservation Strategy document for GRLS.

#### **Activity 4.2 Design, implementation, and testing of decision support tools**

##### **Activity 4.2.1 Living Landscapes Program technical manuals**

In FY07, we finalized and disseminated one technical manual, *Technical Manual 5: A quick reference guide to the Landscape Selection Software version 2.1* (Appendix B1), and had the LLP manuals and bulletins that were completed in FY06 translated into Spanish and French (Appendices B2-B9; Technical Manuals 3-6 in Spanish are currently being produced); these will be printed and will also be available online in PDF format. These publications are currently being disseminated to WCS projects, partners (government, NGO and local), and other conservation and development colleagues. The manuals are designed to provide clear and practical instructions to field practitioners on using a number of conservation tools. We also updated two of the older, English-language Technical Manuals (Appendices B10 and B11).

## Activity 4.2.2 Landscape Species Approach progress

### 4.2.2.1 Building Conservation Landscapes and Seascapes

In FY07, LLP staff in New York finalized methods for building conservation landscapes and seascapes, based on the experience of our pilot implementation at GCP and LLP field sites. We drafted a Technical Manual on combining biological and threats landscapes into conservation landscapes, that will provide field practitioners with guidance as to where and what actions would have the greatest positive impact on wildlife conservation and natural resources management. We then worked with the field sites to pilot the use of the draft manual as a decision-support tool. Feedback from these pilot sites is helping us refine and revise the manual before it is finalized for publication as a hard copy and as a PDF on our website.

Substantial progress has been made during the year in the finalization and implementation of tools that are part of the Landscape Species Approach, including:

- **Selecting Landscapes Species.** Drs. Strindberg and Didier, with assistance from other LLP-NY staff, produced written guidelines as an addendum to the already published software that guides users through the process of selecting Landscape Species. The guidelines were published as a Living Landscapes Technical Manual (Appendix B1), which is provided online on the program's website. Over the past year, this decision-support tool was used by the Eastern Steppe of Mongolia and Madidi projects.
- **Setting Population Target Levels.** Dr. Sanderson with assistance from other LLP-NY staff finalized guidelines for setting quantitative Population Levels for conservation targets (e.g., Landscape Species). Guidelines were published as a scientific paper in the November 2006 issue of *BioScience* (Appendix B12). Over the past year, this tool was used extensively by all four GCP sites (the Eastern Steppe of Mongolia, Madidi, Glover's Reef, and Maya Biosphere Reserve projects), as well as by at least 7 other WCS projects (e.g., Western Forest Complex, Thailand; Northern Plains, Cambodia).
- **Building Biological and Human Landscapes.** Dr. Didier, with assistance from other LLP-NY staff, finalized guidelines for creating Biological and Human Landscapes, which were published as a LLP Technical Manual in FY06. Dr. Didier also began production of a scientific paper to overview these tools, which will be completed and submitted for review during FY08. Over the past year, these tools were used extensively by the four GCP sites as well as by at least 7 other WCS projects (e.g., San Guillermo, Argentina; Adirondacks, USA; Ruaha, Tanzania).
- **Building Conservation Landscapes.** Drs. Didier and Sanderson, along with assistance from other LLP-NY staff, finalized guidelines for creating Conservation Landscapes (i.e., maps of the possible impact of conservation action). Dr. Didier began development of a LLP Technical Manual on the tool, which will be published in FY08. Over the past year, this tool was used extensively by all four GCP sites, as well as by at least 7 other WCS projects (e.g., Nouabalé-Ndoki, Congo; Coastal Patagonia, Argentina; Nam Kading, Lao P.D.R.).
- **Monitoring Frameworks.** The Glover's Reef Living Seascape (GRLS) team has been dynamically updating and using their monitoring framework to effectively track their conservation actions, the ongoing threats in their landscape and the status of their conservation targets. They view it as a living document that allows them to see changes in the status of their indicators over time. This provides them with an incredible sense of both the ongoing challenges that they face and the progress they have made in conserving the GRLS. Similarly, like other LLP sites, the team in Guatemala is evaluating the effectiveness of their conservation actions in part by monitoring the status of their Landscape Species. That said, monitoring highly elusive species scattered across vast geographic areas is a huge challenge and Dr. Samantha Strindberg of LLP-NY provided technical support for the design and

analysis of this type of monitoring. The second two-week LLP/WCS workshop on “Statistical Design and Analysis of Biological Monitoring Programs for Conservation Management”, designed and led by Dr. Samantha Strindberg, significantly advanced the access of WCS field staff to the technical knowledge that they need to monitor elusive species. WCS field staff in attendance included Rony Garcia Anleu from Guatemala, along with Esteban Suárez (Yasuni-Napo Landscape, Ecuador) and Hugo Rainey (Ndoki-Likouala Landscape, Congo). Both the Ecuadorian and Congolese landscape sites were supported by the first round of USAID/GCP funding and are continuing to apply the tools and build upon the success of their previous conservation work.

#### **Activity 4.2.3 Integrating strategic planning and project management**

LLP-NY staff have continued to work with our field sites and WCS NY operations (i.e., regional program and accounting staff) to devise ways to integrate strategic planning with operations planning and reporting. LLP program staff contributed substantially during our WCS organization-wide strategic planning process. Drs. Amy Vedder and David Wilkie were both extremely active members of the Strategic Planning and Review Coordination (SPARC) committee – a group charged with revising the operations processes and protocols within WCS’s international program. LLP staff was also key sources of technical input into our new organizational strategic plan, lead by Dr. Craig Groves. As a result of our efforts, LLP/GCP developed tools are now to be integrated into annual work planning, budgeting and reporting, starting in the FY09 budget cycle (i.e., December 2008). WCS will be the first international conservation NGO to integrate site-based strategic planning into annual operations planning. This fills a major gap in the adaptive management infrastructure that we need to truly measure our conservation effectiveness.

#### **Activity 4.3 Catalyze cross-site and cross-organizational learning, and communication**

##### **Activity 4.3.1 Annual meeting, cross-site and cross-organizational learning**

###### **Annual meeting of WCS/LLP staff**

LLP organized and hosted an annual meeting to bring together WCS/GCP and LLP field site staff to share and capture lessons learned in the implementation of threats-based approaches to biodiversity conservation at landscape scales. The meeting took place in the Adirondacks, NY from May 2-8, 2007. Twenty WCS staff attended from ten field sites, including seven staff from the current USAID-funded sites. In the past these meetings have proven enormously fruitful for our field staff, as they provide a forum for serious, practical discussions about the challenges they face in effecting conservation in large, complex landscapes. GCP support to LLP offers us one of the few opportunities to bring WCS field staff from each of our Regional Programs together to share lessons learned and best practices. This is of enormous value to our field sites as it allows innovative and effective conservation practices to quickly spread across our organization, and thus enhances our ability to effect conservation across the planet.

This meeting was judged by attendees as the best since LLP’s establishment and the first meeting in Madidi, Bolivia. Field staff were particularly excited because pilot development of the full suite of LLP strategic planning tools had been completed, allowing staff to see how the approach was implemented at different sites and to assess what strengths and weaknesses they found in the process. A series of Guidance Briefs is being developed based on the discussions at the meeting. These Briefs will be posted on the website to allow conservation practitioners to better understand what each tool is intended to achieve within a conservation project management cycle, what

training resources are available, and what information, staff skills and time are required to use each tool.

Furthermore, LLP staff are working on a collection of case studies that will recount and capture our collective experience, over the last 9 years, in developing this unique and systematic approach to threats-based conservation at a landscape scale.

### **Cross-site learning**

Former WCS GCP/LLP Program Director Dr. Amy Vedder traveled to Guatemala in the fall of 2006. She and Guatemala LLP project director Roan McNab undertook an overflight of the Maya biosphere reserve to view the broader landscape and visualize the many issues and conditions that influence forest resource conservation, and to discuss how WCS is using different strategies in distinct parts of the reserve to address these different challenges. Dr. Vedder also made a field visit to Paso Caballos and the macaw areas, and went to Tikal and Uaxactún village to meet with partners and see, first hand, how WCS is effecting conservation and livelihoods in the Maya Biosphere Reserve.

### **Cross-organizational learning**

Drs. Didier and Wilkie continued their involvement with a GCP learning project to evaluate the different approaches that conservation NGOs use to select conservation targets (e.g. WCS's Landscape Species Approach). To follow up on an FY06 workshop attended by the GCP partners, Drs. Didier and Wilkie have been working closely with Madeleine Botrill (formerly with WWF) and other GCP partners to publish a scientific paper which reviews and compares the target selection procedures of the WCS, TNC, WWF, CI, and AWF. The paper was submitted to the journal *Conservation Biology* during FY07 (Appendix B13). Although the paper was not accepted for publication, the authors were invited to resubmit given some revisions. Dr. Didier and Ms. Botrill have begun revisions and plan to resubmit in FY08.

Recently, LLP-NY has begun leading an effort to publish much of our progress and the progress of other NGOs on landscape-scale conservation planning. We plan to secure agreement from a journal to publish a special section on the spatial aspects of landscape conservation planning used by the GCP partners (WCS, TNC, WWF, CI, and AWF). The WCS contribution will likely include an overview of the Landscape Species Approach, and possibly several case study applications of the approach from our project portfolio, including case studies from the Eastern Steppe of Mongolia, Glovers Reef in Belize, Adirondack Park in the US, Nouabalé-Ndoki in Congo and Nam Kading in Laos. We hope to have all papers for the special section submitted by the end of FY08.

### **Activity 4.3.2 CMP: leadership, design, writing and audits**

CU staff continues to play a leadership role in the identification, design and implementation of Conservation Measures Partnership activities. We work closely with all CMP members to identify best-practice tools to use as models for development of eAdaptive-Management (now named Miradi) software modules. We provide CMP with ongoing lessons from our efforts to integrate project strategic planning and annual financial management, and offer recommendations as to how this experience can help guide future updates of Miradi.

LLP NY staff conducted, and ten WCS/LLP site field staff participated in, a 1/2 day practical test of the Miradi adaptive management software developed by the Conservation Measures Partnership. As the software is designed on the TurboTax model (i.e., can be used straight out of the box without any training), neither expatriate nor national project staff were provided any

guidance on how to use the software, they were only told briefly the range of tasks that the software was designed to help field staff undertake. By the end of the 4 hour test run, all staff reported that the software was indeed easy to use and the help files were exceedingly useful - though often more difficult for non-English speakers. Primary feedback was a desire for short Video Tutorials for each step in the process showing how to use the software, as this would reduce the need to read the detailed help files.

LLP NY staff continued to contribute to activities being undertaken by the Conservation Measures Partnership. Specifically, we provided guidance to Elizabeth O'Neill as she prepared a review of CMP experience undertaking conservation audits.

#### **Activity 4.3.3 Local engagement in conservation survey**

In FY07, we extended the reach of a synthesis of field-based practice, published as a WCS working paper: "Casting for Conservation Actors: People, Partnerships and Wildlife" (Appendix B14).

#### **Activity 4.3.4 Preliminary assessment of the human welfare impacts of establishing national parks**

Dr. David Wilkie shared lessons-learned and best practices from the WCS-Boston College People and Parks project in Gabon during a 2-day workshop at the UNEP World Conservation Monitoring Centre (WCMC) focused on the integration of livelihood measures into protected area management effectiveness monitoring and assessment. In addition, he shared WCS experiences on the use of monitoring frameworks and livelihood assessment tools in a 2-day workshop on methods for assessing the livelihoods impact of conservation activities, organized by Fauna and Flora International and the African Wildlife Foundation. Christopher (Kit) Kernan of Conservation International has asked that we train a social science team in Equatorial Guinea on the methods developed during the People and Parks project, so that he can meet his CARPE obligations for enhancing the participation of local people in conservation programming and assessing the positive and negative impacts of USAID conservation spending on local economies. In addition, information gleaned by Dr. Wilkie during the latter meeting encouraged us to revise our LLP Technical Manual 4 (Appendix B11) to incorporate a very clever and simple poverty assessment tool developed by Rick Davies – The Basic Necessities Survey (BNS). This tool continues to promote the use of a standard basket of assets to assess household wealth.

#### **Activity 4.4 Application of Living Landscapes Program tools beyond core sites**

##### **Activity 4.4.1 Training workshops and technical assistance in the use of LLP tools**

LLP NY staff continued to provide assistance to WCS and reserve staff of the Amazon Andes Conservation Program in Brazil, Peru, Ecuador, and Bolivia during a week long workshop in Brazil.

LLP NY staff designed and delivered a 2-day conceptual modeling and monitoring framework training for program staff in the WCS regional programs (about 40 people), plus 14 staff from WCS field sites. The training was held at WCS's headquarters in NY. The fourteen field participants who benefited from this workshop included staff from other LLP design and demonstration sites. Both the Ecuadorian and Congolese landscape sites were supported by the first round of USAID/GCP funding and are continuing to apply the tools and build upon the success of their previous conservation work.

Dr. Didier worked closely with several non-core WCS sites to implement the program tools, including most prominently the Adirondacks, USA and the San Guillermo Biosphere Reserve in Argentina. The LSA tools have also contributed greatly to Dr. Didier's work on landscape scale planning projects in Samburu-Laikipia, Kenya and Argentine, Patagonia.

Dr. Wilkie used strategic planning tools developed by LLP and financed by USAID/GCP to help the WCS Democratic Republic Congo program to select conservation targets around which to focus their conservation effort at a national level, to identify critical landscapes to conserve these targets within DRC, and to begin the development of conceptual models for each critical landscape. Dr. Wilkie leveraged GCP support to help develop a strategic plan for conservation of Asian and African elephants.

Dr. Strindberg worked closely with Dr. Emma Stokes in Congo to build landscape models for two of their Landscape Species, namely elephants and chimpanzees, in the Ndoki-Likouala Landscape (supported by the previous round of USAID/GCP funding), thus building on USAID/GCP prior investments.

Dr. Strindberg and Gosia Bryja leveraged GCP support to LLP by helping our WCS Lao team to apply the Landscape Species Approach to conservation planning in the Nam Kading National Protected Area in the Bolikhamxay province of Lao. These LLP activities were part of a multi-stakeholder Integrated Ecosystem and Wildlife Management Project (IEWMP), and led to the generation of species conservation landscapes that illustrate the areas where human use of the landscapes and animal habitats intersect (i.e. areas where potential threats to animal populations exist). The results of the analysis have already been adopted by the Lao government to develop interventions for the new management plan for the Nam Kading National Protected Area.

Gosia Bryja of LLP-NY traveled to Argentina in October 2007 to provide support to the Sea & Sky project as they implement LLP/GCP tools in their marine conservation planning initiative. She worked with Valeria Falabella to build biological models for their previously selected seascape species: Magellanic penguins, Black-browed albatrosses, Squid, Common hake and Southern Right whale. Leveraging GCP support to pilot the use of our landscape-scale conservation planning tools within vast, complex, 3-dimensional seascapes is an important but challenging new direction for LLP.

#### **Activity 4.4.2 Technical Manuals**

We continued to make our series of technical manuals available to conservation practitioners and decision makers on our website, as hard-copy booklets and on CD. Manuals are now available in English, French and Spanish.

#### **Activity 4.5 Ensure coordination and communication services for the program**

The program director and assistant director continued to meet with staff from the core sites and other WCS large-scale conservation sites to discuss the development of the program, on-the-ground implementation of the Landscape Species Approach, and further development of tools relevant to the approach. Program staff also continued to meet with collaborators, NGOs, governmental officers, and representatives of other stakeholder groups to promote use of the strategies and tools.

Throughout the year, the Coordination Unit has assisted field staff in completing annual Implementation Plans, reporting on Performance Monitoring forms, and submitting Annual Reports. The program director and assistant director and other staff have continued to contribute significantly to USAID/GCP quarterly and annual meetings in Washington DC and continue to provide regular reporting and updates to USAID.

### III. Appendices:

- A1. Final Draft: Mongolian Gazelle Management and Action Plan
- A2. PowerPoint Presentation: *Marmots in the Eastern Steppe: Evidence of a Decline*
- A3. Map: National, Local and Community Protected Areas on the Eastern Steppe- An Expanding Network
- A4. PowerPoint Presentation: Living Landscapes Annual Meeting Mongolia Presentation- Landscape Species Selection to Conservation Landscapes
- A5. “Mongolian Marmot Crisis: Status of the Siberian Marmot in the Eastern Steppe” by Susan E. Townsend and Peter Zahler, *Mongolian Journal of Biological Sciences*, 2006.
- A6. Wildlife Trade and Management: GAP Analysis
- A7. Executive Summary: Mongolian Law on Hunting
- A8. Report: Wildlife Law Enforcement Training, Nomrog Strictly Protected Area
- A9. Proceedings from the first Eastern Mongolia Community Conservation Association Volunteer Ranger Training
- A10. SANREM CRSP Report: “The Livestock, Wildlife and Human Health Interface in Mongolia”
- B1. LLP Technical Manual 5- *A quick reference guide to the Landscape Species Selection Software version 2.1*
- B2. LLP Manuel Technique 3- *Mesurer l’efficacité - cadre de suivi*
- B3. LLP Manuel Technique 4- *Les enquêtes sociales - un outil de conception, d’action et de suivi pour la conservation*
- B4. LLP Manuel Technique 5- *Guide de référence rapide au logiciel Landscape Species Selection version 2.1*
- B5. LLP Manuel Technique 6- *Bâtir le Paysage Biologique et celui des Menaces : une approche pas à pas*
- B6. LLP Bulletin 8- *Mettre en Place des Objectifs Démographiques pour la Conservation de la Faune : Combien d’Animaux Doit-on Conserver ?*
- B7. LLP Bulletin 9- *Se Partager des Paysages convoités : La Conservation à Travers le Yeux des Animaux*
- B8. LLP Boletín 8- *Estableciendo Tamaños Poblacionales Meta para la Conservación de la Vida Silvestre: ¿Cuántos Animales Debemos Salvar?*
- B9. LLP Boletín 9- *Compartiendo Paisajes Valiosos: Conservación a Través de los Ojos de la Vida Silverstre*
- B10. LLP Technical Manual 2- *Creating Conceptual Models - a tool for thinking strategically*
- B11. LLP Technical Manual 4- *Household Surveys - a tool for conservation design, action, and Monitoring*
- B12. Sanderson, E. (2006). How Many Animals Do We Want to Save? The Many Ways of Setting Population Target Levels for Conservation. *BioScience* 56(11): 911-922.
- B13. *Comparing Landscape-Scale Target Selection Procedures of Five International Conservation Organizations*
- B14. WCS Working Paper- *Casting for Conservation Actors: People, Partnerships and Wildlife*