



Biodiversity Conservation at the Landscape Scale

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

Maya Biosphere Landscape Conservation Area, Guatemala

**Implementation Plan
October 2007 – September 2008**

Living Landscapes Program- Guatemala/Maya Biosphere
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Program Goal

To ensure conservation of biological diversity in regions of global biodiversity importance, using a species-based landscape approach.

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

Management of parks and reserves cannot, therefore, occur in isolation from the surrounding human-dominated landscape, but must take into account where and how human activities conflict with biodiversity conservation, and where conservation adversely impacts human welfare. As human populations continue to expand over the next 50 years, the incentive for over-exploiting natural resources within and outside of protected areas will likely increase and the need for biodiversity conservation tools that address human-wildlife conflict will become even more important.

The Living Landscape Program promotes conservation of landscapes by focusing efforts on key animal species that require large areas for their conservation, that are particularly at risk because they cross land use and jurisdictional borders, and that, when protected, will have the greatest positive impact on biodiversity as a whole. These Landscape Species are highly mobile, vulnerable animal species, and their conservation fosters a focused and cost-effective way to retain a full complement of biodiversity and overall ecological integrity. To conserve these species, parks and reserves must be integrated into the broader landscape, a landscape in which people exploit natural areas and wild species to meet their socio-economic needs.

The Biodiversity Conservation at the Landscape Scale Program (BCLS) is designed to ensure biodiversity conservation in four core sites by identifying actions to conserve Landscape Species, and by increasing the capacity of local and national organizations to implement such actions. The four areas of global biodiversity importance for WCS involvement and USAID activity are:

- Northwestern Bolivian Andes Landscape Conservation Area (Bolivia)
- Glover's Reef Living Seascape (Belize)
- Maya Biosphere Reserve Living Landscape (Guatemala)
- The Eastern Steppe Living Landscape (Mongolia)

Maya Biosphere Living Landscape Project Strategy

At 2,112,940 hectares, the Maya Biosphere Reserve is the largest protected area complex in Central America. Its subtropical moist forest, savannah, and wetlands account for more than one-seventh of the surface area of Guatemala and form the core of a tri-national system of protected areas in Guatemala, Belize, and Mexico. It is a reservoir for Central American biodiversity, and has been internationally recognized as a priority “Hotspot”, a “Last Wild Place”, and as a World Heritage Site. The Reserve hosts one of the world’s highest concentrations of endemic species, and retains an intact suite of wide-ranging mammal and bird species extirpated in many parts of Mesoamerica. Furthermore, beneath the canopy of this subtropical moist forest lies the epicenter of the ancient Maya civilization. The Maya Biosphere Reserve (MBR) was established in 1990 to conserve these biological and cultural wonders while improving the livelihoods of local inhabitants. As a consequence of the great extent of intact forest, wide-ranging species extirpated in many parts of Central America such as the jaguar, puma, white-lipped peccary, Baird’s tapir, and scarlet macaw have been maintained. The Maya Biosphere Reserve also supports one of the highest levels of endemism worldwide. The percentage of endemism in the lowland Maya Forest varies between groups, ranging from 3.8% of bird species to 28.9% of amphibian species. Comparing these levels with those of the top 25 priority “Hotspots” designated by Conservation International (Meyers et al. 2000¹), it is evident that the Maya Forest is of high global importance as a center of endemism. Nevertheless, threats are numerous and range from direct threats such as illegal hunting, forest fires, and habitat degradation to more indirect forces such as governmental instability, poverty, and human population increase within Guatemala and regionally.

The Wildlife Conservation Society began supporting conservation in Guatemala in the 1980s by funding the field investigations of Guatemalan biologists who later played key roles in the first decade of the management of the Maya Biosphere Reserve. In 1991, WCS initiated studies to determine the status of wildlife hunted for subsistence in Tikal National Park and the forests of the village of Uaxactún. By 1998, this project evolved to support the management of Uaxactún in collaboration with OMYC, SC (Organización Manejo Y Conservación, Sociedad Civil), Uaxactún’s community institution responsible for the management of the 83,558 ha concession. In 2001, WCS supported the establishment of Asociación Balam, a national NGO dedicated to the conservation of the natural and cultural resources of the Maya Biosphere Reserve. Balam is currently seeking the co-administration of Mirador-Rio Azul National Park in the northeast corner of the reserve. In 2002, WCS began monitoring the biological integrity of the MBR with support from USAID-Guatemala. In September 2004, biological monitoring activities funded by USAID-Guatemala ended, and in June 2005 WCS Guatemala released a final report on CD, evaluating the integrity of landscape processes, the impacts of multiple-use zone management, and the efficacy of park protection. Specific activities covered in the report include: remote sensing to monitor changes in forest cover and fire, assessing scarlet macaw (*Ara macao*) population distribution and nesting success, investigating the impacts of timber extraction on biodiversity, evaluating the sustainability of xate palm (*Chamaedorea* spp.) frond extraction, evaluating the effectiveness of park protection in Sierra Lacandon NO National Park, and rapid ecological assessment of the Rio Azul watershed. In 2004, biological monitoring activities were expanded to include a collaborative effort with CONAP and the Critical Ecosystem Partnership Fund to protect critical nesting sites of scarlet macaws located within Laguna del Tigre National Park. WCS efforts in Guatemala are supported by cooperative agreements with both CONAP (Consejo Nacional de Áreas Protegidas) and IDAEH (Instituto de Antropología E Historia). Collaborators in the myriad WCS activities in the MBR include CONAP, IDAEH, INGUAT (Instituto Nacional Guatemalteco de Turismo), OMYC/Uaxactún, ACOFOP (Asociación de Comunidades Forestales de Petén), LightHawk, National Wild Turkey Federation, Proyecto Pavo, Asociación Balam, Defensores de la Naturaleza, Tikal National Park, Parkswatch, Tropico Verde, the village of Paso Caballos, the village of Carmelita, Baren Industrial Ltd., The Consensus Building Institute, Mesa Multisectorial para el Area Natural y Cultural de Mirador-Rio Azul, and Rainforest Alliance, among others.

First year MBLLP activities (FY04 implementation) were designed to incorporate the Landscape Species Approach (LSA) into local conservation strategies while building upon the foundations of three WCS programs in the eastern section of the Maya Biosphere Reserve (MBR). Second year MBLLP activities focused to a large extent on those areas deemed most critical by the results of biological monitoring activities, specifically the scarlet macaw nesting areas in

¹ Myers, N., R.A. Mittermeier, C.G., da Fonseca, G.A.B., & Kent, J. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858

eastern Laguna del Tigre. Yet the project also proceeded in the development of landscape models and in defining methodologies to permit species sampling. Third year activities built on the progress of the first two years, permitting the continued conservation of the eastern Laguna del Tigre scarlet macaw nesting areas, as well as pilot sampling of target species across the priority landscape. Fourth year activities yielded important advances by making great strides towards consolidating pilot conservation interventions, including efforts to conserve eastern Laguna del Tigre macaw nesting areas, institutional alliances aimed at strengthening the Multiple Use Zone forest concessions, and road checkpoints designed to control open access to key sections of the reserve. We also made important advances in sampling and modeling the distributions of scarlet macaws, jaguar (*Panthera onca*), and Central American river turtle (*Dermatemys mawii*). The fifth-year activities proposed herein consist of the most urgent conservation interventions the MBLLP project can implement to have the greatest conservation impact in this final year of full GCPII funding. This year, we will focus activities on continued consolidation of participatory initiatives to conserve scarlet macaw nesting areas, strengthen the management of the MBR's Multiple Use Zone, and continue generating and disseminating data on biological indicators including scarlet macaws, jaguar, forest cover, xate palms, and fire.

The Maya Biosphere Reserve Living Landscape Strategy

The overall goal of the BCLS program in the Maya Biosphere Reserve is to conserve wildlife species and their habitat in the MBR while maintaining the economic productivity of renewable natural resources. To ensure conservation of the MBR's biological diversity, the BCLS program focuses on three interrelated objectives, and a fourth objective which is the responsibility of the New York Coordination Unit:

1. Develop an adaptive and participatory strategy to reduce threats to wildlife in the MBR.
2. Develop, implement and monitor sustainable mechanisms to reduce threats to wildlife and ecosystems across the MBR landscape.
3. Learn and teach best practices for conservation of the MBR landscape and beyond.
4. Guide the design and testing of wildlife-focused planning.

Nine main threats were previously identified as major sources of stress on the biological integrity of the Maya Biosphere Reserve. Threats include: hunting; market demand for wildlife; timber extraction and associated activities; theft of macaw fledglings from nests; unsustainable xate palm frond extraction; forest conversion; forest fires; uncontrolled human access; and lack of information at the local level. As demonstrated in the evolution of our work thus far, monitoring of the reserve and continuous feedback from partners will allow interventions to be reformulated when threats change in severity or when new threats emerge.

In FY08, Maya Biosphere Living Landscape Project (MBLLP) investments will focus on interventions that have demonstrated the greatest potential for impact while laying the foundation for future consolidation of our major interventions thus far. Although obtaining adequate funding for future field activities and interventions is likely to remain a challenge, one partial solution to this has been our cultivation of broad alliances, via participatory engagement in the numerous interventions we have undertaken. Fifth year project areas will include El Peru-El Burreal-La Corona-La Cariba-Peñon de Buena Vista; community forest concessions including Uaxactún, AFISAP, and La Colorada; the Q'eqch'í Maya village of Paso Caballos; and the Rio Azul section of Mirador-Rio Azul National Park. Interventions will continue to address all the key threats previously identified. Monitoring of deforestation and fire will continue as in previous years. Biological monitoring will focus on monitoring the abundance and distribution of scarlet macaw nests in key nesting sites already identified by the project, because the species is a superb umbrella and a flagship for conservation of the eastern Laguna del Tigre area, and also because it is by far the most threatened Landscape Species within our focal area. As during the past year, other biological investigations (including species abundance and distribution sampling to evaluate the precision of biological models) will be carried out as alternative funds become available.

Total Anticipated Level of Effort in FY08

Maya Biosphere Living Landscape: \$365,890 (USAID/EGAT \$186,504; USAID/GUATEMALA \$17,386; CEPF \$22,000; WCS Guatemala \$26,000; WCS NY/LLP: \$18,000; WCS Jaguar Conservation Program \$10,000, Asociación Balam: \$12,000; LightHawk: \$10,000; Rainforest Alliance: \$10,000, Plant Family Foundation \$20,000, Office of Federal Disaster Assistance- OFDA/USAID \$20,000, Global Heritage Fund \$6,500; Prospect Hill Foundation: \$7,500).

IMPLEMENTATION PLAN: FY08

OBJECTIVE 1: Develop an adaptive and participatory strategy to address threats to wildlife in the Maya Biosphere Landscape

The MBLLP will continue to involve local people and Guatemala institutions in all our conservation activities as the most effective way to reduce the significant levels of threat throughout the Maya Biosphere Reserve. The foci of our conservation activities will continue to be the conservation of priority Landscape Species and the conservation of the reserve's natural resources that are crucial to local economies. Maintaining (and increasing) local participation in all conservation activities will therefore continue to be one of the central tenets of all MBLLP activities. We will continue to involve local NGOs, government agencies and Guatemalan university students in field investigations, and work to ensure greater involvement and adoption of project objectives by neighboring rural community members whose livelihoods are linked to the sustainable management of the reserve. As in previous years, "participation" will consist of consultations and evaluations with community members and institutions that represent community interests. In some cases, feedback from local communities and other national stakeholders may require us to modify work plans (adaptively manage) to ensure social support for conservation initiatives. In other cases, "participation" will include full involvement in the design and implementation of an activity or set of norms, or even adoption of some shared financial responsibilities for the sustainability of projects, where possible. As in past years, we will strive for synergy with governmental institutions with legal mandates for the areas where we work.

Level of Effort (Total Objective 1): \$63,000 (USAID/EGAT: \$21,000; WCS: \$2,000, Plant Foundation: \$20,000; OFDA: \$20,000)

Activity 1.1 Complete a final updated and participatory strategy for the conservation of macaws

Accomplishments and implementation challenges

A draft protocol of a final updated strategy for the conservation of macaws was developed during the previous fiscal year and distributed to partners for review and supplementation. This draft "Species Recovery Plan for the Scarlet Macaw in the Maya Biosphere Reserve" will be completed over the next year, taking into account the numerous lessons learned during our field implementations over the last year, in addition to the field data collected by the MBLLP and other members of the *Guacamayas Sin Fronteras* (GSF) consortium². Over the last 4 years we have implemented a macaw-focused environmental education campaign with the local people, including school children, of Paso Caballos, La Colorada, Pipiles and Carmelita, among other sites. With the help of the La Colorada school, we recorded macaw fledges for the first time in the La Colorada concession during the 2007 nesting season. During 2007, our macaw protection pilot project with the community of Paso Caballos in conjunction with CONAP at the Peñon de Buena Vista of the Laguna del Tigre National Park resulted in 2 fledges flying. Perhaps most important, we collaborated with CONAP, SIPECIF³, Asociación Balam, and IDAEH to install a 47-kilometer fire break in eastern Laguna del Tigre that effectively delimited the future stronghold for macaw conservation. During the next year, one major challenge will be to continue our efforts to consolidate this important field advance. A second challenge will involve obtaining the final approval of the final macaw conservation strategy from CONAP's national office once local partners have provided adequate input.

² Members of GSF include various NGOs (ARCAS, Fundación Defensores de la Naturaleza, ProPetén and WCS) under the leadership of CONAP, Region VIII.

³ Servicio de Protección y Control de Incendios Forestales (SIPECIF) is the Guatemalan governmental institute responsible for fire prevention and control.

Key activities and their methodology:

The completion of the Species Recovery Plan for the Scarlet Macaw in Guatemala will continue by providing a final draft (with all sections added) to local partner organizations of the GSF consortium. We will also send a draft to macaw experts including Dr. Janice Boyd of Amigos de los Aves-USA and Dr. Donald Brightsmith of the Shubot Avian Health Center of Texas A&M University. Lessons learned from our experiences with local communities, as well as the participatory evaluations, will be included in the document. The activity will continue year-round.

Results/outputs:

The Final Macaw Conservation Strategy (“Species Recovery Plan for the Scarlet Macaw in the Maya Biosphere Reserve”) will be distributed to CONAP and other partners in FY2008.

Threats addressed:

Market demand for wildlife; timber extraction and associated activities; theft of macaw fledglings from nests; forest conversion; forest fires; uncontrolled human access; and lack of information at the local level.

Level of Effort (Total Activity 1.1): \$13,000 (USAID/EGAT: \$12,000; WCS: \$1,000).

Activity 1.2 Produce final conservation landscapes for landscape species

During FY07 we developed Conservation Landscape models for jaguar, scarlet macaw and Central America river turtle and presented the results to local partners and staff. Biological Landscapes were improved by additional sampling data obtained for these three species, and technical support was provided by NY-based WCS staff to review our landscape models and ensure quality products.

Key activities and their methodology:

During this last year of MBLLP field activities, we will work to sample species in key areas where data gaps exist, and focus significant effort on developing final Conservation Landscapes for our three main Landscape Species (listed above). In addition, preliminary Conservation Landscapes will be developed for our secondary species, including the white-lipped peccary (*Tayassu pecari*) and Baird’s tapir (*Tapirus bairdii*). We plan to continue surveying jaguars using a standardized camera trapping approach developed by WCS, and we will continue to gather data on scarlet macaw distributions and habitat use. These additional data will permit us to evaluate the precision of the existing Biological and Conservation Landscape models for these species, and refine them prior to the development of final versions. As much as possible, in order to allow GCPII funds to address the clear threats identified in other areas, we will seek funds from other sources to conduct these surveys. A major lesson learned over the previous 4 years of the project is that macaws and jaguars are the species most likely to provide us with the opportunity to motivate partners and decision makers to support interventions that have conservation impact. For this reason, if funds for sampling are limited, we will focus our efforts on scarlet macaw and jaguar. Final results will be presented to partners at a presentation in the Petén, and distributed via CD to all interested individuals and organizations.

Results/outputs:

Outputs will include final Conservation Landscapes for scarlet macaw, jaguar, and Central American river turtle, as well as preliminary Conservation Landscapes for Baird’s tapir and white-lipped peccary. A CD will be produced and distributed at the end of the project. We expect the final result of this activity will be a greater awareness of the Living Landscape methodology among project members, local conservation actors, conservation staff across Guatemala, and significant improvement in our ability to target conservation spending transparently and convincingly.

Threats addressed:

Hunting; timber extraction and associated activities; theft of macaw fledglings from nests; forest conversion; forest fires; uncontrolled human access; lack of information at the local level.

Level of Effort (Total Activity 1.2): \$9,000 (USAID/EGAT: \$8,000; WCS: \$1,000)

Activity 1.3 Consolidate an institutional partnership to promote biodiversity conservation and protection within the Multiple Use Zone of the Maya Biosphere

Over the past year, MBLLP made great strides by collaborating with Asociación Balam, the Critical Ecosystem Partnership Fund, Rainforest Alliance, FARES⁴, ACOFOP, local communities, industrial forest managers, and national organizations including the Guatemalan Park Service (CONAP) to advance conservation and protection initiatives across the reserve. One important advance included the development of the Mesa Multisectorial for the Mirador-Rio Azul Natural and Cultural Area. This multi-sector roundtable was launched in October of 2006, heralding an increased focus on the eastern half of the Maya Biosphere Reserve, including the majority of the Multiple Use Zone forest concessions⁵. During the past year, collaborations also continued with the umbrella group representing community-based forest concessions within the reserve (ACOFOP), as well as Rainforest Alliance. During the past year, also in conjunction with ACOFOP, we obtained and administered funding from the Plant Family Foundation to strengthen community-based fire prevention and control and vigilance programs in 9 community managed units. The program consisted of the provision of financial and material support to community forest concessions that demonstrated a willingness to invest counterpart resources in these crucial dry season activities, as well as the technical support of a WCS fire-prevention expert co-financed by WCS and the Plant Family Foundation. As during the past year, this funding was matched (to different degrees, based on ability to pay) by the community groups involved, ranging from 1:1 matches by Carmelita and Uaxactún, to no match by the impoverished village of Paso Caballos.

Key activities and their methodology:

The successes of the previous year were the direct result of working in alliance with numerous stakeholders to build critical mass for greater support for the Multiple Use Zone. As the “de facto” heart of the reserve, this adaptive and participatory strategy to conserve the reserve is clearly one of our most important activities. We will continue collaborating with other groups to support the activities of the Mesa Multisectorial, continue administering Plant Family Foundation investments and providing accompanying technical support, and continue engaging local communities and their leaders on a regular basis to harness their potential to help develop solutions. In keeping with the pattern of the last few years, we will “consolidate” the partnership by preparing joint, collaborative proposals for funding and presenting them to donors. Based on past experience, we are hopeful that this process will help to extend the current network of collaboration to more donor and public institutions, thereby ensuring that local actors, government, and other NGOs are working together to conserve the Multiple Use Zone of the reserve, and to support

⁴ Foundation for Archaeological Research and Science

⁵ After several years of planning and consultation, the “*Mesa Multisectorial para el Area Natural y Cultural de Mirador-Rio Azul*” was brought to life by an alliance including WCS’s national NGO partner - Asociación Balam, WCS Guatemala, the Association of Forest Communities of Petén (ACOFOP), CONAP, IDAEH, and the office of the Executive Secretary of the Presidency. The “Mesa” or “Roundtable” was convened with the objective of establishing a forum for dialogue and the development of consensus regarding the future of the area of influence around Mirador-Rio Azul National Park, including the park itself. The need for this forum resulted from a lingering lack of confidence regarding previous proposals for conserving and developing the area, and due to the need for increased clarity and consensus regarding plans for the area over the long-term. The Mesa Multisectorial was launched in late October 2006 with the participation of representatives of numerous “sectors” of society, including the President of Guatemala, Ministers of relevant governmental agencies, the Executive Secretary of CONAP, the Director of INGUAT, the Director of IDAEH, UNESCO, National and International NGOs, local community groups and their representative organizations, private sector groups, donors, and the delegations of various embassies in the country. Seven ordinary sessions of the Mesa have subsequently been convened, in addition to one extraordinary session presided by President Berger of Guatemala (held on July 5, 2006). Tangible results of the process include increased participation by local actors formerly leery of all efforts to conserve and develop the ecotourism potential of the site of El Mirador; growing participation in the Mesa as it advances; formal recognition of the Mesa by the full Council of the Consejo Nacional de Areas Protegidas (CONAP); promotion of a Presidential Decree by President Berger to institutionalize the Mesa to ensure its continuity after the change in government planned for January 2008; improved coordination of the long-term US Department of Interior and Global Heritage Fund investments planned for Mirador-Rio Azul National Park and the area of Carmelita; improved Mesa facilitation and development of a social outreach program to local communities as a result of a grant provided by the Flora Family Foundation; development of participatory commissions designed to evaluate important aspects such as future access to the area; collaborations on jaguar research; a collaboration to improve the protection of the Multiple Use Zone area adjacent to the Mirador section of the park; and a pledge by Guatemalan President, Lic. Oscar Berger to invest \$650,000 (i.e. 5 Million Quetzales) to establish 6 checkpoints to control open access across the eastern Maya Biosphere Reserve.

local communities interested in sustainable management. Roan McNab and Luis Romero will lead WCS efforts in this year-round activity, joined by our NGO partner Bayron Castellanos of Asociación Balam.

Results/outputs:

Expected results include the strengthening of community-based fire prevention and protection programs. We will also develop and present at least two significant joint proposals; at least one of which will focus on community-based fire prevention and protection efforts. As in past years, WCS will focus on maintaining ongoing support for the Control and Vigilance Committee of OMYC, Uaxactún, the pilot group for this activity that developed into a model for other concessions in the reserve. We expect that the Mesa Multisectorial will continue, providing a springboard to other opportunities that will provide resources and technical support for community groups working to improve sustainable management initiatives across the reserve.

Threats addressed:

Hunting; market demand for wildlife; timber extraction and associated activities; theft of macaw fledglings from nests; unsustainable xate palm frond extraction; forest conversion; forest fires; uncontrolled human access; and the lack of information at the local and national levels.

Level of Effort (Total Activity 1.3): \$41,000 (USAID/EGAT: \$1,000; Plant Foundation: \$20,000; OFDA/AID: \$20,000)

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

Initial MBLLP conservation interventions were selected jointly by WCS and CONAP members (Consejo Nacional de Áreas Protegidas, the National Park Service) based on extensive local experience and previous threats analyses. Updated threats analyses, incorporated into final Human Landscapes (developed during FY07), as well as the results of WCS biological monitoring activities in the biosphere helped provide a more complete understanding of local conservation needs and challenges.

Throughout the span of the MBLLP project, WCS has been fortunate to have access to real time monitoring of threats due to our collaboration with the CEMEC laboratory, and during the dry seasons due to over-flights by Light Hawk⁶. These inputs have allowed us to constantly evaluate the effectiveness of many of our field interventions. In other cases, our staff and local community partners in the field have been our eyes and ears, helping us to prioritize activities based on impact.

Our interventions during this fiscal year will focus on the field activities deemed to have the greatest conservation impacts. For example, clearly one of our most urgent and thus far successful “landscape interventions” has been the protection of the macaw nesting areas in the eastern Laguna del Tigre area. We have achieved this through a combination of targeted interventions (including direct protection of nesting sites), involvement of communities in macaw monitoring and protection, monitoring of macaws in timber concessions, field sampling of other species, environmental education of youth via scholastic monitoring of nests, over-flights with Light Hawk, the prevention and suppression of forest fires, and the development of basic field infrastructure (with non-GCPII funds). Five strategic macaw nesting sites are being monitored and protected (El Peru, El Bural, La Corona, Peñón de Buena Vista, and the AFISAP forest concession). All of these efforts are based on the location of 31 active macaw nests detected across an area of approximately 150,000 hectares during FY07.

We will also strive to maximize the sustainability of interventions. As mentioned in the FY07 annual report, CONAP absorbed several of the Paso Caballos personnel trained by WCS to monitor and protect macaws. Archaeologists and other conservation NGOs have increasingly supported (and led) the charge to conserve the macaw areas of eastern Laguna del Tigre. And despite the pending termination of CEPF funding for the area, we were able to make a great

⁶ Light Hawk is an international non-governmental organization that provides over-flights for conservation purposes (exploration, aerial observation, surveys, mapping, monitoring, surveillance, education, etc)

step forward by establishing the 47-kilometer fire break during the 2007 dry season in the eastern Laguna del Tigre area. Another important advance consisted of the Guatemalan Government's inclusion of eastern Laguna del Tigre within the list of sites to be supported by the advancing Debt-for-Nature Swap.

A majority of the GCPII funds in FY08 will be used to maintain successful interventions in the Laguna del Tigre macaw sites, maintain monitoring activities across the reserve to the extent possible, and continue to test and refine pilot initiatives that hold promise in other parts of the reserve. Accordingly, biological sampling of species will be restricted to work with scarlet macaws (by the far the most threatened Landscape Species within our focal area) and jaguars. Sampling of other species will be undertaken based on our ability to raise funds and obtain technical support from other sources.

Level of Effort (Total Objective 2): \$254,386 (USAID/EGAT: \$137,000; USAID/GUATEMALA: \$17,386; CEPF: \$22,000; WCS: \$22,000; WCS-Prospect Hill Foundation: \$7,500; Asociación Balam: \$12,000; LightHawk: \$10,000; Rainforest Alliance: \$10,000; WCS-JCP \$10,000; Global Heritage Fund: \$6,500)

Activity 2.1 Scarlet macaw nest protection

Scarlet macaw nest protection activities during FY07 again yielded encouraging results, with poachers only climbing two of the 31 active nests detected. The vast majority of the scarlet macaw nesting landscape avoided impact by fires, with some modest fire incursion towards the area of El Burreal, precisely where the 47-kilometer fire break was established. This was the result of the ire of illegal colonizers towards CONAP, Police, and SIPECIF for taking the precaution to delimit and protect the area – as opposed to leaving it wide open to additional colonization. The response of some illegal colonizers was to set fire to both sides of the fire break, thereby causing the fire to spread. Fire crews, including personnel from Paso Caballos and WCS, were forced to rush to these areas and extinguish the fires before they spread. But because the fire “shield” was placed 3-5 kilometers to the west of detected concentrations of macaw nests, at the end of the fire season none of our known nests had been affected by fire. The continued success in this activity was due to the collaborations established with local community groups such as in Paso Caballos, AFISAP, and to some extent La Colorada, as well as the continued support of the park service (CONAP), the archaeological institute (IDAEH), and archaeological researchers, and donors such as CEPF, the Plant Family Foundation, and USAID Guatemala, among others.

Key activities and their methodology:

We have received verbal confirmation of an extension of CEPF support through March 2008. This welcome collaboration will allow us to maintain technical and logistical support for nest protection efforts around three key macaw nesting sites in eastern Laguna del Tigre: La Corona, El Burreal, and the Peñon de Buena Vista. As in previous years, WCS field technicians who monitor macaw nesting success will support the protection system by providing information on detected incursions to CONAP enforcement staff, who will subsequently coordinate with DIPRONA (natural resource police) posted in the area.

Support from the Prospect Hill Foundation will allow us to continue the Pilot Project for community-based monitoring and protection of macaw nests at Peñon de Buena Vista, within Laguna del Tigre National Park. During FY08, two of the most experienced members of the group (Antonio Xol, Pedro Choc) will continue with their expanded responsibilities, helping to cover the nesting sites at Peñon de Buena Vista and also those at El Peru. A newly formed community group from Paso Caballos (Amigos de la Selva) will receive technical and material support to prevent 2008 dry season fires in the Yala-Pejelagarto lowlands to the south of the Peñon de Buena Vista. Their initial forays into the area during the 2007 dry season helped to repel continued fire pressure on the area. The central interest of this Paso Caballos group involves protecting the watershed and arroyos that provide the only potable water to the entire village of Paso Caballos.

Unlike last year, at this point WCS-Guatemala has not received any indication of a forthcoming grant from USAID-Guatemala for fire prevention and suppression in areas of biological importance during the upcoming 2008 dry season. During the past 4 years, USAID and USDOJ funds have been central to ensuring field presence at the remote field sites of El Burreal and La Corona during the high-threat dry season and developing a functional “shield” for both the macaw nesting sites and the economically productive Multiple Use Zone of the reserve. In the long term, as detailed in our

FY07 Implementation Plan and Annual Report, our strategy for financial sustainability of these activities over the next 10 years is based on the incorporation of eastern Laguna del Tigre in the Debt-for-Nature Swap (DFNS) slowly advancing, and on the transference of scarlet macaw nest protection activities to our national NGO partner, Asociación Balam. Nevertheless, we face a major challenge this year. If neither DFNS funds nor continued USAID/USDOJ are available by February 2008, much of the territory protected over the last 4 years will be vulnerable to illegal colonization and degradation.

WCS and Asociación Balam staff responsible for implementation of the strategy include: Roan Balas McNab, Bayron Castellanos, Rolando Monzón, Rony Garcia, Ramon Peralta, Luis Morales and Marcial Cordova, as well as the rest of the WCS Guatemala field staff. COCODES of Paso Caballos, *Proyecto Arqueológico El Peru-Waka*, CONAP, IDAEH, the Prospect Hill Foundation, Light Hawk, DIPRONA, and ACOFOP will provide additional support. Activities will be concentrated from January through June, during the fire and macaw nesting season.

Results/outputs:

We expect that fire impacts will again be minimized and macaw fledgling rates maintained. A report on the results of the fire protection activities provided to USAID-Guatemala, summarizing the extent of habitat and number of nests affected by fire across the focal protection sites; a report on the final results of macaw nesting during the 2007 nesting season including the number of active nests found, and the number of chicks fledged.

Threats addressed:

Hunting; theft of macaw fledglings from nests; forest conversion; forest fires; uncontrolled human access; lack of information at the local level.

Level of Effort (Total Activity 2.1): \$69,000 (USAID/EGAT: \$45,000; WCS (PHF): \$7,500; CEPF: \$20,000; BALAM: \$4,000)

Activity 2.2 Improved control of access via monitoring and checkpoints

As reported in previous annual reports, our pilot projects to control open access in key areas of the reserve have evolved considerably over the last 4 years. In early 2004, an initial road barrier built in Mirador-Río Azul National Park with the participation a support of members of neighboring management units was destroyed shortly after being built. In late 2005 Asociación Balam and CONAP rebuilt a stronger, permanent barrier with the support of the MBLLP. Unfortunately, this road barrier was also destroyed by traffickers of human migrants within 6 weeks of reconstruction, reportedly by attaching a grenade to the concrete and steel structure. The proposed construction of a similar “unmanned” road barrier at the Caobitas forest outpost was cancelled due to news that AFISAP forest concession personnel would not maintain permanent presence at the site. In response to these lessons learned, we adapted our strategy from the “construction of unmanned road barriers” to the “promotion of improved control of access via monitoring and checkpoints”. During FY07, MBLLP joined forces with Asociación Balam, ACOFOP, and the Rainforest Alliance to support the establishment of a checkpoint at the site of Manantial. Based on the subsequent results of community-based vigilance patrols as well as evidence of massive amounts of illegal hunting and tomb looting obtained during a WCS jaguar survey in the area of La Gloria-Lechugal, numerous institutions joined forces to construct a similar checkpoint at the site of Pescaditos. The President of Guatemala subsequently promised Q5 Million (\$650,000) for the establishment and/or strengthening of 6 checkpoints across the eastern Maya Biosphere Reserve.

Key activities and their methodology:

We will continue to monitor access by mapping informal roads and disseminating information about these access routes to the managers of the area and the broader public. This strategy will allow us to address a greater number of the access routes than the previous barrier-construction effort. Roads, including the newly detected road towards Nacbé from Lechugal through the La Gloria concession, will be monitored during the dry season, and information will be provided to CONAP and the manager of the area. Other roads in this category include the Melchor-Tres Banderas road, the road from la Gloria to Champas Quemadas and Dos Lagunas, and the Paxbán road that approaches Mirador-Río Azul National Park.

We will also focus on the promotion, installation, and efficacy of manned checkpoints across the reserve. Among these, key checkpoints will include Manantial (along the Melchor-Tres Banderas road), Achiotal (along the La Colorada-Puerto Arturo road), and Arroyo Negro (in Rio Azul – promised by the President, but not yet constructed). WCS will provide assistance to CONAP staff and DIPRONA natural resource police to obtain resources from other sources, where possible, to formalize these checkpoints. However, upon establishment it will be imperative to ensure that formal operating procedures are in place, including strategic plans for regular forest patrols based out of each checkpoint, as well as operating procedures for the review of people and vehicles that attempt to pass through these checkpoints.

Local staff responsible for this activity include: Roan Balas McNab, Bayron Castellanos, Luis Romero, Victor Hugo Ramos, and Rony Garcia, with the collaboration of personnel from CONAP, CEMEC, Asociación Balam, and ACOFOP.

Results/outputs:

Expected results include the expansion and improvement of the current system of checkpoints across the eastern Maya Biosphere Reserve. Outputs include strategic plans for each of the checkpoints and the development of a manual of basic operating procedures for each site.

Threats addressed:

Uncontrolled human access, lack of information at the local-national level.

Level of Effort (Total Activity 2.2): \$12,800 (USAID/EGAT: \$6,800; WCS: \$4,000; BALAM: \$2,000)

Activity 2.3 Surveys for macaw nests in timber concessions

Our investigations in previous years have revealed that AFISAP and La Colorada are the only two timber concessions with documented macaw nests within their territories. In 2004 and 2005, with the help of community members, we conducted searches for macaw nests in AFISAP's timber harvest areas slated for that year (covering small areas, and yielding no nests found). In 2006 we employed the scholastic monitoring program to help us identify nests in the La Colorada forest concession. During 2007, we re-doubled our focus on AFISAP because our Biological Landscape models indicated that the area should indeed be capable of supporting scarlet macaw nests, and due to the historical records of "old timers" that reported having poached nests in the area years ago. During the 2007 nesting season 2 WCS technicians were joined by 4 AFISAP personnel who were trained in nest detection and monitoring, including GPS use, tree climbing, map reading, and artificial nest installation techniques. A macaw and fire monitoring lookout tower was also constructed at the site of Achiotal. Results of FY07 searches revealed a total of 3 active nests in the AFISAP area, and 1 additional nest in La Colorada. In total, these 4 nests produced 4 successful fledges, 24% of the 17 fledges reported. During the nesting season, AFISAP managers were extremely cooperative, covering two full salaries of the 4 AFISAP members trained, and demonstrating marked enthusiasm despite their financial limitations. At the end of the season, a full report was provided to AFISAP managers, effectively "certifying" them as important contributors to scarlet macaw conservation in Guatemala– thereby permitting them to incorporate the information in future SmartWood audits.

Key activities and their methodology:

As during the past year, we plan to search for nests in the AFISAP forest concession and adjacent sections of La Colorada employing the standard methodology of searching from Maya ruins, from lookout points in emergent trees that rise above the canopy, and from along trail walks. We will continue to consult with forest concession actors on the best areas for this activity. WCS will provide some counterpart resources to support the activity, including local managers for the searches. As during the past year, when a grant from USAID-Guatemala was forthcoming for this activity, we will also attempt to raise additional resources to allow local managers to protect the area, and search for and protect macaw nests at the same time. At the end of the searching season, we will make an official presentation of the results to the forest concession authorities. Lastly, WCS has received reports of macaws utilizing the Carmelita community-based forest concession area of Chuntuquí. If, upon investigation, these reports prove positive, we will

make every effort to collaborate with the community of Carmelita to continuously monitor the area, with the hope of determining if the area is merely a feeding area, or if it might also contain well-hidden nests.

The coordinator of these activities will be Rony Garcia, with the support of Marcial Cordova, Jeovani Tut, Edilberto Muñoz, and Kender Tut. Field activities will take place between January-June 2007.

Results/outputs:

Greater protection of macaws on timber concessions. A final report with an updated record of the historical and current distribution of nests within the AFISAP forest concession.

Threats addressed:

Timber extraction and associated activities; theft of macaw fledglings from nests; lack of information at the local level.

Level of Effort (Total Activity 2.3): \$12,600 (USAID/EGAT: \$7,000; USAID Guatemala: \$5,600)

Activity 2.4 Test and evaluate xate management alternatives

In July 2005, a joint pilot project by Rainforest Alliance (RA), WCS, and OMYC initiated the first ever selective harvest of xate within the Maya Biosphere Reserve. Interest by Continental Greens of Houston, Texas in developing a certified market for xate was brokered by RA, and field implementation of the pilot project was supported by WCS. By paying harvesters for high-quality fronds only, the number of poor-quality fronds harvested has dramatically declined—laying the groundwork for more sustainable harvests. This project has also been instrumental in increasing the participation of local village women by providing them with training and subsequent employment as the bodega’s xate sorters. In this sense, women play a key role in the enterprise, serving as quality control monitors and ensuring that the harvest quality (and thereby the biological sustainability) is maintained. During FY06, WCS, Rainforest Alliance, and ACOCOP joined efforts to support local communities (led by OMYC of Uaxactún) to obtain a cold room for xate storage. The room was built in the central area, and continues to play a key role. In FY07, WCS played a crucial role by helping to improve the financial administration of the xate bodega. Our first contribution included providing supporting funds for a “preliminary financial revision” of the management of the bodega by the first 4 OMYC administrators elected by OMYC’s Xate Committee to manage the bodega⁷. This first financial revision demonstrated that the 4 village administrators appointed had been incapable of managing the bodega’s finances without losing (or possibly embezzling) money. Our second intervention taken in concert with OMYC involved hiring Mr. Julio Zetina to administer the xate bodega. This step forward has resulted in a sea change in terms of the economic viability of the enterprise. Thus far, nearly \$200,000 of xate has been exported from Uaxactún by the bodega, representing a significant source of income to this village of 250 families.

Despite these important advances, significant hurdles persist due to the already established (parallel) xate industry that pays xateros based on bulk, and not on quality. Thus far, CONAP has been unable, and possibly even totally disinterested, in resolving this clearly unsustainable situation. An analogy to this example would be the promotion of a certified timber harvesting scheme in the very same forest concession that allows totally open harvests on mahogany trees with no regulations whatsoever. Again, as reported last year, despite its promise, the pilot project has, in the short-term, increased the harvest pressure on xate by developing an additional market without reforming the pre-existing one. We will thus continue to take two approaches in an important effort to reform and improve the xate industry: a) constantly adapt our work plan to strengthen OMYC’s capacity to manage the bodega, making a specific

⁷ The rapid turnover of xate bodega administrators was due to a number of factors, including improper management by administrators, inadequate skills for administrative management, lack of proper supervision by OMYC leadership, internal competition among xateros, and a lack of adequate technical support for the bodega among other factors. These all contributed to the rapid succession of 6 different administrators within the first 15 months of the project. By that point, it had become clear that the only way the bodega would survive was by working with OMYC to hire an administrator capable of maintaining accurate records of costs and income, and who could also report these results on a regular basis to the broader community. Over the mid-term, this administrator would have to work with village youth to train them, via hands-on processes, to administer the bodega in the future. Rainforest Alliance is thus currently promoting a project entitled “learning while doing”, and we expect they will send the village youth sponsored to obtain these skills to support the bodega and learn from the current administrator in the future.

effort to inform the xateros on a regular basis about the financial state of the project, and b) continue to provide information and raise awareness to promote the wide-scale reform of the xate industry.

Key activities and their methodology:

During FY08, we will continue our coordination with CONAP and Rainforest Alliance to support OMYC's xate management efforts. To this end, WCS Guatemala will continue to finance Mr. Julio Zetina's support to OMYC as the xate bodega administrator.

In terms of local management challenges, our program will take the following steps to increase the viability of the adaptive management of xate in the Uaxactún concession:

- 1) We will continue collaborations with CONAP, OMYC, and Rainforest Alliance to ensure that the Xate Management Plan for Uaxactún, which was recently approved by CONAP's Guatemala headquarters, is implemented gradually. This will involve the gradual adaptive process of stepwise implementation⁸, as the local managers (i.e. OMYC) with *de facto* control of the area will have to take the lead on monitoring and enforcement.
- 2) We will continue to offer OMYC the services of the CEMEC mapping institute to keep track of the camps throughout the concession where xate is harvested. This is aimed at ensuring that appropriate recovery time is provided for the resource in the wild.
- 3) We will continue to provide technical support to OMYC's (Uaxactún's) community-based control and vigilance guards, who are charged with field monitoring and inspections across their concession.
- 4) WCS biologists will continue to monitor xate waste in the villages of Uaxactún, Carmelita, and San Andres during FY08.
- 5) MBLLP staff will also collaborate with CONAP, which recently initiated a similar monitoring program in the xate bodegas of the main exporters in the central area of Petén.

MBLLP staff responsible for the monitoring will be: Rony Garcia, José Moreira, Edilberto Muñoz, Kender Tut, and Eleazer Gonzalez. Julio Zetina and Roan Balas McNab will be responsible for the administrative support to the xate bodega in Uaxactún, and for information flow between OMYC and CONAP. Nery Solis will be responsible for providing maps and spatial information to OMYC for improved management and adoption of the criteria in the xate management plan.

Results/outputs:

We expect that the long-term result of these activities will be a more sustainable harvest of xate, with increased local benefits for women, xateros, and OMYC alike. Likely "losers" of these activities are the administrators and owners of companies that have long supported the unsustainable model of "quantity-based" payments to xate harvesters, as opposed to ensuring the "quality" of the xate harvested. Short-term results include necessary technical support and improved management of the xate bodega of OMYC-Uaxactún. The final output will consist of an annual report on the state of xate management in Uaxactún, with recommendations for future efforts in other areas.

Threats addressed:

Unsustainable xate palm frond extraction; lack of information at the local level.

Level of Effort (Total Activity 2.4): \$30,572 (USAID/EGAT: \$6,000; USAID/Guatemala: \$4,572; WCS: \$10,000; Rainforest Alliance \$10,000).

⁸ For example, 8 xate camps in the Uaxactún concession already have installed latrines, with both contratistas and the OMYC xate bodega collaborating. OMYC's Control and Vigilance guards are tasked with ensuring that private contratistas install latrines in their camps, and manage garbage adequately.

Activity 2.5 Monitor trends in landscape cover

For the last 4 years the MBLLP has supported CONAP and the Centro de Monitoreo y Evaluación de CONAP (CEMEC mapping institute) in monitoring deforestation, fire, infrastructure, and climate across the MBR, and in some cases across the entire Department of Petén. Monitoring based on remote sensing tools is one of the most important and cost effective management activities required for the sustainable management of the reserve. For this reason, despite limited financial resources for field implementation, the MBLLP will continue to invest in monitoring via the CEMEC monitoring institute. The final annual deforestation and fire reports for 2006-2007 will be available in October 2007. Preliminary results demonstrate that during 2007 a reasonably marked dry season established the conditions for a significant number of forest fires across the reserve, with the majority of them located in Laguna del Tigre and the Maya Biosphere Reserve's Buffer Zone. As in previous years, deforestation continued to spread in the central and western Laguna del Tigre areas, and along the San Andrés–Carmelita road. Extensive sections of the community forest concessions of La Pasadita and San Miguel were deforested as were, to a lesser extent, areas within Cruce la Colorada and La Colorada. In the extreme northeastern corner of the reserve (Rio Azul), the cultivation of illegal agricultural products originally detected in 2006 appears to have expanded significantly. One over-flight undertaken in May revealed 18 individual clearings, in clusters of 2-6 clearings per area. Although these clearings are small, averaging perhaps an acre per clearing, they portend a serious threat to the integrity of the area due to the clearly illegitimate nature of crops in the area. Our scarlet macaw nest protection efforts continued facilitating the consolidation of the eastern Laguna del Tigre area, with negligible land cover change in the protected areas, either due to fire or deforestation.

Key activities and their methodology:

We will continue our collaboration with CONAP and the CEMEC mapping institute to analyze trends in landscape cover and fire prevalence across the MBR, with a detailed focus on the eastern edge of Laguna del Tigre National Park – the fire and immigration frontier that threatens the scarlet macaw nesting areas and the still-intact dense forests of the eastern Maya Biosphere Reserve. Ongoing surveys will help identify current “threat hotspots”, and continue to allow WCS and CONAP to strategically target threat abatement activities. Work will be executed from October 2007 through September 2008, and will require the acquisition of satellite images during and after the spring months (Feb-May) when skies are more likely to be clear and the majority of forest fires and clearing occurs. This effort will be coordinated with a WCS Biological Monitoring program, supported by USAID-Guatemala, designed to develop an indicator evaluation system for the entire Maya Biosphere Reserve. The coordinator of this activity will be CEMEC Director Victor Hugo Ramos, with the support of Nery Solis.

Results/outputs:

Results include an annual assessment of landscape cover changes and the prevalence of fire within individual management units (parks, concessions) across the MBR, leading to targeted management interventions.

Threats addressed:

Forest conversion; uncontrolled human access; and lack of information at the local level.

Level of Effort (Total Activity 2.5): \$23,427 (USAID/EGAT: \$18,200; USAID/Guatemala: \$3,227; CEPF: \$2,000)

Activity 2.6 Monitor trends in precipitation and climate (assessing fire risk)

During FY07, we monitored the accumulated precipitation and generated preliminary reports that were sent to all stakeholders early in the fire season (February) to inform them of the increased level of threat this year. CEMEC staff also continued collecting climate data from remote weather stations⁹ to better our understanding of rainfall and the threat of fire across the reserve. A report comparing the data from the weather stations across the MBR with the Tropical Rainfall Measuring Mission (TRMM) computer rainfall models provided by NOAA will be available in January 2008.

⁹ Unfortunately, 5 of the 10 remote Davis Instruments weather stations provided to CONAP-CEMEC-WCS by the US Dept. of Interior have proven to be technically unreliable. In addition, as Davis Instruments discontinued the weather station model some 8 months after the units were obtained, we have thus been unable to repair and maintain the stations that malfunctioned.

Key activities and their methodology:

We will evaluate incoming data and execute the early alert system on fire risk based on the analysis of weather data and phenological observations obtained from analysis of MODIS EVI data and field surveys. This system will enable us to predict the potential risk of the fire season by late February or early March. It will also improve management decisions taken by the Guatemalan Government's fire prevention agency (SIPECIF), helping to justify budget requests (based on the seasonal outlook) and work plans. We will continue monitoring fires during the fire season (Feb-June) using fire pixels from MODIS, producing periodic reports, and daily email updates on the current situation. These products will be distributed (as in the past) via email to numerous government and non-governmental stakeholders, including the press and local communities. These reports will also be posted on internet in the SERVIR site (<http://servir.nsstc.nasa.gov/fires/cemec.html>) as was done in 2006 and 2007. The coordinator of this activity will be CEMEC Director Victor Hugo Ramos, with the support of Nery Solis, and field support from CONAP and IDAEH staff.

Results/outputs:

Preliminary report on the patterns of climate in 2007, made available in January 2008; real time monitoring of the amount of precipitation as estimated by NOAA will be conducted during the entire 2008 dry season; and reports on the level of risk provided weekly to a number of stakeholders via internet: all aimed at controlling fire impacts.

Threats addressed:

Forest fires and lack of information at the local level.

Level of Effort (Total Activity 2.6): \$11,000 (USAID/EGAT: \$10,000; WCS: \$1,000).

Activity 2.7 Monitor trends in macaw population

WCS-Guatemala and MBLLP personnel have monitored the nesting success of macaws during the last five breeding seasons in El Peru and Burreal (2003-2007), and for the last three years at the Peñón de Buena Vista. Each season we visit tree cavities and check them to determine nesting activity, number of eggs, hatchings, depredated chicks, and successful chicks. During the 2006 season we were able to monitor nesting success at the site of La Corona and within the AFISAP community forest concession, including expanded searches for active nests at both sites. Final results for the 2007 nesting season included 31 active nests monitored across the Maya Biosphere, with at least 17 successful fledges reported, and increase of 6 fledges as compared to 2006. Regular monitoring during FY2007 revealed that reproductive pairs laid an average of 3.2 eggs per nest, and that 33% of the chicks produced fledged successfully.

Key activities and their methodology:

We will continue to focus our macaw monitoring efforts on determining the number of active breeding pairs located in 5 key areas/sites of the reserve: El Peru, Peñón de Buena Vista, La Corona, El Burreal, and AFISAP. Although WCS field technicians were informed of 3 additional nests in the central Laguna del Tigre area of Torre Chocop¹⁰, the five previously-monitored areas contain the vast majority of the known nests within the Maya Biosphere Reserve. This focus on determining the number of active nests within each key area will allow us to monitor nest activity in the same way each year in the future, sampling each site as a subset of the entire population. The number of active nests within these five sites will be our indicator to determine if the macaw population is stable, rising, or in decline. In addition to these activities, we will continue to monitor the nesting success of each nest whenever possible. This type of field monitoring requires regular visits to a site, providing additional important dividends in terms of field presence and protection.

Participatory monitoring of macaw nests will continue with the schoolchildren of Paso Caballos, Pipiles, La Colorada, and possibly Carmelita. Children will be recruited to help us identify nests via outreach with their parents. If new nests cannot be identified, known nests will be monitored. In La Colorada and Pipiles similar monitoring during 2007 helped us detect successful fledges for the first time (3 in Pipiles, 1 in La Colorada). Select nests will be monitored twice a month during the breeding season. During each visit, students will visit nesting sites and have the opportunity to climb

¹⁰ These three nests were felled by poachers, and presumably did not successfully fledge chicks.

the trees with the help of climbing equipment. If adult macaws are not in the area, we may (as in the past) provide students with an opportunity to observe and photograph the development of the eggs and chicks in the nest. At the end of the breeding season, we will present the schools with a diploma recognizing their involvement and support in the macaw conservation program. This diploma will be awarded by local authorities along with WCS-Guatemala staff during a closing ceremony. WCS personnel include Lic. Rony Garcia, project leader Jeovani Tut, assistant Victor Mendez, and school teachers from the various schools.

Results/outputs:

Results include an inventory of the number of active nests at the five main macaw sites within the reserve, the number of active nests at Pipiles, and the identification of areas subject to nest robbing (by human and non-human predators) to better orient protection efforts. We will produce an annual report detailing nest distributions and nesting success across the eastern MBR at the end of the breeding season (in September 2008), and another report describing the advances from the school monitoring activity.

Threats addressed:

Theft of macaw fledglings from nests; lack of information at the local-national level; forest conversion; and forest fires.

Level of Effort (Total Activity 2.7): \$34,987 (USAID/EGAT: \$30,000; USAID/Guatemala: \$3,987; WCS: \$1,000)

Activity 2.8 Develop methodologies to monitor trends in selected landscape species

During the last year, the MBLLP carried out diverse activities to continue to develop the most effective ways to monitor population trends in selected landscape species across the reserve. From April to June 2007, we conducted a camera trap study in La Gloria- Lechugal area of the MBR's Multiple Uses Zone to determine jaguar abundance in the area. Results revealed 6 individual jaguars within the sampled area, a comparatively low density as compared with Tikal (probably due to extensive prey hunting and other threats in the area). Additional experimentation with camera placement and the use of olfactory lures¹¹ could help to verify the improved capture rates observed last year. Constant presence of WCS staff in the area revealed a high level of poaching activity by outside people, and this finding promoted the establishment of the "Los Pescaditos" checkpoint with the support of the Guatemalan Government.

Asociación Balam received a grant from the Guatemalan Government (CONCYT) to support research to determine habitat use and ranging patterns of white lipped-peccary in Mirador-Río Azul National Park. Field sampling of white-lipped peccary was carried out since March 2007 with the intent of capturing 6 individuals and fitting them with telemetry collars to track their movements. Despite constant monitoring of peccary herds, we were unable to capture individuals due to a very low encounter rate and problems with darting the animals. Throughout the year, however, we will continue monitoring their use of waterholes within the park, and continue to test the use of camera traps at water bodies to monitor their use.

The WCS-Guatemala field project also began a long-term collaboration with the WCS Jaguar Conservation Program (JCP) to support a regional effort to maintain, and in some cases restore, the connectivity of habitat so as to permit jaguar dispersal across the Mesoamerican isthmus. This project entails working on "jaguar issues" outside of the Maya Biosphere Reserve, including the persistence of existing habitat islands, gaining a better understanding of conflicts between jaguars and cattle ranching activities, surveying for presence-absence of jaguars in forest fragments and other protected areas in the country, and ground-truthing possible dispersal corridors. Thus, we will increasingly frame our jaguar conservation efforts within these greater Mesoamerican efforts to conserve the jaguar across the entire Mesoamerican Biological Corridor.

¹¹ As recommended by Dr. Eduardo Carrillo, former WCS jaguar expert working in Costa Rica, we used Obsession perfume for men as an attractant, apparently with some success. Future trials of this will confirm if the effect is reliable.

Key activities and their methodology:

As described in other part of this plan, during FY08, we will focus our field efforts on the two species most likely to motivate local actors and decision makers in Guatemala to conserve the Maya Biosphere Reserve: scarlet macaws and jaguar. However, we will continue to attempt to gain a better understanding of the ranging patterns and habitat needs of the white-lipped peccary. One underlying goal of the field work will be to continue to refine the methodologies to best monitor trends in our selected Landscape Species and to evaluate our Biological Landscapes. In each case, we will strive to obtain value-added conservation impact by using field efforts as “interventions” in their own right (i.e. using the field presence of researchers to dissuade hunting, poaching, and looting in fully protected areas, and building alliances with local managers to create more support for conservation goals)

This year we obtained a new set of remote capture cameras that will be used to sample jaguar abundance in the Carmelita community forest concession sometime in early 2008. We will continue collaborating with the WCS Jaguar Conservation Program to investigate the relationship between cattle ranching and predation by jaguars across the reserve and around forest fragments south of the MBR.

WCS’s national partner NGO, Asociación Balam will continue field research on white-lipped peccary in Mirador-Rio Azul National Park. Financial support for this investigation was obtained by Asociación Balam via a grant from the Guatemalan Government (CONCYT). This support will also help to strengthen the Balam’s presence in the park due to the extensive field work that will be carried out during the study. Accordingly, we will collaborate with students, park guards, and other researchers to increase manpower and resources to the level necessary for successful implementation of field activities.

The coordinators for all these activities will be: Rony Garcia, José Moreira, Gabriela Ponce and Marcial Córdova of the WCS MBLLP.

Results/outputs:

Results include improved knowledge of jaguar abundance throughout the Maya Biosphere Reserve, and a better understanding of white-lipped peccary movements in the northeastern part of our focal landscape. Outputs will include a final report on the results of jaguar sampling in the Carmelita community concession, as well as a final report on the use of water bodies by white-lipped peccaries in Rio Azul.

Threats addressed:

Lack of information at the local-national level; subsistence and market hunting (via increased field presence).

Level of Effort (Total Activity 2.8): \$33,500 (USAID/EGAT: \$10,000; WCS-JCP: \$10,000, Global Heritage Foundation: \$6,500; BALAM: \$6,000; WCS Guatemala: \$1,000).

Activity 2.9 Increase Economic Sustainability of WCS Conservation Management

In FY07 we abandoned efforts to develop a captive breeding program as a source of juvenile macaws to be released into the wild, due to the difficulty of obtaining adequate diagnostic health screening of captive-born birds and their parents. Instead of augmenting wild populations through the above mentioned *ex-situ* captive breeding program, we are now considering an *in-situ* program designed to increase the survivorship of the 67% of the fledglings lost in the wild to natural predators, wild bees, and other causes. In addition, contacts with Grupo Taca also failed to materialize. These changes forced us to look elsewhere for new ways to increase the sustainability of our scarlet macaw programs and other activities within the reserve.

The field visit to our macaw program by the BBC “Animal Ark” television series did, however, yield an opportunity to present a proposal for modest funding (\$20,000), currently under development, and the WCS Capital Campaign was launched with the inclusion of the Eastern Maya Biosphere as one of the 30 long-term sites. Recently, WCS-Guatemala was contacted by a private restaurant owner in Guatemala City interested in financing jaguar conservation and research. This is a very tentative contact at this point.

Challenges for this activity include the development of a sustainable foundation for conservation activities over a significant period of time.

Key activities and their methodology:

During FY08, as during the previous year, general strategies for increasing the sustainability of our programmatic activities will include the following approaches:

- 1) Continue promoting the financial sustainability of many of the specific projects we initiate, especially those that have the potential to generate revenue or those that might be absorbed by the Guatemalan Government;
- 2) Develop more proposals for funding, and ensure that the capacity for this is spread evenly amongst WCS staff and the partner institutions with which we are collaborating;
- 3) Promote and support the WCS Capital Campaign, as detailed above;
- 4) Continue with plans to graduate some WCS-initiated projects, including macaw protection activities, to our national partner Asociación Balam, which may be able to obtain funding not available to WCS Guatemala (i.e. Debt-for Nature-Swap funding is only available to national NGOs).

Project leaders including Roan Balas McNab, Bayron Castellanos, Victor Hugo Ramos, and Rony Garcia will all collaborate to advance the objectives of this project.

Results/outputs:

Eventual new sources for sustained conservation funding to increase the scope of this work plan over the next year, and also allow activities to persist beyond the end of the GCPII funding.

Threats addressed:

Macaw poaching; all threats identified

Level of Effort (Total Activity 2.9): \$4,000 (USAID/EGAT: \$1,000; WCS: \$3,000)

Activity 2.10 Over-flights of the Maya Biosphere

For the eighth year in a row, WCS-Guatemala received the support of Light Hawk to execute over-flights of the reserve with governmental organizations, NGOs, community-based representatives, and members of the press to educate a wide spectrum of local and international actors about the current state of the Maya Biosphere landscape. Flights occurred this year in March, April, and May, with a total of ~45 hours logged in the air. Over-flights were used to support our research of landscape species and allowed us to pinpoint fire prevention and protection activities in the community forest concessions, Laguna del Tigre, and other areas of the reserve. A majority of the flights were used to guide the development of a 47-kilometer fire break installed in the eastern Laguna del Tigre area. Over-flights also helped us identify illegal narcotics-related agricultural activities in the extreme northeastern sector of the Rio Azul area of Mirador-Rio Azul National Park. This detection, done with CONAP personnel on board, helped alert authorities to the threats in the area, while also allowing Asociación Balam and defenseless park guards to avoid accidentally crossing tracks with presumably well-armed and dangerous individuals.

Key activities and their methodology:

Over-flights during FY08 will once again be coordinated in the field by WCS-Guatemala staff in conjunction with personnel from CEMEC and CONAP-Petén. A fair amount of adaptive management is inherent to coordinating the flights, because we strive to obtain the greatest impact possible, and adapt to changing conditions and threats. However, we expect that a majority of the flights will again focus on helping to consolidate the “shield” (i.e. 47-kilometer fire break) in eastern Laguna del Tigre, as well as fire-spotting and prevention. As in previous years, we will also use the aerial platform as a way to raise public awareness about the threats to the reserve, including deforestation, fire, and other threats including illegal colonization and agriculture. Flights will occur between Jan-May, 2008, based on aircraft and resource availability.

Results/outputs:

Results include greater national awareness of the true conservation status of the MBR, an assessment of the scale and geographic distribution of threats to the forest, reports to CONAP detailing findings, and improved protection of remote sections of the reserve. Aerial photographs taken by WCS and CEMEC technicians will be provided to the press and others to focus attention on the MBR. A final report on the activity will be developed for Light Hawk and provided to USAID.

Threats addressed:

Timber extraction and associated activities; forest conversion; forest fires; uncontrolled human access; and the lack of information at the local-national level.

Level of Effort (Total Activity 2.10): \$15,000 (USAID/EGAT: \$3,000; WCS: \$2,000; LightHawk: \$10,000)

OBJECTIVE 3: Learning and teaching best practices in the Maya Biosphere Reserve landscape and beyond

During FY08, the MBLLP will focus on successful interventions and the development of pilot projects testing new approaches to biodiversity conservation with the involvement of local actors. We will also share results publicly and encourage the participation of other local actors as a way of disseminating the lessons learned during previous years. As in the past, WCS-Guatemala staff will maintain a constant dialogue with local actors such as CONAP, IDAEH, partner communities, ACOFOP, and other NGOs to ensure the feedback loop permits immediate adaptive management adjustments. In regard to the monitoring of forest fires, WCS will make data immediately available to local actors, in some cases on a daily basis. An annual report on the persistence of forest cover will be issued in September 2008.

Level of Effort (Total Objective 3): \$4,000 (USAID/EGAT: \$2,000; WCS: \$2,000)

Activity 3.1 Evaluation of the effectiveness of pilot projects promoted

In FY07, we evaluated two pilot projects using participatory consultations with open-ended questions designed to solicit feedback from the diverse actors involved in a project. In the case of the pilot macaw protection project with the community of Paso Caballos, WCS personnel convened a meeting in the village with the macaw guards and the village leadership council to evaluate the project. Important input provided has helped us to better focus the participatory strategy for scarlet macaw conservation. For example, the community members consulted indicated that the best course of action for NGOs interested in conserving macaws consists of supporting a two-pronged strategy focused on protection interventions and increasing technical support for advances in education, development, and employment opportunities for local villagers. With the checkpoint project, Asociación Balam staff met with representatives of the neighboring forest concessions to obtain feedback on an on-going basis. In Uaxactún in 2007, the participatory evaluation was conducted with OMYC leaders and personnel involved in the project, confirming the importance of our continued engagement in the process.

Key activities and their methodology:

WCS personnel will continue to evaluate those pilot projects underway, using open consultations as previously described. Projects to be evaluated include: macaw protection activities (Activities 2.1); improved control of open access (Activity 2.2); and xate management (Activity 2.4). Evaluations will also include monitoring data for landscape targets such as species and forest cover where available. As in past years, the point of departure for the discussions will be open-ended questions, including:

- 1) Were you consulted before the initiation of the project?
- 2) Are the goals of the project clear?
- 3) Up until now, do you consider the project has been successful? Why or why not?
- 4) What would be required for the project to be more successful?
- 5) Do you desire to continue receiving WCS's support for this particular project?

Personnel responsible for conducting the evaluations will consist of the field leaders for each project. To the degree possible, we will involve CONAP representatives in the evaluations whenever the local groups consider this to be acceptable.

Results/outputs:

Results include brief reports on the feedback obtained on each of the pilot projects detailed above. Final recommendations will be made on the viability and utility of continuing with each project, as well as suggestions/recommendations for the future. These evaluations aid in assuring adaptive program management.

Threats addressed:

Hunting; timber extraction and associated activities; theft of macaw fledglings from nests; unsustainable xate palm frond extraction; forest conversion; forest fires; uncontrolled human access; and the lack of information at the local level.

Level of Effort (Total Activity 3.1): \$2,000 (USAID/EGAT: \$1,000; WCS: \$1,000)

Activity 3.2 Strengthen Maya Biosphere Reserve and global conservation initiatives

MBLLP staff will continue to contribute to crosscutting LLP initiatives organized by the NY headquarters (see Activity 4). WCS-Guatemala will also continue to make public presentations on the results of project work, both in Guatemala and in the United States.

New MBLLP scarlet macaw (satellite collar tracking, nest monitoring and distributions) and jaguar sampling results will be presented at diverse venues within Guatemala and internationally (with WCS-funded participation). Following this, we will attempt to educate the greater Guatemalan public about the threats facing scarlet macaws and jaguars both within the Maya Biosphere Reserve and across greater Guatemala.

Final results of the MBLLP project will be compiled in a final CD and distributed to CONAP and other local and international partners.

Results/outputs:

The main output will be a final CD of the Human, Biological, and Conservation Landscapes produced over the 5-year project. We expect to obtain press coverage for some of our biological studies. The main result of these outputs will be a greater national and international awareness of the state of the Maya Biosphere Reserve, and the key Landscape Species that we are striving to conserve.

Threats addressed:

Lack of information and the local, national, and international levels.

Level of Effort (Total Activity 3.2): \$2,000 (USAID/EGAT: \$1,000; WCS \$1,000)

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 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, to facilitate and harmonize testing and implementation among these core sites, and to capture the synergistic benefits of diverse experiences. This unit guides the development of landscape-scale conservation 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 FY08, the priority for the Coordination Unit will continue to be working with field sites to promote adoption of best practice tools for effective conservation at a landscape scale, consolidating lessons learned and focusing to an even greater extent on sustainability of key activities. We will also be working with our field staff to explore how best to integrate project strategic planning elements within annual financial management.

FY07 Level of Effort (Total Objective 4): \$ 44,504 (USAID/EGAT: \$26,504; WCS: \$18,000)

Activity 4.1 Provide technical assistance to site-based conservation

Members of the NY Coordination Unit will provide technical input to field site operations detailed in the previous sections of this implementation plan, some of which will involve consultation at sites, as previously noted. Drs. Karl Didier and Samantha Strindberg will assist the Mongolia team (especially Dr. Susan Townsend) in developing a spatial model of the distribution of Siberian marmots, a Landscape Species, in the Eastern Steppe. Observational data collected in the steppe over the last two years will be analyzed with statistical spatial modeling techniques to map the current distribution of marmots and examine the potential environmental and anthropogenic drivers of this distribution. The information will be used to refine our Biological and Human/Threat Landscapes and to produce a Conservation Landscape for marmots.

The results can be contrasted to marmot landscapes based on expert opinion and will be used to inform conservation action. Dr. Didier will also provide general technical support to the Mongolian team as they refine Biological, Human/Threat, and Conservation Landscapes for their other Landscape Species, and develop species-specific Conceptual Models and Monitoring Frameworks.

Dr. Samantha Strindberg will travel to Belize City to assist the Belize field team in finalizing their Conservation Strategy. She will also provide technical assistance for the evaluation of the effectiveness of conservation actions within the Glover's Reef Living Seascape (GRLS) by assisting with the analysis of fisheries catch data and other monitoring data. This evaluation process, by means of monitoring the seascape species, threats and interventions, is clearly defined in the GRLS monitoring framework. As the first coral reef marine site to apply the Seascape Species Approach, it is important to document the lessons learned and variations that have developed in applying the approach. In part, these lessons will be captured as part of a series of case studies that will be published together. Similarly, Dr. Didier will assist the Mongolia team in writing a case-study description of the Landscape Species Approach as it has been applied in the Eastern Steppe. The case study will either be published in a scientific journal or in a book. (See Activity 4.3.3).

Dr. Strindberg will also be assisting WCS-Guatemala team with the design and analysis of their monitoring programs. Specialized methods will be applied to meet the challenges of monitoring elusive wildlife over vast areas.

Results/Outputs:

Focused and timely technical assistance and collaboration provided to field sites based on needs, leading to conservation landscape strategies; targeted monitoring of effectiveness; and implementation of processes to increase participation of stakeholders.

Level of Effort (Total Activity 4.1): \$ 8,000 (USAID/EGAT: \$6,000; WCS: \$2,000)

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

Activity 4.2.1 Living Landscapes Program technical manuals

The Living Landscapes Program will continue to produce brief how-to guides, called Technical Manuals, after field testing and fine-tuning the methods at several WCS field sites. In FY08, Dr. Didier will complete two technical manuals on Landscape Species Approach (LSA) tools, one on creating Conservation Landscapes and one on using Conservation Landscapes to evaluate the spatial extent of conservation actions necessary to meet goals and to prioritize areas and interventions. The manuals are designed to provide clear and practical instructions to field practitioners on using a number of conservation tools. The manuals will be translated into Spanish and French and disseminated to WCS projects, partners (government, NGO and local), and other conservation colleagues.

Activity 4.2.2 Landscape Species Approach progress

In FY08, LLP-NY staff will design and lead a 2-week course on the Landscape Species Approach for interested staff from WCS projects around the world. The course will be designed to give a conceptual overview of all the LSA tools and to provide field staff with an opportunity to learn the details of the tools and apply them to their individual sites.

Activity 4.2.3 Integrating strategic planning and project management

LLP-NY staff will continue to work with our field sites and WCS NY operations (i.e., regional program and accounting staff) to roll out a process for integrating strategic planning with operations planning and reporting. In October or November 2007, a final decision will be made on the approach to integration so that it can be used by field projects for the WCS/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 in order to truly measure our conservation effectiveness.

Results/Outputs:

Technical manuals designed, tested in the field and distributed in hard copy and electronically (on CDs and on-line) for wider distribution. A process for integrating project strategic planning with annual financial management will be developed and this draft approach piloted at several sites.

Level of Effort (Total Activity 4.2): \$4,400 (USAID/EGAT: \$2,400; WCS: \$2,000)

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

Activity 4.3.1 Annual meeting of WCS/LLP Staff: Follow Up

In FY08, LLP-NY staff will finish writing and producing a series of "Guidance Briefs" based on information gathered at the LLP Annual Meeting in May 2007 that brought together the 14 LLP sites, including the 4 currently funded by USAID. The Briefs are intended to be an accessible, user-friendly way to introduce new sites to the Landscape Species Approach and to guide users in when and how the LSA works best.

Activity 4.3.2 CMP: leadership, design, writing and audits

LLP-NY staff will continue to play a leadership role in the identification, design and implementation of Conservation Measures Partnership activities. We will work closely with all CMP members to identify best-practice tools to use as models for development of Miradi modules. We will 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 the development of Miradi.

Activity 4.3.3 Development and dissemination of final reports for each site: showcasing and sharing lessons learned

LLP-NY staff will work closely with our field sites to develop a format for and the content of a final report for each site. These reports will likely comprise a series of brief and engaging “stand alone” documents that will showcase the WCS approach to threats-based conservation at a landscape scale while highlighting examples of the innovative ways that WCS field staff effect conservation in populated places outside of protected areas. Wide dissemination of these final reports will allow us to share lessons learned with the conservation and development communities. LLP-NY staff will share early drafts of the format and content with USAID and our GCP partners.

The CU will also lead an effort to produce case studies of how the LSA has been implemented in our various sites. We plan to produce case studies for 4-6 sites (likely Mongolia, Adirondacks, Glover’s Reef, Lao PDR). By the end of FY08, the case studies will be submitted for publication in a peer reviewed journal or compiled into a book or WCS working paper.

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

With funding provided by the John D. and Catherine T. MacArthur Foundation and the National Science Foundation, LLP staff, in collaboration with the WCS Gabon program, the Gabon National Parks Authority and Boston College, conducted a baseline household welfare survey of 1000 households with traditional claims to natural resources within 4 national parks in Gabon, and an additional 1000 control households living outside the influence of these parks. This survey is the first of three surveys planned over the next 5 years to assess the income, health, consumption, natural resource use, and family function impacts of establishing protected areas on local families. Data entry has now been completed, and results of the baseline survey will be analyzed during FY08. This analysis will allow us to assess the role that wild resources and market access play in the welfare status of families proximal to and distant from the parks.

Results/Outputs:

Draft final reports for each site will be generated. The format for these reports and an outline of the content will be made available to GCP partners and USAID. Initial findings from the Gabon Parks and People will be published in a peer-review journal.

Level of Effort (Total Activity 4.3): \$12,000 (USAID/EGAT: \$10,000; WCS: \$2,000)

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

Karl Didier will continue to give general technical support to the WCS sites pursuing the Landscape Species Approach, including especially the Eastern Steppe in Mongolia, the Adirondacks in New York State and the San Guillermo Biosphere Reserve in Argentina.

Samantha Strindberg will ensure that LLP monitoring tools (methods and frameworks) will be leveraged at our other design and demonstration sites, such as within the Nam Kading Landscape, Lao P.D.R., and the Western Forest Complex, Thailand.

Last year, the Living Landscapes Program tools were applied in central Lao, PDR to guide the conservation planning initiative for the Nam Kading National Protected Area in the Bolikhamxai province. This year, LLP-NY will assist WCS-Lao PDR program in writing up a technical manual to provide a detailed description of the development of Biological, Human and Conservation Landscapes for the Landscape Species. In addition, LLP-NY is planning on assisting the WCS-Lao PDR team with the publication of a peer reviewed article to share the lessons learned from applying the LLP tools in the development of a protected area management plan in Lao, PDR.

Last year, LLP-NY provided guidance to the WCS-Portland office on selection of candidate species for the newly defined Arctic-Alaska landscape, assistance with our Species Selection Software and review of a draft suite of Landscapes Species. This year, LLP-NY is planning on finalizing the suite of Landscape Species for the Arctic-Alaska landscape and providing technical support in the development of Biological, Human and Conservation Landscapes for the selected species.

LLP staff member Samantha Strindberg, together with WCS Brazil staff member Fernanda Marques, will conduct a WCS workshop on “Statistical Design and Analysis of Biological Monitoring Programs for Conservation Management” in Manaus, Brazil, for WCS and reserve staff of the Amazon Andes Conservation Program in Brazil, Peru, Ecuador, and Bolivia.

LLP staff will provide technical support to Madhu Rao, a part-time WCS staff member and part-time American Museum of Natural History (AMNH) staff member, in her work on the “Network of Conservation Educators and Practitioners” at the Centre for Biodiversity and Conservation, AMNH. One focus is the development of training materials for trainers of conservation professionals/practitioners and another is the collaboration with TNC staff on developing protected area tools. In both instances, tools developed within the framework of the LSA will be adapted for these wider applications.

LLP staff member David Wilkie will work with WCS-Cambodia staff Tom Clements and Tom Evans, and with the new regional monitoring specialist, Emma Stokes, to formulate a simple community-based monitoring system to track the conservation and livelihoods impacts of community ecotourism enterprises in the Northern Plains.

David Wilkie will also assist the WCS-Rwanda program with the development of a simple human welfare assessment tool that could be used to track household livelihoods in communities bordering protected areas. The tool will be developed following a national survey of social science data collection efforts, and will be designed to mesh easily with these past and ongoing initiatives.

Finally, LLP staff member David Wilkie will assist WCS and national staff in DRC in the use of LLP tools to further develop a national strategy for wildlife conservation.

Activity 4.4.2 Technical Manuals

We will continue 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 available in English, French and Spanish.

Results/Outputs:

Principles, practices, and tools distilled from implementation of the USAID/EGAT-funded sites to other site-based conservation projects around the world. Recent manuals translated into French and Spanish and distributed.

Level of Effort (Total Activity 4.4): \$8,000 (USAID/EGAT: \$0; WCS: \$8,000)

Activity 4.5 Ensure coordination and communication services for the program

The program director and assistant director will 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 will also meet with collaborators, NGOs, governmental officers, and representatives of other stakeholder groups to promote the use of LLP strategies and tools.

Throughout the year, LLP-NY will assist field staff in completing annual Implementation Plans, reporting on Performance Monitoring forms, and submitting Annual Reports. The program director and/or assistant director and other members (as necessary) will attend quarterly USAID/EGAT meetings in Washington DC and will ensure regular reporting and updates to USAID.

Results/Outputs:

The Coordination Unit will serve as a hub for communication regarding the Program among WCS field staff, core sites, current and potential conservation partners and interested members of the general public. The CU will ensure timely preparation and submission of USAID reports.

Level of Effort (Total Activity 4.5): \$8,104 (USAID/EGAT: \$4,104; WCS: \$4,000)

Activity 4.6 Coordinate participation in the design and implementation of the USAID GCP evaluation

The program director and assistant director will continue working with USAID, the ARD evaluation team and our field staff to ensure that the design and implementation of the end-of-program evaluation is consistent with the TOR, and minimizes the personnel and financial burden on field programs. The program director will discuss the evaluation with appropriate NY-based staff and will keep them apprised as design and implementation move ahead. The assistant director will liaise with site staff to make them aware of the purpose of the evaluation and to ensure they are able to participate fully in web surveys and any follow-up interviews. The director and assistant director will work closely with sites targeted by the evaluation team for a field visit, and will ensure that project staff and collaborators are ready to participate fully and that logistic requirements for the visits are not overly burdensome. The director will set aside time to participate in all visits to WCS sites planned by the evaluation team. The assistant director will ensure that the results of the evaluation are made available to all field site directors and to appropriate WCS staff in NY.

Level of Effort (Total Activity 4.6): \$4,000 (USAID/EGAT: \$4,000; WCS: 0)

FY08 TRAVEL DETAILS:

Name	Destination	Reason
Project Director (D. Wilkie) or Assistant Director (L. Orti)	Boston or New York to Guatemala	Program oversight and Management support